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Enlightening the Path for Next Generation of Gynaecologists

Dedicated Issue:
Urogynaecology

AOGD SECRETARIAT
Department of Obstetrics & Gynaecology,
3076, Teaching Block, IIIrd Floor, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-110029
Tel.: 011-26546603, 26593221 E-mail: secretaryaogd2019@gmail.com
Website: www.aogd.org

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Department of Obstetrics and Gynecology
3076, Teaching Block, IIIrd Floor
All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110029
Tel No: 011-26546603, 26593221
Email: secretaryaogd2019@gmail.com
www.aogd.org

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Dr J B Sharma
Ph. No. 011-26546603; Email: secretaryaogd2019@gmail.com

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From the President's Pen

Friends, you have reposited faith in Team AIIMS to carry forward the mission of AOGD during 2019-20. I wish to express my sincere thanks for the confidence reposited in me and my team from AIIMS, New Delhi. As AOGD, we are the largest team of gynaecologists in India. Over the year all of you have strived to carry forward mission of care with compassion, best care at affordable prices and helping less fortunate section of the society. We promise to carry forward same mission with even greater zeal. We have chosen a slogan "Enlightening the path for next generation of gynaecologists".

I look forward to all of you especially seniors to produce a dedicated team of gynaecologists for the future. I am open to suggestions for running activities of AOGD in a professional manner.

Dr Sunesh Kumar
President, AOGD

Vice President's Message

Dear Members,

Namaskar,

Greetings for a New Year 2019-20 of our AOGD.

It gives me great pleasure in taking over as Vice President from previous team of AOGD from LHMC. I am fortunate that I am blessed by the greatest of teachers from All India Institute of Medical Sciences, New Delhi.

After completing my tenure as Honorary Secretary and Chairperson of the Safe Motherhood Committee, I do hope that I shall be serving the AOGD in a better way.

'We for Stree- Safer, Stronger, Smarter' is the FOGSI Theme and this should be the motto of each member not only for the current year but forever. By all means, the health and quality of life of women should be made comfortable in the interest of the nation. A step in this direction would be directed towards counseling, education and awareness for both the women and the service providers.

I congratulate the editorial team for bring out first issue of this year. The bulletin is an opportunity to all of us to keep ourselves updated with the advances in knowledge. I am sure that editorial team will strive hard to provide quality information and evidence based practices.

Dr Ashok Kumar
Vice President, AOGD

From the Secretary's Desk

Dear friends,

As the new Secretary of AOGD, I welcome you all.

Our predecessors have done a wonderful job, have set high standards and I congratulate them. We hope to soar to greater heights and will not disappoint you.

Today, Obstetrics & Gynecology as a branch has widened its horizons, branching into various subspecialities. There is a need to have knowledge of these subspecialities to optimize care of each and every woman. We want to touch the lives of each young gynecologist and Enlighten their path with knowledge, hence our theme, "Enlightening the Path of Next Gen Gynecologists". We propose to have dedicted academic programmes emphasizing on evidence based care. We would also like to emphasize on ensuring Quality Care for every woman.

It is indeed our proud priviledge to be at helm of AOGD at the point when it is the largest Society. We solicit your co-operation to take AOGD to new heights in academic excellence. We look forward to a fruitful year.

The annual conference of AOGD will be held on 28-29th September, 2019.

Keeping in line with our theme the current issue is dedicated to the subspeciality of Urogynecology

Dr Vatsla Dadhwal
Hon. Secretary

Save the Dates

First Announcement

41st Annual Conference of
Association of Obstetricians & Gynaecologists of Delhi (AOGD)
Date: **28th & 29th September, 2019**
Venue: **Eros Hotel, Nehru Place, New Delhi**

Monthly Clinical Meeting

Monthly Clinical Meet will be held at Sitaram Bhartia Hospital, New Delhi on **Friday, 31st May, 2019 from 04:00pm to 05:00pm**.

From the Editor's Desk

Dr J B Sharma
Editor

Dr Reeta Mahey

Dr P Vanamail

Dr Vidushi Kulshreshtha

Co-Editors

Dear esteemed AOGD members,

Season's greetings from the new editorial team!

It gives us immense pleasure to present the first issue of AOGD Bulletin during the tenure of AOGD office at All India Institute of Medical Sciences, New Delhi. Lady Hardinge team led by Dr. Ratna Biswas did a commendable job in providing quality bulletin issues. We appreciate their efforts and the help provided by Dr. Biswas in handing over. We've decided to have different theme issues for all next twelve months during our tenure at AIIMS. The first theme is Urogynaecology.

We have various articles related to the field of Urogynaecology in this issue by esteemed AOGD experts in the area. We have an excellent article on 'Pelvic organ prolapse', by Dr. Amita Jain, Urogynaecologist from Medanta Medicity Hospital, Gurugram, which will be useful for our esteemed readers in their day-to-day practice. Dr. Achala Batra, Professor of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, has a special interest in Urogynaecology and writes on 'Conservative management of pelvic organ prolapse.' She has especially highlighted the role of pessaries which will be very useful for the readers in their day-to-day practice. It will also highlight the importance of avoiding unnecessary surgeries on these women.

Overactive bladder syndrome plays havoc in lives of many women with many unwanted symptoms. Proper history-taking, including medical, neurological and drug history, thorough examination and judicious use of investigations can help in proper diagnosis & treatment of these women as highlighted in the article by Dr. Tanudeep, Urogynaecology fellow of AIIMS.

Urinary tract infections (UTI) are common urogynaecological diseases in Obstetrics & Gynaecology practice. If ignored and left untreated, lower UTI can become upper UTI causing pyelonephritis, which can be a serious & life-threatening condition and can cause miscarriages, foetal growth restriction, preterm labour and intra-uterine death. We have an interesting article by Dr. Bharti Uppal Nayyar, Urogynaecology fellow and co-authors in AIIMS, for the benefit of our esteemed readers.

Stress urinary incontinence is a major problem faced by women, especially elderly women interfering with their daily chores in life. It can be managed by conservative methods like pelvic floor exercises, bladder training, medicines in mild to moderate cases, but usually needs surgical treatment for severe SUI. Traditional management remains Burch's colposuspension, which can be done by open or laparoscopic methods. Tension-free tapes (both abdominal & obturator) are also available which are minimally invasive treatments. Rectus fascia sling surgery can also be done. We have an interesting article on it by Dr. Monika Gupta, Associate Professor, Deptt. of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, New Delhi.

Dr. Rishi Nayyar, Assistant Professor, Department of Urology, AIIMS, and his team give us an insight into the urodynamics for Urogynaecology.

Rectovaginal fistula is the most distressing condition faced by a woman and is a social stigma. It has to be addressed diligently for better quality of life. It's optimum repair can make a huge difference and is explained in an excellent manner by Dr. Kavita Pandey, fellow, Urogynaecology, AIIMS, New Delhi.

Dr. Karishma Thariyani does journal scan on interesting articles in urogynaecology.

I hope that the esteemed readers will find the bulletin useful in their day-to-day practice. We shall welcome any comments, suggestions and articles contributed by our esteemed AOGD members for improving the Bulletin further.

We wish you all happy reading!

Editorial Team, AIIMS

Basic Statistical Methods for Obstetricians and Gynaecologists

Vanamail Perumal
Associate Professor of Statistics & Demography, Obstetrics & Gynaecology Department, All India Institute of Medical Sciences, New Delhi

Introduction

Medical statistics is an essential part of establishing the evidence base in all areas of medicine. With the advent of many statistical packages that can be used for rapid data processing capabilities. However, medical professionals can go a long way towards creating, critically evaluating and integrating this evidence with an understanding of key statistical concepts. It should be stressed that a statistically flawed study is also an unethical study[1], which may lead to rejection for publication. This article outlines some concepts and explains how to carry out an appropriate statistical test.

Key Concepts

Target populations vs samples

The target population is a part of the general population and may be defined as all individuals satisfying the specific characteristics of study objective (Eg. All women of the reproductive age group in Delhi may act as target population to assess anaemia prevalence among women of the reproductive age group in Delhi). It is essential to be clear about the characteristics of the target population of interest. This clarity is achieved by the use of appropriate and justified inclusion and exclusion criteria when recruiting the study sample. The concept of 'representativeness' may be met by random selection and random allocation, which assumes importance in statistics. RCT is the superior of all prospective clinical studies[2].

Data types

Statistical analysis programs generally require all data for analysis in numerical form. Some kinds of data will naturally be in numerical form (e.g. systolic blood pressure, fasting plasma glucose concentration, baby's birthweight), while other observations may readily be coded into numerical form (e.g. none, mild, moderate, severe: coded to 0, 1, 2, 3; survived, died: coded to 0, 1). In some cases, however, long and rigorous development and validation process are required to capture complex concepts in numerical form (e.g. anxiety/depression, mobility/function and quality of life). Type of data may be classified as follows;

Ratio data: constant units along the scale, with zero origin and will include most physical quantities such as mass, length, pressure and so on.

Interval data: constant units along the scale, but no zero origin. The data from many assessment tools (e.g. for quality of life, anxiety/depression or mobility/function).

Ordinal data: An order of increasing or decreasing scale with no guarantee of consistency of unit size (e.g. pain score, satisfaction scores and some compound measures).

Nominal data: categorical, with no ranking order scale (e.g. type of delivery or gender).

Two other data types are important in the medical field; binary data (survived/ died, not diseased/ diseased; generally coded 0/1) and count data (number of previous pregnancies, frequency of asthma attacks and so on).

Descriptive/summary statistics:

Prior to summarize the data it is important to identify the data type as Continuous (ratio/interval) or categorical. All continuous data may be subjected to test if they follow normal distribution using a statistical test "Kolmogorov-Smirnov" and if P-value of this test is more than 0.05 implying that the data follows normal distribution. As an instant rule of thumb if number of observations is more than 30 and standard deviation is less than 25% of mean, it may be taken as approximate to normally distributed data. Otherwise the data will be treated as skewed or non-normal data.

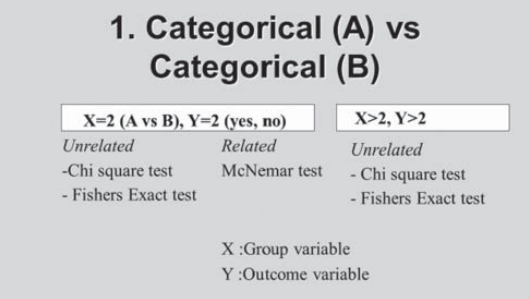
Summary statistics for normally distributed data; Mean, SD and Range values

Summary statistics for skewed data; Median and inter-quartile range (25th & 75th percentile)

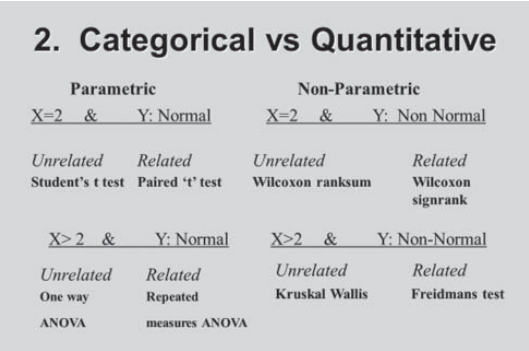
Categorical data (nominal, binary and some ordinal data) should be summarized using the actual numbers (with percentage in parentheses) in each category.

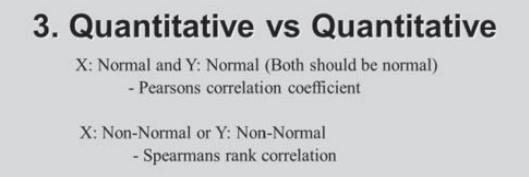
Inferential statistics (Bi-variate analysis): Applying statistical procedures on the results obtained from samples to make inference at the target population level is called inferential statistics.

List of statistical tests to be performed are given for various situations.



Fishers Exact test is a special case of Chi-square test and it can be applied whenever an expected cell frequency is less than 5.





Apart from statistical significance (P<0.05) one should also look into effect size and one way of calculating the effect size is in terms of a 95% confidence interval. The strict meaning of the confidence interval is that, if the study were to be repeated over and over again, the confidence interval will include the true value in 95% of the repetitions.

Statistical significance and clinical importance

The two concepts of statistical significance and clinical importance should not be confused. In a small study a clinically important effect, such as a 40% difference in treatment success rates, may have been found in the groups studied, but the small sample size may have meant that this effect was not found to be statistically significant. Conversely, a very large study may find a very small effect, of no clinical importance, to be statistically significant.

Odds ratio (OR) applicable for retrospective study:

If the probability of an event is given by Pevent, the Odds = Pevent/(1 – Pevent). We estimate the odds as: odds = number of people having the event/number of people not having the event. The odds ratio is then given by the ratio of the odds in the two groups to be compared.

An OR of 1 represents equal odds in both groups (i.e. no difference). The OR in one direction is between zero and 1; in the other direction it is between 1 and infinity.

Risk ratio – relative risk (RR) applicable for prospective study:

The risk ratio is more intuitively meaningful than the odds ratio and is simply the ratio of the probability of the event in each group, estimated by the ratio of the proportions measured in each group.

The reason that odds ratios are often used instead of risk ratios is because the odds ratio lends itself more easily to mathematical (logistic regression) modelling where we wish to assess the simultaneous effect of multiple predictors, or where we wish to control for potential confounding factors. When the prevalence of the condition/event of interest is relatively small (below 10%) the odds ratio is very close to the risk ratio and is often loosely interpreted as if it is the same as a risk ratio. However, as the prevalence increases the odds ratio becomes progressively larger than the risk ratio, so needs to be interpreted with caution in these circumstances.[3] In case–control studies it is generally problematic identifying the risk of disease because of the methods of sampling.[4] In such studies, it is the odds of 'exposure' that are compared between the cases and controls.

Conclusion

Some of the key fundamental principles underpinning a statistical analysis have been introduced. Effect size estimation and its associated uncertainty (confidence interval) are more informative than P-values and should be presented wherever possible. Finally, whatever the 'statistical significance' of the result, ultimately what matters is its clinical importance. The judgement regarding clinical importance is in the domain of the clinician and answers cannot be provided by the 'statistics'.

References

1. Altman DG. Statistics and ethics in medical research. BMJ 1980;281:1182–4.
2. Altman DG. Practical Statistics for Medical Research. London: Chapman & Hall; 1991.
3. Viera AJ. Odds ratios and risk ratios: what's the difference and why does it matter? South Med J 2008;7:730–4.
4. Pearce N. What does the odds ratio estimate in a case-control study? Int J Epidemiol 1993;22:1189–92.

Pelvic Organ Prolapse

Amita Jain
Fellow Urogynaecology (Australia), Senior Consultant Urogynaecology, Institute of Urology & Robotic Surgery, Medanta - The Medicity, Gurugram

Introduction

Pelvic organ prolapse (POP) is a common and distressing condition and its incidence is increasingwith increase in life expectancy of women, all over the world. Also the increasing rate of scientific and professional interchanges and the increasing referral of these patients to highly specialized centersfor site-specific repairs in last few decades, has raised the obvious need for developing a standardized, reliable and clear staging method to report prolapse.

The prolapse was traditionally classified by the degree of anatomical deformity, depending on the site of the defect and the presumed pelvic viscera that are involved. The unrealistic certainty regarding the structures on the other side of the vaginal bulge, many times creates a false assumption.Therefore despite introduction of the large number of different grading systems, the issue of Intra- and interobserver variability has always created a confusion due to difficulty in comparing successive examinations over time in the same woman or between different women[1].

Background History

Pelvic Organ Prolapse Quantification system (POP-Q) refers to an objective, site-specific system for describing, quantifying, and staging pelvic support in women and was first published in 1996[2]. Later studies confirmed its utility as a standardized tool for documenting, comparing, and communicating clinical findings with proven interobserver and intraobserver reliability[3].

The system relies on specific measurements of defined points in the midline of the vaginal wall. The fixed reference point used for measurement remains the hymeneal ring and specific measurements at nine sites are recorded in a tic-tac-toe grid. The hymen is selected as the reference point rather the introitus because it is more precisely identified[4]. The terminology avoids assigning a specific label, such as cystocele or rectocele, to the prolapsing part of the vagina, acknowledging that the actual organ(s) above the prolapse cannot be frequently determined by a physical examination. This has improvedinterobserver agreement and reliability[5].

Soon it became popular among the gynecologists and urogynecologists all over the world despite availability of many other systems [6] and also got approval by the International Continence Society (ICS), the American Urogynecologic Society (AUGS), and the Society of Gynecologic Surgeons(SGS) for standardised method of reporting female pelvic organ prolapse. Moreover, in an effort to encourage its worldwide acceptability in routine care and to create an encoding tool useful to both the clinician and researcher, the Standardization Subcommittee of the ICS modified the Pelvic Organ Prolapse Quantification (POP- Q) system in 2002[7].

But unfortunately, many clinicians find it time-consuming resulting in failure of widespread clinical adoption of this system. However, it has been shown that the routine use of the POP-Q system significantly decreases the amount of time needed to finish the required assessment[3]. It takes around 2.05 minutes by experienced examiners and around3.73 minutesby new examiners to finish data collection of one patient. Even high correlation has been seen between the POP-Q findings in both left lateral and lithotomy positions[8]. As while using this system, even small increases in prolapse can be recorded efficiently, this quality makes it a first choice for clinicians for research work. Because of its proven excellent interobserver and intraobserver reliability[3], It has been extensivelyused for longitudinal follow-up of women with prolapse[9] and also for outcome reporting after repair surgeries since 1996[6].

Method of using POP-Q System

There are six defined points for measurement in the POPQ system - Aa, Ba, C, D, Ap, Bp and three others landmarks: GH, TVL, PB. Each is measured in centimeters above or proximal to the hymen (negative number) or centimeters below or distal to the hymen (positive number) with the plane of the hymen being defined as zero (0).

There are three reference points anteriorly (Aa, Ba, and C) and three posteriorly (Ap, Bp, and D). Points Aa (roughly corresponds to urethrovesical Junction) and Ap are 3 cm proximal to or above the hymenal ring anteriorly and posteriorly, respectively. Points Ba and Bp are defined as the lowest points of the prolapse between Aa anteriorly or Ap posteriorly and the vaginal apex. Anteriorly, the apex is point C (the

most distal edge of cervix), and posteriorly is point D (pouch of Douglas or posterior fornix), the latter represents the level of utero-sacral ligament attachment to the posterior cervix and difference between C and D measurements of more than 4 centimeters is indicative of cervical elongation.In women after hysterectomy, point C is the leading edge of vaginal cuff and point D is omitted (Figure 1)[4].

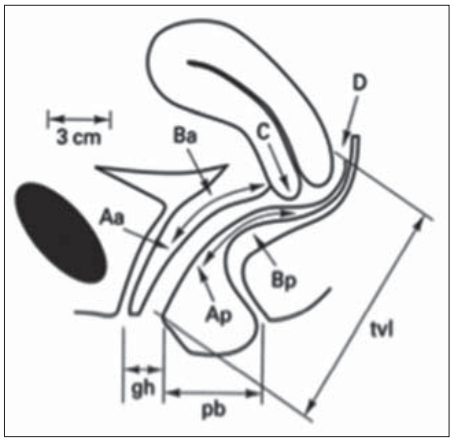


Figure 1. Points and landmarks for POP-Q system examination. Aa, point A anterior, **Ap**, point A posterior, **Ba,** point B anterior; **Bp**, point B posterior; **C,** cervix or vaginal cuff; **D**, posterior fornix (if cervix is present); **gh**, genital hiatus; **pb**, perineal body; **tvl**, total vaginal length.

Three other measurements are taken: the greatest vaginal depth at rest (tvl), the genital hiatus (gh) from the middle of the urethral meatus to the posterior hymenal ring, and the perineal body (pb) from the posterior aspect of the genital hiatus to the mid-anal opening.

Once the measurements are taken, the patients are assigned to the corresponding stage:

Stage 0: no prolapse is demonstrated

Stage 1: the most distal portion of the prolapse is more than 1 cm above the level of the hymen

Stage 2: the most distal portion of the prolapse is 1 cm or less proximal or distal to the hymenal plane

Stage 3: the most distal portion of the prolapse protrudes more than 1 cm below the hymen but no farther than 2 cm less than the total vaginal length (for example, not all of the vagina has prolapsed).

Stage 4: vaginal eversion is essentially complete.

Limitations

Despite of being quite useful, there are still some shortcomings of this system. The learning curve for this system is higher than other traditional staging, and according to survey conducted in 2006, this system was only used clinically by about 40% of members of ICS and AUGS, indicating overall low adoption of this system by specialists[10]. Patient position might also affects reproducibility. The measurements are usually taken with the patient in the dorsal lithotomy position. The prolapse will be more severe with the table raised at the head end to a 45- degree angle[11]. The system also does not identify unilateral or asymmetrical defects eg. Lateral or central cystocele.

In an effort to make it more acceptable, POP- Q simplified system is recently being introduced, which is based on POP-Q with similar ordinal staging but with only four points measured instead of nine (Aa, Ba, C, D). On comparing with the standard POP-Q system,theinterobserverreproductibility and intersystem reliability showed better results with this new system[5].

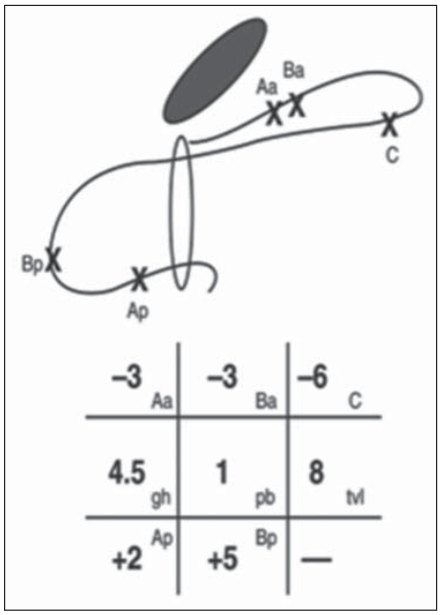


Figure 2: An example of measurements using the POP-Q system.
Grid and line diagrams of predominantly posterior support defect. Leading point of prolapse is upper posterior vaginal wall, point Bp (+5). Point Ap is 2 cm distal to hymen (+2) and vaginal cuff scar is 6 cm above hymen (-6). Cuff has undergone only 2 cm of descent because it would be at -8 (total vaginal length) if it were properly supported. This represents stage III Bp prolapse[16].

Future

Two-dimensional translabial scanning is now a standard technique and has been reported to assess the position and mobility of the bladder neck and proximal urethra, stress incontinence, bladder wall thickness (with transvaginal scanning as well), levatorani activity (with perineal scanning), and prolapse

quantification[12]. Multiple two-dimensional images can be combined, like slices of bread, to yield a three-dimensional image, which has been used to image the urethra, levatorani complex, paravaginal supports, prolapse, and synthetic implant materials[13]. Though still Ultrasound is not recommended in the primary evaluation of women with incontinence and prolapse and is an optional test for complex problems[14].

Similarly MRI may be helpful in patients with complex organ prolapse to supplement the physical examination. Its clinical utility in comparison with physical examination and in the decision for surgical management has yet to be demonstrated[14]. Nevertheless, the dynamic MRI of the pelvic floor proved itself as an excellent tool for assessing functional disorders of the pelvic floor, including organ prolapse and incontinence. Recent studies suggest that dynamic MRI correlates very well with clinical examination in detection of the prolapse but may offer superior results when it comes to staging[15]. This investigation seems to be also useful in assessing the results of surgery for pelvic organ prolapse, even when the patient has no clinical symptoms.

References

1. Persu C1, Chapple CR, Cauni V, Gutue S, Geavlete P. Pelvic Organ Prolapse Quantification System (POP-Q) - a new era in pelvic prolapse staging. J Med Life. 2011 Jan-Mar;4(1):75-81. Epub 2011 Feb 25.
2. Bump RC, Mattiasson A, Bo K, Brubaker LP, DeLancey JO, Klarskov P , Shull BL, Smith AR. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction., Am J ObstetGynecol 1996 Jul, 175(1):10-7.
3. Hall AF, Theofrastous JP, Cundiff GW, Harris RL, Hamilton LF, Swift SE, Bump RC. Interobserver and intraobserver reliability of the proposed International Continence Society, Society of Gynecologic Surgeons, and American Urogynecologic Society pelvic organ prolapse classification system, Am J ObstetGynecol 1996 Dec,175(6):1467-70, discussion 1470-1.
4. Bump RC, Mattiasson A, Bo K, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. Am J ObstetGynecol 1996, 175:10-17.
5. Steven Swift, Sarah Morris et al. Validation of a simplified technique for using the POP-Q pelvic organ prolapse classification system, IntUrogynecol J (2006) 17: 615-620.
6. Muir TW, Stepp KJ, Barber MD. Adoption of the pelvic organ prolapse quantification system in peer- reviewed literature., Am J ObstetGynecol 2003 Dec,189(6):1632-5, discussion 1635-6.
7. Abrams P, Cardozo L Fall M, et al. The standardisation of terminology of lower urinary tract function: Report from the Standardisation Subcomitee of International Continence Society, Am j ObstretGynecol 2002, 187:116- 126.
8. Digesu GA, Athanasiou S, Cardozo L, Hill S, Khullar V. Validation of the pelvic organ prolapse quantification (POP-Q) system in left lateral position, IntUrogynecol J 2009, 20:979-983.
9. Bland DR, Earle BB, Vitolins MZ, et al. Use of the pelvic organ prolapse staging system of the International Continence Society, American Urogynecologic Society and Society of Gynecologic Surgeons in perimenopausal women. Am J ObstretGynecol 1999, 181: 1324- 1328
10. Auwad W, Freeman RM, Swift S. Is the pelvic organ prolapse quantification system (POPQ) being used? A survey of members of the International Continence Society (ICS) and the American Urogynecologic Society (AUGS). IntUrogynecol J Pelvic Floor Dysfunct 2004, 15:324-327.
11. Barber MD, Lambers A, Visco AG, et al. Effect of patient position on clinical evaluation of pelvic organ prolapse. ObstetGynecol 2000, 96:18-22.
12. Dietz HP. Ultrasound imaging of the pelvic floor: I. Two-dimensional aspects. Ultrasound ObstetGynecol 2004, 23:80-92.
13. Dietz HP. Ultrasound imaging of the pelvic floor: II: Three-dimensional or volume imaging. Ultrasound ObstetGynecol 2004, 23:615-625.
14. Tubaro A, Artibani W, Bartram CI, et al. Imaging and other investigations. In: Abrams P, Cardozo L, Khoury S, Wein A, ed. Incontinence: 3rd International Consultation, Plymouth, UK: Health Publications, 2005:707- 797.
15. Novellas S, Mondot L, Bafghi A, Fournol M, Baudin G, Coco L, Bongain A, Chevallier P : Evaluation of two classifications systems for pelvic prolapse on dynamic MRI, J Radiol 2009 Nov; 90(11 Pt1):1717-24.
16. Bump RC, Mattiasson A, Bo K, et al: The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. Am J ObstetGynecol 1996;175:10-17.

Conservative Management of Pelvic Organ Prolapse

Achla Batra[1], Karishma[2]
[1]Professor Obs Gyn, VMMC & Safdarjung Hospital, [2]Associate Consultant Center for Urogynecology and Pelvic Health

Introduction

Pelvic organ prolapse (POP) is a distressing condition affecting more than 50% of women over the age of 50 years. With the increase in the life span and awareness, the prevalence of prolapse is expected to increase further in the coming future. It is associated with bothersome symptoms which may vary from patient to patient. Injury to the Levator Ani muscle and the connective tissues of pelvic floor have been implicated in the etiology of prolapse. Risk factors include multiparity, increasing age, previous vaginal deliveries, increasing BMI, heavy manual labor and poor nutritional status.

For many years surgery has been the mainstay of treatment for pelvic organ prolapse and is still the most durable option for severe degree prolapse. Due to the increasing acceptability and awareness about the pelvic floor dysfunction amongst women more and more women are now presenting at an earlier stage with mild to moderate degree prolapse. With the advancement in treatment options, the spotlight is now shifting from surgical management to conservative treatment options. The main aim of this article is to understand the various conservative treatment options available for the management of pelvic organ prolapse and criteria for patient selection so as to optimize treatment outcomes.

The aims of conservative treatment options for POP are-

1. to prevent the prolapse becoming worse;
2. to help decrease the frequency or severity of symptom caused by prolapse (vaginal bulge/ protrusion, pelvic heaviness, vaginal symptoms, backache, urinary, bowel and sexual symptoms)
3. to avert or delay the need for surgery.

Conservative Treatment Options

The three main conservative treatment options available are:

1. Lifestyle modifications
2. Pelvic floor muscle training
3. Pessary

Lifestyle Modifications

The main lifestyle modifications include weight loss, reducing stressful activities (e.g. heavy lifting, coughing) and treating constipation. (Box 1) These interventions seek to avoid exacerbation of the prolapse by decreasing intra-abdominal pressure and are based on the understanding of etiopathogenesis of prolapse. The extent to which any of these lifestyle changes are effective in managing prolapse is unknown as there have been no randomized controlled trials of lifestyle interventions in this population.

Avoid constipation
Weight loss
Avoid heavy lifting
Avoid high impact exercise
Stop smoking
Avoid bladder irritants such as caffeine

Box 1

Observational studies have shown an association with increased body weight and POP symptoms. This would suggest that weight reduction and control can help in preventing and possibly reducing the progression of prolapse. Although at present there are no studies to show the effectiveness of weight reduction on prevention or reduction of POP.

Studies have also shown an association between constipation and symptoms of prolapse but there is no evidence to support a causal relationship. Prolapse of the posterior vaginal wall, may lead to problems with evacuation, but conversely constipation can cause straining which contributes to the development of prolapse. It is suggested therefore that women with POP symptoms should be advised to avoid constipation. This could be done by brining about changes in fluid and diet and also by learning the right defecation technique. These techniques are best offered in combination with other treatment options. It should be stressed to the woman that even if surgical management is selected, this lifestyle advice must be adhered to post-operatively to enhance long-term success.

Pelvic Floor Muscle Training

Pelvic floor muscles play a critical role in supporting the pelvic organs and keeping the genital hiatus constricted both at the time of resting and straining. It has been hypothesized that pelvic floor muscle

training acts by two ways. Firstly, by increasing the muscle mass and causing elevation of the levator plate to a higher position in the pelvis. Secondly,by improving muscle coordination and timing to provide pelvic organ support at time of rise in intraabdominal pressure.An intentional, effective pelvic floor muscle contraction prior to and during effort such as a cough or sneeze (known as the Knack) has been shown to reduce leakage from stress and may also help in reducing symptoms of POP.

Currently the promotion of PFMT for prolapse varies between treatment centers with some providing only a patient information leaflet and others giving individual instruction by a physiotherapist. Research shows that verbal teaching of pelvic floor exercises alone is not sufficient. It is suggested that 15% of women are incorrectly 'bearing down' when trying to carry out these exercises. In women with prolapse, this could further add to the strain on the area and worsen the condition.

Thus ideally PFMT should be delivered by a specialist in pelvic floor rehabilitation, such as a pelvic floor physiotherapist, who will see a woman for a series of appointments in order to assess, teach and monitor progress. Pelvic floor muscle training is considered most often for women with stage I or II prolapse, and some authors have recommended that supervised PFMT should be used for all suitable patients as a first-line treatment, much in the same way as it is for urinary incontinence where there is strong evidence of its effectiveness. For women with prolapse beyond the hymen it is thought PFMT may be less effective.

Pessary

Pessaries offer a safe, simple and inexpensive non-surgical option for management of prolapse.

Indications

- Patient preference for nonsurgical treatment.
- Presence of severe medical comorbidities that make the patient a poor surgical candidate.
- Need to delay surgery for several weeks or months.
- Recurrent POP or SUI and patient preference for avoidance of repeat surgery. However, prior prolapse surgery and prior hysterectomy are risk factors for failure to fit a pessary.
- Vaginal ulcerations caused by severe POP. Reduction of POP through use of a pessary and application of vaginal estrogen cream both promote healing of the ulcers within three to six weeks, which is useful prior to surgical repair.
- Current pregnancy, to manage POP and cervical insufficiency.
- Desire for future childbearing. The benefit of surgical repair of POP may be nullified by subsequent pregnancy and childbirth.

Contraindications

- Local infection – Active infections of the vagina or pelvis, such as vaginitis or pelvic inflammatory disease, preclude the use of a pessary until the infection has been resolved.
- Exposed foreign body – An exposed foreign body such as vaginal mesh should preclude pessary use until the exposure of the foreign body has been resolved.
- Latex sensitivity – The Inflatoball pessary is made of latex; therefore, it is contraindicated in women with latex allergies. The other pessaries are nonallergenic.
- Noncompliance – Noncompliance with follow-up could be harmful since an undetected and untreated erosion could put the patient at risk of developing a fistula.
- Sexually active women who are unable to remove and reinsert the pessary – Inability to manage the pessary around coital activity could be discouraging.

Modern pessaries are made from a variety of materials including rubber, clear plastic, soft plastic with metal reinforcements and silicone. (Figure 1) A range of pessaries exist which may be divided into:.

1. Support pessaries: Support pessaries lie along the vaginal axis, with the posterior component sitting in the posterior fornix and the anterior component coming to rest just under the symphysis pubis, thus providing a support for the prolapsing pelvic organs. E.g: ring, Gehrung. They are compatible with sexual intercourse and are easy to remove and reinserted after cleaning by the patient herself.
2. Space filling pessaries: They occupy space in vagina thereby obstructing the prolapse from coming out e.g. Gellhorn, Cube, Donut, Inflatoball. These do not allow sexual intercourse as they occupy the vagina. Due to the suction created, space occupying pessaries are more challenging to remove, therefore many have a stalk to which the clinician can apply traction and then use the other hand to break suction between the pessary and the vaginal wall.

At present, there is a lack of evidence to determine the most suitable pessary for different patient symptoms. The support pessary is used to treat all stages of POP and SUI, whereas the space-filling pessary is mostly

used for severe POP. Space-filling pessaries and larger size pessaries are often needed for severe prolapse (stage III or IV), as vaginal capacity can increase significantly as a result of levator atrophy and an enlarged vaginal introitus can allow a support pessary to rotate and be expelled.

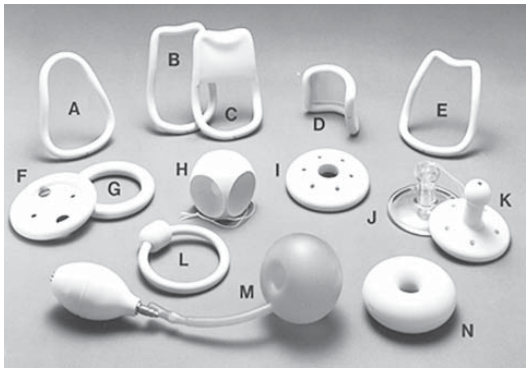


Figure 1: Different types of Pessaries
(A) Smith; (B) Hodge; (C) Hodge with support; (D) Gehrung; (E) Risser; (F) Ring with diaphragm; (G) Ring; (H) Cube; (I) Shaatz; (J) Rigid Gellhorn; (K) Flexible Gellhorn; (L) Incontinence ring; (M) Inflatoball; (N) Donut.

Fitting the pessary

Women to be fitted for a pessary are first examined with an empty bladder in the dorsal lithotomy position to stage the prolapse and assess vaginal atrophy. Vaginal introitus size, vaginal length, and prolapse stage are used to guide selection of pessary type and size. However, pessary fitting is mostly a trial and error process, and several pessaries may be needed to obtain an adequate fit. Ultimately, the largest pessary that is comfortable is prescribed.

The type of pessary likely to be needed is determined by measuring prolapse stage and the size of the vaginal introitus, the latter is gauged by the number of fingerbreadths accommodated across the posterior fourchette. If the vaginal introitus size is 1 to 2 fingerbreadths and the prolapse stage is II-III, a ring pessary is likely to be successful, whereas with a 3 to 4 fingerbreadth introitus or stage IV prolapse, a Gellhorn pessary is more likely to be successful Next, the size of the pessary that will be needed is estimated by inserting two fingers to measure the width and length of the vagina. It is important to get an overall estimate of the vaginal length and vaginal width together. If the vaginal length has been shortened by a prior hysterectomy, or if the vaginal width has been narrowed by a prior prolapse surgery, then only smaller size pessaries will fit. (Figure 2)

Pessaries are inserted into the vagina with the dominant hand, while the nondominant hand separates the introitus and depresses the perineal body. A nonlubricated glove is used, and a small amount of lubricant is applied to the leading edge of the pessary; if too much lubricant is used, the pessary will be too slippery to control. After the pessary is inserted into the vagina, the woman is asked to strain and cough repeatedly on the examination table, ambulate in the office, and void and strain while sitting on a toilet. This helps determine if she will be able to retain the pessary and void when she returns home, and if bothersome urinary incontinence will develop. She should have a negative cough stress test following pessary placement, as she is unlikely to be satisfied if there are significant stress urinary incontinence (SUI) symptoms.

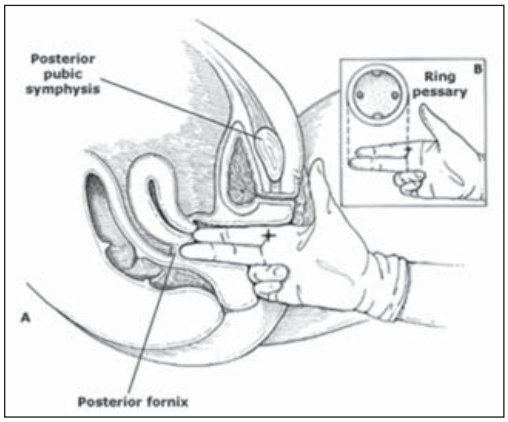


Figure 2: Estimating Pessary Size

Pain with insertion and removal of the pessary is a problem for some women, and applying lignocaine cream 5 minutes before pessary insertion and change helps in reducing pain

Women should be reassured that it is not an emergency if the pessary is expelled; they should just bring the pessary back to the office and a different type or size of pessary will likely be effective.

Follow-up

A follow-up visit is scheduled one to two weeks later. The patient is asked if there were any side effects, such as discomfort, expulsion, persistent bulge or pressure symptoms, persistent or de novo stress or urgency urinary incontinence, difficulty with urination or bowel movements, or vaginal bleeding or discharge.

The pessary is removed and cleaned with soap and water, and the vagina is examined for erosions. If the pessary fits well and there were no side effects, motivated and able patients are taught how to remove, clean, and reinsert their pessary. The pessary should be removed, cleaned, and left out overnight every one to two weeks; it should also be removed before sexual intercourse. The patient should be seen for second

follow-up visit in one to two months, and every 12 months thereafter.

In some women, the width of the introitus may decrease in size after several weeks of pessary use. In such women, a new smaller size pessary is prescribed to allow for easier removal and insertion.

Complications

Common complications associated with pessary use include increased discharge, an offensive odour, bleeding, erosion or ulceration. These complications may arise more commonly in women with atrophic vaginas. In one study approximately 73% of pessary users experience a complication, however despite this, most remained satisfied with the improved quality of life the pessary provides

Duration of use and replacement

Pessary use may be continued indefinitely. A change in the pessary type or size may be needed over time. The pessary does not need to be replaced if it becomes discolored, but a new pessary should be given if it becomes cracked or loses its shape and strength.

Outcomes of pessary treatment — Most short- and medium-term studies note improved symptoms in women treated with a pessary. Additionally, when validated questionnaires are used to assess patient-centered outcomes, women with POP report better urinary function and prolapse reduction, body image, and goal attainment after pessary insertion.

References

1. Barber, M. D., & Maher, C. (2013). Epidemiology and outcome assessment of pelvic organ prolapse. International Urogynecology Journal, 24(11), 1783–1790.doi:10.1007/s00192-013-2169-9
2. Barber MD (2005) Symptoms and outcome measures of pelvic organ prolapse. Clin Obstet Gynecol 48(3):648–661
3. Bump RC, Mattiasson A, Bø K, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. Am J Obstet Gynecol 1996; 175: 10e7.
4. Hagen S, Stark D, Glazener C, et al. POPPY Trial Collaborators. Individualised pelvic floor muscle training in women with pelvic organ prolapse (POPPY): a multicentre randomised controlled trial. Lancet 2014; 383: 796e806.
5. Hagen S, Stark D. Conservative prevention and management of pelvic organ prolapse in women. Cochrane Database of Systematic Reviews 2011, Issue 12. Art. No.: CD003882. DOI: 10.1002/14651858.CD003882.pub4
6. Panman CM, Wiegersma M, Kollen BJ, et al. Effectiveness and costeffectiveness of pessary treatment compared with pelvic floor muscle training in older women with pelvic organ prolapse: 2-year follow-up of a randomized controlled trial in primary care. Menopause 2016; 23: 1307e18.
7. Hagen S, Thaker R. Conservative management of pelvic organ prolapse. Obstetrics, Gynaecology & Reproductive Medicine Obstetrics, Gynaecology & Reproductive Medicine, 22(1),118-122
8. Dwyer L. & Kearney, R. (2018). Conservative management of pelvic organ prolapse. Obstetrics, Gynaecology & Reproductive Medicine, 28(1), 15–21. doi:10.1016/j.ogrm.2017.10.005

OAB (Overactive Bladder) in Females and its Management

Tanudeep Kaur[1], Rajesh Kumari[2], JB Sharma[3]
[1]Fellow, [2]Assistant Professor, [3]Professor, Deptt. of Obstetrics & Gynaecology. & Urogynaecology, AIIMS, New Delhi

The term OAB (Overactive Bladder) is often used interchangabily with urge incontinence, which is defined as the involuntary leakage of urine accompanied by or immediately preceeded by a strong desire to pass urine. It is generally caused by an oversensitive bladder, and is more common in elderly women[1]. According to ICS (International Continence Society), the term OAB is a clinical diagnosis, and is defined as "The presence of urinary urgency, usually accompanied by frequency and nocturia with or without incontinence in the absence of UTI (Urinary tract infection) or other obvious pathology[1,2]. It needs to be appreciated from detrusor overactivity which is defined as the occurrence of involuntary contractions during filling cystometry on a urodynamic study, thus it is a urodynamic observation ,as compared to OAB[3]. Pain is not a common symptom of women with OAB. Pain with a full bladder in conjunction with urgency and frequency is suggestive of a hypersensitive bladder condition known as Interstiatial cystitis[3].

OAB is fairly common with over 10% of people having OAB in the community. Women have a high prevalence of OAB dry (without urge incontinence) (63% of OAB), in contrast to OAB wet (with urge incontinence) (37% of OAB)[3].The symptoms of OAB(Overactive bladder) have a negative impact on the social and personal activities and can cause significant psychological distress. Also, OAB(wet) increases with age rising from 2% in the youngest group (18-24 years) to 19.1% in those(65-74 years) of age.Despite ,the increasing awareness of OAB and its improved diagnosis and treatment, it still remains an underreported problem. The poorly understood etiology of the syndrome and the variability of symptom presentation along with suboptimal patient-physician communication contributes significantly to the problem[3].ICS(International continence society) has standardized the terminology for OAB and recommends use of symptoms,signs and validated investigations to form a workable diagnosis[3].

Etiology

To understand the etiology of OAB (Overactive bladder), we need to understand the pathophysiology. The symphathetic nerves exit between T1 and L2 and synapse in the paravertebral gnanglions. Symphathetic input to the bladder is via the hypogastric nerve, when noradrenaline binds to the Beta receptors on the bladder, thereby activating adenylate cyclase enzyme, increasing the leverls of cyclic amp, thereby relaxing the detrusor muscle of the bladder[3,4,5].

The parasymphathetic innervation to the bladder originates at spinal cord levels S2, S3, S4. Parasymphathetic input to the bladder is via the pelvic nerve. The PNS uses ach as its neurotransmitter and muscarinic receptors at target organs.5 sub-types of muscarinic receptors are known, M1 to M5, of which M2 &M3 are the predominant ones. M2 receptors make up approximately 80% of the muscarinic receptors in the bladder. Activation of M2 receptors negatively impacts adenylate ccyclase, thereby decreasing camp levels, hence inhibiting the relaxation caused by the symphathetic nervous system.M3 subtypes which make up 20% of the receptors, activate phospholipase c, increasing inositol triphosphate and subsequently causing detrusor muscle contraction[3,4,5].

Afferent information from the bladder is sent via pelvic nerve to the sacral dorsal root ganglia located within the spinal cord. These nerves are primarily made up of myelinated A and D fibres, and unmyelinated C fibres. The A and D fibres respond to distension and active contraction, whereas C fibres respond to chemical irritation and pain. Several receptors have been identified on these nerves and may have role in the development of OAB syndrome and may be potential pharmacotherapy targets[3,4,5].

[6,7]The process of bladder storage and evacuation can be visualized as complex neurocircuits in the brain and spinal cord that coordinates the activity of smooth and striated muscles in the bladder and urethra. Thus various neurological diseases are assosciated with symptoms of overactive bladder, the majority of women who present with this are neurologically intact. The most common neurological lesions assosciated with detrusor overactivity are;

Multiple Sclerosis

Dementia

Cerebrovascular Disorders

Parkinsons Disease

Various conditions assosciated with OAB are[7,8];

Congenital

Aging

Neurogenic detrusor overactivity

Multiple sclerosis

Cerebrovascular disorders

Parkinsons Disease

Dementia

Neoplasia

Spinal cord injury

Bladder outlet obstruction and Pelvic surgery

Anti-Incontinence surgery

Advanced POP(Pelvic organ prolapse)

Psycosomatic disease

Urine in proximal urethra

Detrusor overactivity with impaired contractility

Mixed Incontinence

The most common etiology of OAB is idiopathic. Neurological conditions including MS (Multiple Sclerosis), Parkinsonism, Spinal cord injury can lead to similar symptoms and are termed as Neurogenic Detrusor Overactivity. To explain Idiopathic Detrusor overactivity, currently, 2 different hypothesis have been proposed, the myogenic hypothesis and the neurogenic hypothesis. The neurogenic hypothesis states that detrusor overactivity arises from generalized nerve mediated excitation of the detrusor muscle, while the myogenic hypothesis explains that overactive detrusor contractions arise from a combination of an increased likelihood of spontaneous excitation within the smooth muscle of bladder and enhanced propagation and spread of contractile signals via cell to cell coupling[9].

Management

A careful history , physical examination and urinaylsis are important essential components in the evaluation of all patients with suspected OAB. Additionally we require Urine culture and sensitivity, PVR (Postvoid residual urine) estimation, 3 day bladder diary for a careful diagnosis. Ultrasonography, cystoscopy and UDS (Urodynamic study) are not a part of routine work up in an uncomplicated patient of OAB.

Patient's expectations of treatment and setting of realistic goals is very important in the overall management of such patients[10].

A multi-component stepped approach focused on reducing the urinary incontinence episodes is the key. An important aspect of the evaluation is appreciating the quality of life impact that these symptoms are creating.

Management of OAB should proceed in the following order[10] ;

- History, Physical examination, and Laboratory examination
- Conservative methods – Behavioural Therapy- First line
- Pharmacology- Second line
- Surgical –Third line

1. Important history to be taken in case of OAB is[3]

- Do u ever leak on the way to washroom?
- Do u ever use pads, tissues or cloth in your underwear to catch urine? (addresses severity of symptoms)
- Medical problems and prior surgeries
- Consumption of bladder irritants (caffeinated products, alcohol, acidic foods and drinks)
- Excessive fluid intake (more than 6-8 oz glasses of fluid per day)
- Additional history as regards POP(Pelvic organ prolapse), defecatory dysfunction and sexual dysfunction is important.

2. Questionnaires[3] – are validated tools to assess the severity of Urinary Incontinence and to measure the condition specific Health related quality of life (HRQOL), (UDI-6) Urogenital Distress Inventory and the Incontinence impact questionnaire (IIQ-7) encompasses the urinary domain component of the pelvic floor distress inventory –short form (PFDI-20) and the pelvic floor impact questionnaire short form (PFIQ-7). They are popular questionnaires among specialists and measure symptom severity and impact on HRQOL(Health related quality of life), respectively.

3. Bladder Diary[3]

A bladder diary is recommended by both AUA (American Urological Assosciation) and the society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU). Nice Guidelines recommend their use in the initial assessment of women with urinary incontinence or overactive bladder syndrome. Women should complete it for a minimum of 3 days to cover variations in their daily activities, but they are not needed when the severity and type of urinary

incontinence are readily ascertained from the history. A Bladder diary is useful in quantifying symptoms and recording;

- Number of episodes of urinary incontinence
- Type of episodes of urinary incontinence
- Voiding times
- Exact voided volumes (recorded by a 'hat' placed in the toilet)

4. Physical examination[7]

It includes; A thorough general, physical, neurological & pelvic examination

- BMI (as obesity contributes to incontinence)
- Extremities (Evaluate for edema, which can increase nocturia, especially in elderly patients)
- Neurologic (In cases of sudden onset incontinence or other neurological symptoms, test anal wink reflex, bulbocavernosus reflex, and perineal sensation)
- Abdominal (Palpate for masses or enlarged bladder to rule out any obstruction to the outflow of urine)
- Pelvic (Rule out cause of Incontinence due to Pelvic organ prolapse, or weakened pelvic floor, cystocoele, vaginal atrophy suggesting estrogen efficiency)

5. Laboratory evaluation of OAB (Overactive Bladder) Patients[6]

- Urinalysis - recommended to look for;

  Infection (although asymptomatic bacteriuria does not cause incontinence)

  Hematuria

  Dehydration or excessive fluid intake(specific gravity normally-1.010-1.025)

- Measurment of Post Void Residual urine(PVR)
- Urodynamics[4]- AUA (American Urological Assosciation)/ SUFU (Female Pelvic Medicine and Urogenital Reconstruction guidelines discourage use of urodynamics in the initial work up of an uncomplicated patient. It should not be performed in women with untreated symptoms or urgency incontinence who have no evidence of neurological disease or voiding dysfunction. Cystometry is also useful before starting more invasive treatment for drug refractory overactive bladder syndrome. NICE guidelines advocate the use of filling and voiding cystometry in women with suspected detrusor overactivity, voiding dysfunction, anterior prolapse and in thode who have had surgery for stress incontinence .If the diagnosis is still unclear, video urodynamics can be considered , as it provides more important anatomical information about the appearance of the bladder and bladder neck (often open in women with SUI)

6. Conservative Measures - Non invasive behavioural modifications[4]- Lifestyle modification and behavioural therapy is the first line having no side effects and is more effective than other therapies. Typically- few weeks to 3 months are required for full effects to be noticeable and provides more sustained and effective improvement in the patient's symptoms than the second line therapy ie drugs.

- Weight reduction- 5% reduction in weight decreases incontinence episodes by 50%.
- To avoid certain foods and drinks that irritate the bladder function like caffeinated products, alcohol, acidic and spicy products.
- Cessation of Smoking
- Reduction of fluid intake in patients taking excessive amount of fluids to 6-8 ounce glasses of fluid each day.
- Constipation management
- To take history of drugs being taken by the patient which affect the bladder function and the continence mechanism;

  Anticholinergics

  Antihistaminics

  Beta-blockers

  Calcium channel blockers

  NSAIDS

  Diuretics

  Alpha-Blockers

  Oral estrogen/Transdermal estrogen

  Antipsycotics

- Electrical stimulation of Posterior Tibial Nerve
- **Pelvic Floor Muscle Training - Kegel Exercises**

  Kegel Exercises- first line conservative therapy for all types of Incontinence. They are based on the principle of strength training and involve squeezing and releasing the pelvic floor muscles. These contractions increase the strength and tone of pelvic floor muscles. They help in urge incontinence as the detrusor contractions can be reflexly or voluntarily inhibited by tightening the pelvic floor.

  The basic regimen is 3 sets of 8-12 slow velocity contractions sustained for 6-8 seconds each,

performed 3-4 times per week and continued for atleast 20 weeks.

Manual feedback (palpating the pelvic muscles during the exercise) and biofeedback (using a vaginal or anal device that provides visual or audio feedback about the pelvic muscle contaraction) have been used to teach the patients the correct technique.

- **Bladder Training**

  It is an appropriate first line treatment for urgency urinary incontinence. The idea is to schedule voiding every 2-4 hours. A woman should try to hold urine as much as possible, for more and more minutes each time, until she can keep the schedule.

- **Combined Kegel exercises and Bladder Training - is more effective than either modality alone.**

- **Electrical and Magnetic stimulation of Pelvic floor muscles-** with a vaginal or anal electrode can be used in women who cannot voluntarily contract pelvic floor muscles. It can be done typically and consists of two 15 minute sessions daily for 12 weeks.

7. **Pharmacological Therapy**[7] – Second line therapy of OAB(Overactive Bladder) Adding drugs in cases who do not respond adequately to non-pharmacological options. The drug therapy offers modest benefits and are often discontinued due to high rate of side effects. Improvement with drugs over placebo is modest. Anticholinergics are the preferred agents for the treatment of urge incontinence. Mirabegron approved by FDA in 2012 is a new class of drugs – acts on beta 3 adrenergic receptors to relax the detrusor.

   Table:

   - Anticholinergic drugs/ Antimuscarinic drugs
   - Beta adrenergic agonists
   - Botox therapy
   - Intravaginal estrogen

Anticholinergic drugs/ Antimuscarinic drugs

Physiological bladder contractions result from Ach (Acetylcholine) induced stimulation of muscarinic (cholinergic) receptors in the bladder. 5 subtypes of pharmacologically identified muscarinic receptors are there (M1-M5). It is the M2 and M3 subtypes that predominate in the urinary bladder. Even during the filling-storage phase, Ach may be released from both neuronal and non neuronal sources(eg- the urothelium and suburothelium) leading to excitation of afferent nerves in the suburothelium and within the detrusor. These drugs inhibit involuntary detrusor contractions/ overactivity during filling/storage phase , decrease the sensory input and increase the bladder capacity and compliance.

Antimuscarinic drugs are broadly classified into Tertiary Amines and Quaternary Amines.

Tertiary Amines are more lipophillic than Quaternary Amines and hence can pass across Blood Brain Barrier more readily. Examples- Oxybutinin, Tolterodine, Solifenacin, Darifenacin. They are metabolized via cytochrome P450 enzyme system. So, in patients receiving other drugs – risk of drug interaction is to be kept in mind.

Quaternary Amines- Tropsium chloride is available in indian market. Due to low lipophilicity,it passes across the Blood Brain Barrier to a limited extent and the majority of it is excreted unchanged from the kidney. Tolterodine was launched in 1998 and was the first modern anticholinergic in the market. Darifenacin is the most selective M3 receptor antagonist. It has a higher degree of selectivity for M3 over the M2 receptor.

Efficacy and Durability of Response

Antimuscarinics have been shown to be more effective than placebo in terms of;

- Mean change in the number of urgency episodes/ day(0.64 to 1.56 episodes/day)
- Number of Incontinence episodes / day (0.4 to 1.1 episodes/day)
- Number of Micturitions/ day (0.5 to 1.3 episodes/ day)
- Volume voided per micturition (13-40 ml)

Similar efficacy has been observed for all Anti Muscarinic Medications. Patients with more severe symptoms have on an average, greater symptom reduction experience. Extended release preprations should be used as possible. Typical efficacy is modest with symptom reduction ranging between 40-60%. Rates of achieving incontinence range from 5% to 59%.

Adverse effects of use of Antimuscarinics

The currently available antimuscarinics are not uroselective. They act on muscarinic receptors throughout the body, accounting for side effects like; The side effects cause continuation rate of 25% at the end of 1 year. Side effect profile have been a limitation, overall safety profile of anticholinergics is good.

Dry mouth
Pruritis
Constipation
Urinary Retention
Cognitive effects
Visual impairment
Increase in heart rate

Main Contraindication is untreated narrow angle Glaucoma. Caution is to be exercised in poor gastric emptying, fraility and cognitive impairment.

Thus, treatment with Antimuscarinics has to be individualized taking into account patient's comorbidities and concomitant medication intake to avoid interaction and it may take some time for the optimum dose adjustment. If a patient experiences inadequate symptom control or unacceptable adverse drug events with one antimuscarinic, then a dose modification or a different anti-muscarinic or a beta -3 adrenergic receptor agonist may be tried.

Beta-3 adrenergic agonist use in OAB (Overactive Bladder)

Beta 1, 2 and 3 adrenergic receptors are identified in human bladder urothelium and detrusor muscle, of which beta -3 is the predominant. These drugs help in bladder relaxation by activation of adenylcyclase. Mirabegron was approved by FDA in 2012 for the indication of OAB (Overactive bladder). The usual prescribed dose is 25- 50 mg/day. It has similar efficacy to Antimuscarinics with a lower rate of dry mouth. It represents an exciting alternative to the antimuscarinics that have had poor continuity rates of only 25-30% at the end of 1 year. The safety and tolerability profile of mirabegron has been excellent. The only indication which objects its use, is in uncontrolled hypertension of 180/110 mm hg. It has a small but insignificant increase in pulse rate (0.8-0.9 bpm) and blood pressure (15 mmhg SBP and 1 mm hg DBP). No study has demonstrated any significant increase in cardiac events.

A refractory patient is someone who failed a trial of symptom appropriate behavioural therapy of sufficient length (8-12 weeks) and who has failed a trial of at least one anti muscarinic medication administered for 4-8 weeks. Failure of an anti-muscarinic medication may include lack of efficacy and/or inability to tolerate adverse drug effects. AUA guidelines do not endorse one antimuscarinic over the other.

Drug	Formulations	Unique factors
Non selective agents		
Fesoterodine (Toviaz)	Extended release	High drug levels in person with poor metabolism of cytochrome P450 2D6
Oxybutynin (Ditropan)	Extended release Immediate release Topical gel Transdermal patch	Originally the preferred medication highest rate of anticholinergic adverse effects
Tolterodine (Detrol)	Extended release Immediate release	Fewer adverse effects than oxybutynin
Trospium (Sanctura)	Extended release Immediate release	Renally cleared
M2/M3- Selective agents		
Darifenacin (Enablex) Solifenacin (Vesicare)	Extended release Immediate release	Higher selectivity for M3 muscarinic receptors

Botulinum Toxin in OAB- Third line treatment for OAB patients

Effects of Botulinum Toxin result from the inhibition of Acetylcholine release from the presynaptic nerve terminal. So, Acetylcholine receptors in muscle are not stimulated, and detrusor contactions are suppressed. It has additionally believed to alter urothelial sensory afferent pathway and help alleviate hypersensitivity responses, an explanation as why Botox treatment is effective in decreasing urinary urgency, frequency and increasing bladder capacity.Intravesical Botulinum toxin type A has been approved by FDA for OAB, and is an effective third line treatment for patients with OAB refractory to behavioural therapy and Antimuscarinics. Two types of preprations have been studied;

Onabotulinumtoxin Type A (BOTOX, Allergan, Inc; Irvine, CA, USA)

Abobotulinumtoxin Type A (Dysport, Ipsen. Biopharm Ltd. Slough, UK)

Significant and comparable efficacy was reported with both preprations; however Abobotulinumtoxin compared to Onabotulinumtoxin is assosciated with significantly higher rate of urinary retention requiring clean intermittent self catheterization, according to literature. Ona botulinumtoxin Type A has now been accepted and established as a standard third line option in patients with OAB (Overactive Bladder). Trigone- including, Trigone – sparing and intradetrusor or suburethral techniques have been described, but the superiority of one over the other

is yet to be established. 100 U of Onabotulinum toxin type A, as optimum for a balance between effective, durable response and adverse events. Number of injection varies- 10 – 40 sites, with most authors – having injected at 15- 20 sites (5 U) each separated by 1 cm each. Duration of symptom relief is bewtween 6.3 months- 10.6 months. Mean interval of repeat intravesical Onabotulinumtoxin Type A varies between (3- 18 months), with significant reduction in frequency, urgency and urge incontinence. Efficacy is typically defined as >50% reduction in symptoms ranging from 60-80% with continence seen in 22%. Doses of 200 U-300 U are seen in neurogenic cases and 100 U in non neurogenic cases. Higher doses are assosciated with higher urinary retention rates.

Complications- UTI (Urinary tract infection), increase in PVR (post void residual urine), need for CISC (Clean intermittent self catheterization).

Newer drugs currently being investigated for their possible role in the management of OAB (Overactive Bladder) are;

- Monoamine Reuptake inhibitors
- Serotonin Receptor acting agents
- Agents acting on NO/cyclic Guanosine Monophosphate Pathway(cGMP)
- PG Receptor Antagonists

Intravaginal Estrogen in OAB[2]

Its role in women with OAB is more established than its role in SUI.

8. **Surgical – Neuromodulation[9]** – (Implanted Sacral Nerve Stimulator) (Interstim) The principle is modulation of reflex pathways with the use of vaginal or anal stimulators and percutaneous stimulators of posterior tibial nerve, which shares a common nerve root with the innervation of bladder. Modulation of Somatic afferents in the pudendal nerves could stimulate both inhibitory mechanisms and revive an ability to void by relieving abnormal guarding reflexes, both of which would normalize voiding. It basically restores the balance between inhibitory and excitatory control systems at various sites in the peripheral CNS (Central Nervous System). This involves stimulation of somatosensory ascending tracts projecting from the bladder into the pontine micturition centre in the brainstem.The electrical impulses also activate the pelvic efferent hypogastric symphathetic nerves which promote continence. Posterior tibial nerve stimulators are the most widely used devices with a needle electrode applied near the medial malleolus and the electrical stimulation administered in 30 minute sessions. It is currently approved for urgency, frequency, urgency incontinence, non obstructive urinary retention and faecal incontinence in USA since 1997. S3 is targeted with electrodes and attached to IPG(Implantable Pulse Generator) implanted in buttocks. The device is inserted in two phases – test phase and the implantable phase. If test phase reports >50% symptom reduction after 3-4 weeks, then it is finally implanted with a long term battery and a neurostimulator in the buttock and lower back.

   Safety profile of Interstim is excellent with minimum side effects- infection, chronic pain. Interstim has proven to be better than drugs for OAB(Overactive Bladder). Success rate is 56-68%, upto 80% with $p<0.001$.Success has been defined as 50% or greater reduction in symptoms.

   Percutaneous Tibial Nerve Stimulation[9] – Another form of Neuromodulation with a 34 G needle, placed 5 cm above the medial malleolus to access the posterior tibial nerveand enable stimulation of L4 to S3 nerve roots. Office setting fo 30 minutes – weekly basis for 12 weeks with subsequent monthly treatments.

9. **Extracorporeal magnetic innervation[8]** (used for mild incontinence) involves a series of treatments in which the patient sits, fully clothed on a chair that generates a low power magnetic field. Patients typically undergo 2-3 treatments /week for 6-8 weeks.

10. **Additional Therapy[2] –** Rare cases are for Indwelling catheter, Diversion or Clam Ileocystoplasty and Augmentation Procedures- especially patients with neurogenic detrusor overactivity and high pressure bladder awith the potential of upper tract damage, with a higher incidence of urinary retention requiring catheterization.

11. **Alternative Therapy[1]** - Acupuncture has been shown to be a useful adjunct to therapy for women not ready for medication.

    Often it is not through one, but through a combination treatment plan that optimal results are achieved, but it is important to discuss realistic expectations with patients, as many therapies define success as symptom reduction rather than cure!

References

1. Abrams P, Cardozo L, Griffiths D, Rosier P, Ulmsten U, et al. The standardization of terminology of lower urinary tract function:report from the Standardization Subcommittee of the International Continence Society.Neurourol Urodyn. 2002; 21:167-78.
2. M.G. Lucas(chair), D.Bedretdinova, et al. Diagnosis and treatment of overactive bladder (non-neurogenic) in adults:AUA/SUFU guideline. J Urol. 2012;188:2455-63.
3. Nice. National Institute for Health and Care Excellence. The management of urinary incontinence in women. Issued September 2013. Nice Clinical Guideline 171.
4. Lucas MG, Betredinova D, Bosch JRHL, Burkhard F, Cruz F, Nambiar H, Nilsson CG, de Ridder DJMK,Tubaro A,Pickard RS.Guidelines on urinary incontinence.2014. Accessed from: www.uroweb.org/wp-content/uploads/EUA-Guidelines-Urinat=ry –Incontinence-2015.pdf.
5. Karen L. Noblett,' Overactive Bladder'. In: A Tamiselvi; Ajay Rane. Principles and Practice of Urogynecology.India Springer
6. Hersh L, Salzman B. Clinical management of urinary incontinence in women. Am Fam Physician. 2013 May 1; 87(9):634-40.
7. Wood LN, Anger JT.Urinary incontinence in women. BMJ. 2014 Sep 15;349:g4531. doi: 10.1136/bmj.g4531.
8. Wein AJ, Kavoussi LR, Novick AC, Partin AM, Peters CA. Urinary incontinence and pelvic prolapse: epidemiology and pathophysiology. In: Wein AJ, ed. Campbell-Walsh urology. 10th ed. Elsevier Saunders, 2012:1871-95.
9. National Institute for Health and Care Excellence. Urinary incontinence: the management of urinary incontinence in women. CG171. 2013. www.nice.org.uk/Guidance/CG171.
10. Gormley EA, Lightner DJ, Burgio KL, Chai TC, Clemens JQ, Culkin DJ, et al. Diagnosis and treatment of overactive bladder (non-neurogenic) in adults: AUA/SUFU guideline. *J Urol* 2012;188(6 suppl):2455-63.

Forthcoming Events

- "Symposium on Chronic Pelvic Pain a Gynecologist's Perspective" at Max Hospital West Wing on 11th May, 2019, 1:00pm-3:00pm at Max Saket West Wing Auditorium under aegis of Multidisciplinary Committee of AOGD and DGFS
- Next Monthly Clinical Meeting on 31st May, 2019 (4:00pm-5:00pm) at Sitaram Bhartia Hospital.
- "Legends Go Live" by Sunrise Hospital on 20th and 21st July 2019 at Hotel Hyatt. Contact No-9643404061
- "Masterclass in Gynaecologic Oncology" on 11th August, 2019, India International Centre in collaboration with AGOI, AOGIN India, FOGSI and AOGD Oncology Committee organised by Department of Obstetrics and Gynecology, UCMS and GTB Hospital

Calendar of Monthly Clinical Meetings 2019-20

Months	Name of the Institute
31st May, 2019	Sitaram Bhartia Hospital
28th June, 2019	Army Hospital- Research & Referral
26th July, 2019	AIIMS
30th August, 2019	VMMC & Safdarjung Hospital
27th September, 2019	Deen Dayal Upadhyay Hospital
25th October, 2019	ESI Hospital
29th November, 2019	MAMC & LN Hospital
27th December, 2019	Sir Ganga Ram Hospital
31st January, 2020	Dr RML Hospital
28th February, 2020	UCMS & GTB Hospital
27th March, 2020	LHMC
24th April, 2020	Apollo Hospital

Ex-Utero Intra-partum Treament (exit) Procedure

Ranjana Sharma[1], Anita Kaul[2], Saroja Balan[3], Sujit Chaudhary[4], Vikram Mahajan[5], Karuna Ratwani[6]

[1]Senior Consultant, Obstetrics & Gynecology, [2]Senior Consultant, Fetal Medicine, [3]Senior Consultant, Neonatology, [4]Senior Consultant, Paediatric Surgery, [5]Senior Consultant, Anaesthesia, [6]Registrar, Obstetrics & Gynecology, Indraprastha Apollo Hospitals, Delhi

Case report

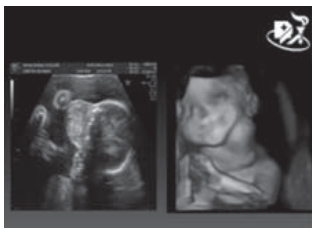
A 22 year old Primigravida with 29^{+6} weeks of IVF gestation was admitted in emergency from outside Delhi as an unbooked case at Indraprastha Apollo Hospital, Delhi with polyhydraminos (AFI-50 CMS), a 4.6 cm cervicothoracic mass, likely to be a Dermoid teratoma, hypothyroidism controlled on treatment and a history of prophylactic Cervical Cerclage done at the 5^{th} month of gestation.

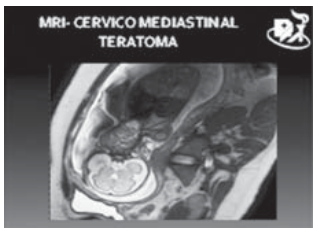
Her general examination was normal. The abdominal examination revealed an overdistended tense, non tender abdomen and uterine contractions. The fetus was presenting as breech and the fetal heart rate was normal.

On speculum examination there was a mixed vaginal discharge and a high vaginal swab was taken which later showed no growth. The cervical stitch was seen. On a vaginal examination the cervix was well effaced and the os admitted the tip of a finger with the cervical stitch under stretch.

The repeat ultrasound revealed a single live pregnancy of 28^{+5} weeks in a breech presentation with polyhydraminos but normal dopplers and growth.

She was given tocolysis and steroids. Her labor progressed despite the conservative management. After discussion in a multidisciplinary team of an obstetrician, a neonatologist, a pediatric surgeon and an anaesthesist, the fetal prognosis was explained and an EXIT procedure at caesarean section was offered in view of suspected difficulty in intubation as the mass was in front of the trachea.





Anaesthesia

- With standard monitors, 2 large bore IV cannulae, an arterial line, general anaesthesia was given.
- Rapid sequence induction was done with thiopentone 300mg and succinyl choline 100mg.
- Airway : number 7 endotracheal tube. CL grade 1. Single attempt
- Lungs were mechanically ventilated with a tidal volume 7ml/kg and respiratory rate 12.
- For maintenance : mixture of oxygen, Nitrous oxide and sevoflurane
- Atracurium was used for skeletal muscle relaxation
- Inhalational agents also provide uterine muscle relaxation.
- The umbilical cord was not clamped and oxytocin was not given
- Sevoflurane (MAC 1.0) was maintained :
  - to prevent uterus from contracting
  - to maintain placental blood flow
  - to provide oxygenation to the baby.
- Intraoperatively she had stable hemodynamics.
- At the end of surgery, the muscle relaxation was reversed with Neostigmine 2.5mg and glycopyrrolate 0.5mg.
- Extubation was uneventful. The patient was transferred to the post anesthesia care unit and later to the ward.

Anaesthesia for the newborn

- Analgesia was given by 2mcg fentanyl
- 0.5mg atracurium for muscle relaxation
- 70 ml of iv fluid (albumin and 5% dextrose) was administered through the iv cannula in the child.
- Sevoflurane through placenta
- SpO2 was within 94 to 98% and pulse was between 120 and 150.

A live healthy preterm female baby was delivered who was attended by a neonatologist and a pediatric surgeon.

The baby was intubated on the third attempt with 2.5 mm ET tube. However the suspected difficulty in re-intubation in case of a displaced tube in the NICU, excision of the neck tumour was performedd by the paediatric surgeon as part of the EXIT procedure. Following excision of the mass umbilical cord was divided that was 60 mins from the delivery. The ventilated baby was shifted to the NICU on T-piece on ac/pc mode with fio2 40%, peep 5, pi 14, rate 40.

During the procedure, uterine relaxation was maintained by the anaesthesiologist to complete the EXIT procedure. Syntocin 5 units IV and 20 units

in the drip was given after the EXIT procedure was completed. The placenta and membranes were removed completely. The cord was clamped and cut after 60 minutes of the delivery of the baby. The estimated blood loss was approximately 1000 ml.

Discussion

The Ex-Utero Intrapartum Treatment (EXIT) procedure is used to secure the fetal airway before complete delivery of the fetus takes place. The main principle of the EXIT procedure is the control of uterine hypotonia so as to preserve uteroplacental circulation with neonatal anesthesia and thereby gain time to reverse tracheal occlusion or establish an airway. Interventions performed with the EXIT procedure include intratracheal intubation, tracheotomy, tracheoplasty, and surgery for tumors. The EXIT procedure has been used extensively to control the airway, with the largest series of fetuses reported by Hedrick from the Center for Fetal Diagnosis and Treatment at the Children's Hospital of Philadelphia, whose study included 43 cases from 1996 to 2002[1].

The success of an EXIT depends on a multidisciplinary assessment in which the benefits of the EXIT procedure for the fetus are weighed against the risk of maternal complications that may occur during prolongation of the intrapartum period to secure the fetal airway.

Until recently, the prognosis for fetuses and neonates at risk for airway obstruction at birth has been dismal. Now prenatal diagnosis, imaging, preparation, and pioneering perinatal surgical interventions can provide an opportunity for definitive postnatal management in affected infants.

The EXIT procedure helps enable surgeons to transform a potentially fatal neonatal emergency into a controlled environment to ensure a better outcome.

Ref 2

Indication for an EXIT Procedure

EXIT-to-airway procedure
Neck mass with obstruction (eg. cervical teratoma, vascular/ lymphatic malformation, goiter, neuroblastoma) Congenital high airway obstruction syndrome Tracheal arresia Micrognathia Other causes of airway obstruction
EXIT-to-resection procedure
Chest masses with intrathoracic airway obstruction Congenital pulmonary airway malformation Bronchopulmonary sequestration Mediastinal teratoma Pericardial teratoma
EXIT-to-ECMO procedure
Severe CDH Severe congenital heart disease
EXIT-to-separation procedure
Conjoined twins

How is this caesarean section different from a usual CS?

A cesarean section is usually performed under a regional block or includes a short period of general anesthesia to avoid both fetal exposure to inhalation agents and neonatal respiratory depression. In addition, to prevent postpartum hemorrhage, maximal uterine tone is achieved as soon as the baby is delivered.

On the other hand, an EXIT procedure requires deep maternal anesthesia without the induction of hypotension, and indirect fetal anesthesia is achieved without producing cardiac depression.

Prolonged uterine relaxation is necessary to maintain uteroplacental circulation and prevent placental separation. An EXIT procedure involves two patients, the mother and the fetus, both of whom are at high risk.

Goals of anesthesia

1. To provide maximal uterine relaxation to facilitate delivery of the fetal head while minimizing the risk of placental separation.
2. Maintenance of uteroplacental blood flow.
3. Adequate fetal anesthesia and oxygenation.

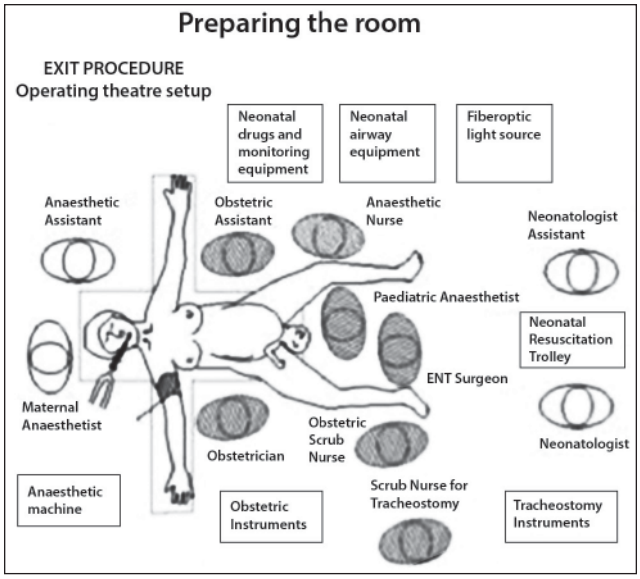
Advantages of general anaesthesia

- Maintenance of uterine muscle relaxation during delivery and later till completion of the EXIT procedure
- Adequate oxygenation of the baby during the EXIT procedure by maintaining uteroplacental blood flow
- Good cardiovascular control
- Can allow a longer duration of surgery
- Psychologically better for the mother to be asleep
- May be advantageous if blood loss is massive

Potential Risks

- Uterine bleeding: The risk is minimized by co-ordination between the surgeon and the anaesthesiologist to decrease concentration of the inhalation anaesthetic and administration of oxytocin before cutting the umbilical cord
- Caesarean Hysterectomy
- Abandon the procedure before completion

Ref 3



Conclusion

EXIT procedures can be performed with minimal maternal morbidity and with good outcomes. It is an excellent strategy for establishing an airway in a controlled manner, avoiding "crash" intubation or tracheostomy. Longer procedures on placental support allowing for definitive management of neck masses and airway obstruction have been realized. EXIT procedures have evolved from an adjunct to fetal surgery to a potentially life-saving procedure in fetuses with airway compromise at birth.

References

1. Hedrick HL. Ex utero intrapartum therapy. Semin Pediatr Surg 2003;12(3):190–195.
2. Manjiri K. Dighe, Suzanne E. Peterson, Theodore J. Dubinsky, Jonathan Perkins, Edith Cheng, RadioGraphics Vol. 31, No. 2
3. Hirose S, Farmer DL, Lee H, Nobuhara KK, Harrison MR (2004). "The ex utero intrapartum treatment procedure: Looking back at the EXIT". *J. Pediatr. Surg*. **39** (3): 375–80, discussion 375–80.

Announcement for Election of AOGD President and Vice President (2021-22)

Elections

- Nominations are invited from eligible AOGD members for the posts of
- **President and Vice President of AOGD for the 2021 - 2022**
- The nomination should be Proposed by one AOGD life member and seconded by two AOGD life members.
- The last date of filling the nominations is **30th June 2019**.

Eligibility criteria

1. President AOGD has to be a faculty of medical colleges / leading, multidisciplinary clinic hospital with Para-clinic and clinical departments (oncology, radiology, pathology etc.)
2. Experience of having been chairperson of sub-committee of AOGD / FOGSI or experience as Vice President / Secretary / Treasurer / Editor of AOGD.
3. Life member of AOGD having above 10years of experience in specialty after post-graduation and holding post of professor / senior consultant for more than 7 years.
4. Experience of conducting conferences, seminars or workshops etc.
5. In case of a tie after election, the senior most person out of the contestants will be nominated.

The application should be sent in writing to the AOGD Secretariat, Department of Obstetrics and Gynecology, **All India Institute of Medical Sciences, Ansari Nagar,** New Delhi 110029 by **30th June 2019**.

Events Held

- FOGsd CME on "Integerated Antepartum Management" on 13th April, 2019 at Erose Hotel, Nehru Place under the aegis of AOGD.

- Awareness Programme on "Hygiene" on 24th April, 2019 at Sabharwal Clinic, Govindpuri under the aegis of AOGD.

- CME on 25th April, 2019 by "Breast and Cervical Cancer Awareness, Screening and Prevention Committee" at Hotel City Park, Pitampura under the aegis of AOGD.

- Monthly Clinical Meeting on 26th April,2019 at Apollo Hospital.










- Breast and Cervical Cancer Awareness on 25th April, 2019


- Third Quarterly Meeting of Delhi Chapter of the SFM on 28th April, 2019 at AIIMS under the aegis of AOGD




Judicious use and Interpretation of Urodynamics

Bharti Uppal Nayyar[1], Rishi Nayyar[2]
[1]Fellow, Deptt. of Obstetrics & Gynaecology & Urogynaecology, AIIMS, New Delhi, [2]Asst. Professor, Deptt. of Urology, AIIMS, New Delhi

Urodynamics (UDS) is often an enigma for a practicing gynecologist, given that there is little to no exposure to practical UDS studies during their residency. However, because the genito-urinary-hindgut system is very closely interlinked both anatomically and physiologically, any disorder affecting the one has the potential to frequently affect the other. Hence there is a dire need that a practicing gynecologist has some basic understanding about the UDS tests and what can be achieved with it. In this short review, principles and basics of UDS have been highlighted.

UDS test is not a kind of straight-forward laboratory test with numerical outcomes. Rather it provides an insight into the physiology of bladder storage and voiding function with wide variety of outcomes, which have no meaning by themselves unless coupled with the overall case history/examination and other investigations. Additionally, even though graphs are generated and can be read afterwards, it is not a test best suited for interpretation later. Rather the clinician should ideally do it oneself and design the test based upon the clinical question in mind. Often critical findings like a minor leak, evaluation of leak-point pressures, non-restoration of prolapse, electromyography etc may be missed if the test is left to a technician, who by himself generally has no inclination of the patient's disease. The aim of any invasive UDS test is to reproduce the patient's storage or voiding symptoms and to relate them to any synchronous urodynamic observation.

Types of UDS tests

UDS is the dynamic study of the transport, storage and evacuation of urine by the urinary tract. It comprises a number of tests that individually or collectively can be used to gain information about lower urinary tract function[1]. Various common UDS tests that can be done are given in **Table 1**. It must be borne in mind that all UDS tests except uroflowmetry, are invasive tests requiring placement of catheters in the bladder and vagina or rectum. Thus the indication of such testing must be re-established before ordering for it. Which type of study to be perfomed in which patient is guided by the clinical questions to be answered for the patient's disease. E.g. A patient of SUI needs bladder cystometry with Valsalva and cough maneuvers, a pressure flow study is required to evaluate for voiding issues before or after the surgery etc. In general, pressure flow study with electromyography is commonly done because it provides both storage and voiding phase pressures with simultaneous sphincteric assessment.

S No.	Name of the test	What it measures	Comment
1	Uroflowmetry	Flow rate of the external urinary stream expressed in ml/s	Only non-invasive test, indicates only voiding function
2	Filling cystometry	Pressures in bladder and rectum and pressure/volume relationship during filling of bladder	Provides only storage phase pressures and volumes
3	Pressure flow study	Pressures in bladder and rectum and pressure/volume relationship during filling and emptying of bladder	Assesses both storage and voiding phases
4	Electromy-ography	Electrical potential of anal/urethral sphincter	Assesses for external sphincter contraction
5	Micturating urethral pressure profilometry	Intraluminal pressure along the length of the urethra	Requires triple lumen catheter for an additional urethral pressure reading
6	Video-urodynamics	Similar to pressure flow study, Fluoroscopy allows simultaneous physiological and anatomical assessment improving interpretation of results	Uses contrast medium for bladder filling
7	Ambulatory urodynamics	Pressures in bladder and rectum and pressure/volume relationship during filling and emptying of bladder	Uses patient's natural bladder filling with urine, recordings by patient oneself

Table 1. Various available urodynamic tests

Prerequisites for UDS testing

It is generally accepted that noninvasive empiric or conservative treatments are offered to a patient with

LUTS without performing UDS.[2] Thorough history, clinical examination, completion of a validated symptom and score questionnaire including quality of life and/or bother assessment, and completion of a 3-d bladder diary should be done beforehand. Further investigation with urine analysis and ultrasound measurement of post-void residual (PVR) are also essential in the first-line diagnostic workup. Subsequently, conservative treatment (lifestyle advice, behavioural therapy, and physical therapy) and/or pharmacological treatment can be proposed, or treatment of an underlying condition started. A sterile urine culture and the management question must be ensured before planning any invasive UDS test. Possible morbidity of invasive UDS include temporary dysuria (< 50%), mild macroscopic haematuria (6%), bacteriuria (8%) and symptomatic infection (<5%).[2] The routine use of prophylactic antibiotics is not recommended.

Interpretation of UDS

Because urodynamic findings may or may not be causatively associated with the patient's symptoms, they are labelled distinctively and are not interchangeable with the clinical syndrome they represent. The detailed terminology should be read and consistently used in clinical practice as per 2016 International Continence Society (ICS) Good Urodynamic Practices and Terms[7,8], and 2002 ICS and 2010 International UroGynaecology Association/ICS terminology[1,9].[3456] A typical example is 'overactive bladder' which is a clinical syndrome but is not synonymous or interchangeable with the term 'detrusor overactivity' which implies a pure urodynamic finding. Similarly 'underactive bladder' and 'detrusor underactivity' are not interchangeable.

Despite all efforts at reproducing patient's symptoms during UDS, it may not always be possible. This is because UDS remains a non-physiological test because of presence of catheters, rapid non-physiological filling, non-physiological filling medium, non-conducive ambience etc. Despite this, UDS have gradually increased in importance over time as an assessment tool. The concept of empirical treatment of LUTS, based solely on patient's symptoms is now gradually being replaced by treatment based on objective information, most of which is obtained by means of UDS.

Current role of UDS

Inadequate results of corrective surgeries have been shown when only the presenting symptoms were used for diagnosis or deciding treatment modality. Urodynamic studies, individually or in combination provide better understanding of cases of LUTS and incontinence and therefore provide better rationale for deciding treatment modality and thus, an overall better management. Current Urological society of India recommendations[7] (soon to be published) are given in **Table 2**.

In patients with stress urinary incontinence, a uroflowmetry and post-void residue must be done before any outlet surgery, to assess for absence of voiding dysfunction in patients of typical stress incontinence where pressure flow study is omitted before surgery. Elderly females (age > 65 years), associated urgency or voiding symptoms, prior pelvic surgery or radiation, any neurological disease, high post void residue or poor uroflow, previous failed surgery or any other complicating factor should incite a detailed UDS.

S No.	Recommendation	Remark
1	Do not perform invasive urodynamics testing prior to initiating non-invasive treatment	Level of evidence - 1, Grade of recommendation - Strong)
2	Invasive urodynamics may be omitted before surgery in women with uncomplicated stress urinary incontinence	LE-1, GR-Moderate
	All other women should undergo urodynamics prior to stress urinary incontinence surgery	LE-3, GR-Strong
3	Invasive urodynamics is recommended in women with urgency urinary incontinence prior to invasive therapies	LE-3, GR-Weak

Table 2. Urological society of India guidelines for performing invasive urodynamics for urinary incontinence

The correlation between overactive bladder syndrome and the presence of detrusor overactivity on UDS is modest at best in women and may even be present in otherwise healthy volunteers. UDS findings generally have no bearing on the selection or outcome of treatment for urge urinary incontinence.[8] However, some studies do suggest that concordant findings on UDS indicate a better chance of improvement on treatment compared to non-concordant UDS findings.[9] However, because bladder outlet obstruction may be an alternate diagnosis commonly presenting with urgency incontinence, it is prudent to advice for detailed UDS prior to any surgical therapy. Similarly, mere increased sensations, reduced compliance, reduced capacity etc can all lead to symptoms of urge incontinence.

In patients of uterovaginal prolapse, occult stress incontinence should be demonstrated after prolapse reduction with pessary or ring forceps during UDS study. Additionally, bladder outlet obstruction, detrusor overactivity or underactivity may be associated with prolapse particularly long standing prolapse cases. Therefore, UDS may help in prognosis regarding voiding dysfunction in these cases.

Females who primarily present with voiding urinary symptoms need thorough evaluation with UDS, especially videourodynamics as a part of investigations. Although there are no well-defined thresholds to describe bladder outlet obstruction in females, UDS is to be very carefully interpreted in light of patient's symptoms/ examination and other imaging or endoscopy findings. Outlet obstruction is typified by high pdet and low flow on UDS. Detrusor pressure at maximum flow rate (pdetQmax) of less than 30 cmH2O, 20 cmH2O, and 10 cmH2O combined with a respective maximum flow rate (Qmax) of less than 10 ml/s, 15 ml/s, and 12 ml/s has been considered as indicator of detrusor underactivity versus outlet obstruction in females. Bladder voiding efficiency (defined as VV divided by VV + PVR) is another measure used to differentiate between detrusor underactivity and outlet obstruction at a cut off of 90%.[2] However, currently there is no gold standard for measuring bladder outlet obstruction or underactive detrusor in women.

Ambulatory UDS may be offered in women where urinary symptoms are not reproduced or explained by conventional urodynamic investigations, or in situations in which conventional UDS may be unsuitable. However, it has interpretation issues depending highly on the patient itself.

Concluding remarks

UDS should be done and designed with a definite test question in mind. Any invasive management in a non-typical patient should be preceded with UDS. UDS is now available widely across India; therefore it is even more important to make its judicious use and interpretation for better management of our patients.

References

1. Nitti VW, Combs AJ. Urodynamics when, why, and how. In: Nitti VW, editor. Practical urodynamics. Philadelphia, PA: WB Saunders; 1998. p. 15–26
2. Wyndaele M, Abrams P. Urodynamics in Female Urology. Eur Urol Suppl. 2018;17(3):91-9
3. Rosier PFWM, Schaefer W, Lose G, et al. International Continence Society Good Urodynamic Practices and Terms 2016: urodynamics, uroflowmetry, cystometry, and pressure-flow study. Neurourol Urodyn 2017;36:1243–60
4. Schafer W, Abrams P, Liao L, et al. Good urodynamic practices: uroflowmetry, filling cystometry, and pressure-flow studies. Neurourol Urodyn 2002;21:261–74
5. Haylen BT, de Ridder D, Freeman RM, et al. An International Urogynecological Association (IUGA)/ International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Neurourol Urodyn 2010;29:4–20
6. Abrams P, Cardozo L, Fall M, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. Neurourol Urodyn 2002;21:167–78
7. https://www.usi.org.in/New/Spe_pdf/FINAL%20Guidelines%2013%20Dec%20reconciled.pdf
8. Clement KD, Lapitan MCM, Omar MI, Glazener CM. Urodynamic studies for management of urinary incontinence children and adults. Cochrane Incontinence Group, editor. Cochrane Database Syst Rev [Internet]. 2013 Oct 29 [cited 2018 Dec 9]; Available from: http://doi.wiley.com/10.1002/14651858.CD003195.pub3
9. Verghese TS, Middleton LJ, Daniels JP, Deeks JJ, Latthe PM. The impact of urodynamics on treatment and outcomes in women with an overactive bladder: a longitudinal prospective follow-up study. Int Urogynecology J [Internet]. 2017 Jul 18 [cited 2018 Dec 8]; Available from: http://link.springer.com/10.1007/s00192-017-3414-4

Urinary Tract Infections in Pregnancy

Bharti Uppal Nayyar[1], Rajesh Kumari[2], J B Sharma[3], Rishi Nayyar[4]

[1]Fellow, [2]Assistant Professor, [3]Professor, Deptt. of Obstetrics & Gynaecology & Urogynaecology, AIIMS, New Delhi,
[4]Assistant Professor, Deptt. of Urology, AIIMS, New Delhi

Lower urinary tract symptoms are common in pregnant women. Albeit there is increased local immunity, urinary tract infections (UTIs) can occur and have associated sequelae during pregnancy. By convention, UTI is defined either as a lower tract infection (cystitis) or upper tract infection (pyelonephritis).

Incidence and risk factors - Asymptomatic bacteriuria occurs in 2-7% of pregnant women[1,2]. It typically occurs during early pregnancy, with only approximately a quarter of cases identified in the 2nd & 3rd trimester[3]. Factors that have been associated with a higher risk of bacteriuria include h/o UTI, pre-existing diabetes mellitus, increased parity, and low socioeconomic status[4-6].

Without treatment, as many as 20-35% of pregnant women with asymptomatic bacteriuria will develop symptomatic UTI, including pyelonephritis, during pregnancy[7,8]. This risk is reduced by 70-80% if bacteriuria is eradicated. Acute cystitis occurs in approximately 1-2% of pregnant women, and the estimated incidence of acute pyelonephritis during pregnancy is 0.5-2%[9-12]. Most cases of pyelonephritis occur during the second and third trimesters. Other risk factors include age <20 years, nulliparity, smoking, late presentation to care, sickle cell trait, and pre-existing (not gestational) diabetes.

Pregnancy outcomes - Many studies have described a correlation between maternal UTI, (esp. asymptomatic bacteriuria), and adverse pregnancy outcomes. Studies have also suggested that acute pyelonephritis has a similar association, but there are several variables that potentially confound this association, such as socioeconomic status and previous preterm delivery. Pyelonephritis, however, has been associated with a high rate of preterm birth, primarily between weeks 33 and 36. There were no differences in stillbirth or neonatal death. Other complications of pyelonephritis include anemia, sepsis, and respiratory distress . Maternal morbidity and obstetric outcomes with pyelonephritis do not appear to differ by trimester.

Pathogenesis - The smooth muscle relaxation and subsequent ureteral dilatation that accompany pregnancy are thought to facilitate the ascent of bacteria from the bladder to the kidney, resulting in the greater propensity for bacteriuria to progress to pyelonephritis during pregnancy. In addition, the immunosuppression of pregnancy may contribute. Also, mucosal IL-6 levels and serum antibody responses to E.Coli antigens appear to be lower in pregnant women.

Microbiology - E. coli is the predominant uropathogen (70%) found in both asymptomatic bacteriuria and UTI. Other organisms include Klebsiella and Enterobacter species (3% each), Proteus (2%), and gram-positive organisms, including group B Streptococcus (10 %). As in other community-acquired infections, antimicrobial resistance is an increasing concern. Infections caused by extended-spectrum beta-lactamase (ESBL)-producing strains are increasing in number. In India, ESBL-producing uropathogens is a particular problem, even in pregnant women[13]. Isolation of more than one species or the presence of Lactobacillus or Cutibacterium (formerly Propionibacterium) acnes may indicate a specimen contaminated by vaginal or skin flora.

Asymptomatic Bacteriuria

Screening - The Infectious Diseases Society of America recommends screening all pregnant women for asymptomatic bacteriuria at least once in early pregnancy[2]. Screening for asymptomatic bacteriuria is performed at 12 - 16 weeks gestation (or the first prenatal visit, if that occurs later) with a urine culture. Rescreening among those who did not have bacteriuria on the initial test is generally not performed in low-risk women. It is reasonable to rescreen women at high risk for infection (eg, H/O UTI or presence of urinary tract anomalies, diabetes mellitus, hemoglobin S, or preterm labor). There is minimal evidence informing the benefits and harms of repeat screening following an initial negative culture.

Specimen collection - The diagnosis of asymptomatic bacteriuria is based on culture of a urine specimen collected in a manner that minimizes contamination. Women are instructed to spread their labia and collect a midstream urine (without requiring a clean-catch). Routine catheterization to screen for bacteriuria is not warranted due to the risk of introducing infection.

Diagnostic criteria - For asymptomatic women, bacteriuria is formally defined as two consecutive voided urine specimens with isolation of the same bacterial strain in quantitative counts of $\geq 10^5$cfu/ml or

a single catheterized urine specimen with one bacterial species isolated in a quantitative count of $\geq 10^2$cfu/ml[2]. In clinical practice, however, only one voided urine specimen is obtained, and diagnosis (and treatment initiation) is made in women with $\geq 10^5$cfu/ml without obtaining a confirmatory repeat culture.

Rapid screening tests, such as dipstick do not come close to urine culture in terms of sensitivity and specificity for detecting asymptomatic bacteriuria in pregnant women and should not be used. In addition, cultures are useful in guiding therapy. This can be particularly important in pregnancy, during which the number of safe treatment alternatives is reduced.

Management - It includes antibiotic therapy tailored to culture results and follow-up cultures to confirm sterilization of the urine.

Rationale for treatment - Untreated asymptomatic bacteriuria during pregnancy has been associated with an increased risk of pyelonephritis, preterm birth, low birth weight infant, perinatal mortality in most[1,7] and risk of preeclampsia.

Antimicrobial treatment - Asymptomatic bacteriuria is treated with an antibiotic tailored to the susceptibility pattern of the isolated organism, which is generally available at the time of diagnosis. Potential options include beta-lactams, nitrofurantoin, and fosfomycin (table 1). The choice of antimicrobial agent should also take into account safety during pregnancy (including the particular stage of pregnancy). The optimal duration of antibiotics for asymptomatic bacteruria is uncertain. Short courses of antibiotics are preferred to minimize the antimicrobial exposure to the fetus. Short course antibiotic therapy is usually effective in eradicating asymptomatic bacteriuria of pregnancy, although single-dose regimens may not be as effective as slightly longer regimens. An exception is single-dose fosfomycin, which successfully treats bacteriuria.

Follow-up - Up to 30 % of women fail to clear asymptomatic bacteriuria following a short course of therapy[1]. Thus, a repeat culture is generally recommended as a test of cure, which can be performed a week after completion of therapy for asymptomatic bacteriuria.

- If repeat culture has no growth, there is no indication for further testing for bacteriuria in the absence of symptoms suggestive of UTI.
- If repeat culture is positive for bacterial growth ($\geq 10^5$cfu/ml), it is recommended to prescribe a repeat antibiotic treatment tailored to antimicrobial susceptibility testing (table 1); if the repeat culture yielded the same species as the first culture, it is advised to give either the same antimicrobial as administered the first time for a longer course (eg, seven days, if a three-day regimen was used previously) or a different antimicrobial for a typical duration. Also, it is advised to not continue testing for asymptomatic bacteriuria following this second treatment course. There are insufficient data to support the use of suppressive or prophylactic antibiotics for persistent or recurrent asymptomatic bacteriuria, and it is also not recommended.

Acute Cystitis

Acute cystitis should be suspected in pregnant women who complain dysuria. Although urinary frequency and urgency are typical findings of acute cystitis, they are also frequently a normal physiologic change of pregnancy and reported by pregnant women without cystitis or bacteriuria. The diagnosis of acute cystitis is confirmed by finding of bacterial growth on urine culture. Prior to confirming the diagnosis, empiric treatment is typically initiated in a patient with consistent symptoms and pyuria on urinalysis. In nonpregnant women with acute simple cystitis, coliform colony counts in voided urine as low as

Table 1

Antibiotic	Dose	Duration	Remarks
Nitrofurantoin	100mg. BD	5 -7 d	Doesn't achieve therapeutic levels in kidneys. So, not to be used if pyelonephritis suspected. Avoid in 1st trim. & at term
Amoxycillin	500mg TDS	5 -7 d	Resistance limits utility for gram (-) pathogens
Amoxycillin-clavulanate	500mg TDS	5 -7 d	
Cephalexin	500mg QID	5 -7 d	
Cefpodoxime	100 mg BD	5 -7 d	
Fosfomycin	3 gm oral single dose		Doesn't achieve therapeutic levels in kidneys. So, not to be used if pyelonephritis suspected
Trimethoprim- sulfamethoxazole	800/ 160 mg (one double-strength tab) BD	3 d	Avoid in 1st trim. & at term

10^2cfu/ml have been noted to reflect bladder infection. As most clinical laboratories do not routinely quantify urine isolates to 10^2cfu/ml, it is reasonable to use a quantitative count $\geq 10^3$cfu/ml in a symptomatic pregnant woman as an indicator of symptomatic UTI. If bacteria that are not typical uropathogens (such as lactobacillus) are isolated, the diagnosis of cystitis is typically made only if they are isolated in high bacterial counts ($\geq 10^5$cfu/ml).

Differential diagnosis – Dysuria in pregnant women can also be a result of vaginitis or urethritis. Similarly, urinary frequency and urgency may be symptoms of normal pregnancy in the absence of UTI. However, true bacteriuria is typically not present in these settings and thus distinguishes acute cystitis. If not already performed, testing for STIs (e.g. chlamydia and gonorrhea) is warranted for pregnant women with dysuria without bacteriuria or women who have persistent dysuria despite successful treatment of bacteriuria.

Management – It includes empiric antibiotic therapy that is subsequently tailored to culture results and follow-up cultures to confirm sterilization of the urine. For those women with persistent or recurrent bacteriuria, prophylactic or suppressive antibiotics may be warranted in addition to retreatment.

Antimicrobial treatment – Antibiotic treatment of acute cystitis in pregnant women is often empiric, initiated at the time of complaints of dysuria, and then tailored to the susceptibility pattern of the isolated organism once urine cultures return. Potential options for empiric and directed therapy include beta-lactams, nitrofurantoin, and fosfomycin (table 1). The choice of an antimicrobial agent should also take into account any prior microbiological data and drug safety during pregnancy (including the particular stage of pregnancy).

For empiric therapy, it is recommended to choose between cefpodoxime, amoxicillin-clavulanate, and fosfomycin, given their safety in pregnancy and the somewhat broader spectrum of activity compared with other agents (such as amoxicillin or cephalexin). Nitrofurantoin is another option during the second or third trimester or if the others cannot be used for some reason (eg, drug allergy). The choice between them should be individualized on the basis of several factors, including patient allergy history, local practice patterns, local community resistance prevalence, availability, and cost.

For women who are thought to be at risk for or have documented infection with extended-spectrum beta-lactamase (ESBL)- producing Enterobacteriaceae, nitrofurantoin and fosfomycin are active in vitro against many such strains and are potential oral options.

Short courses of antibiotics are preferred, to minimize the antimicrobial exposure to the fetus. It is recommended to treat acute cystitis with a 3 -7 day course of antibiotics as long as there are no symptoms suggestive of pyelonephritis

Follow-up – A follow-up culture,a week after completion of therapy,should be obtained as a test of cure.

Management ofrecurrent cystitis – In women who have three or more episodes of recurrent cystitis during pregnancy, antimicrobial prophylaxis for the duration of pregnancy is a reasonable strategy to prevent additional episodes. Prophylaxis can be postcoital if the cystitis is thought to be sexually related (which it commonly is) or continuous. In the setting of other conditions that potentially increase the risk of urinary complications during episodes of cystitis (eg, diabetes or sickle cell trait), prophylaxis following the first episode of cystitis during pregnancy is also reasonable.

The choice of antimicrobial used for prophylaxis should be based on the susceptibility profile of the pathogens causing the cystitis. Ideally, daily or postcoital prophylaxis with low-dose nitrofurantoin (50 to 100 mg orally) or cephalexin (250 to 500 mg orally) postcoitally or at bedtime can be used.

Acute Pyelonephritis

Clinical manifestations - The typical symptoms of acute pyelonephritis include fever (>38°C or 100.4°F), flank pain, nausea, vomiting, and/or costovertebral angle tenderness. Symptoms of cystitis (eg, dysuria) are not always present. Pyuria is a typical finding. Most cases of pyelonephritis occur during the second and third trimesters.

Pregnant women with pyelonephritis may become quite ill and are at risk for both medical and obstetrical complications. It has been estimated that as many as 20 % of women with severe pyelonephritis develop complications that include anaemia (23%), bacteremia (17%), respiratory insufficiency (7%), renal dysfunction (2%) and septic shock syndrome or its variants, such as ARDS[14-16]. The mechanism of anemia is not well understood, but hemolysis is perhaps mediated by endotoxins. Acute renal failure associated with microabscesses and suppurative pyelonephritis has been described in isolated cases,

independent of sepsis.

Pyuria is present in the majority of women with pyelonephritis, and its absence should prompt consideration of an alternative diagnosis or complete obstruction. However, absence of pyuria does not rule out UTI if symptoms and urine culture are consistent with the diagnosis. Although many pregnant women have back or flank pain without pyelonephritis, we have a low threshold for evaluation for bacteriuria and a diagnosis of pyelonephritis in pregnant women with these symptoms, given the risk of complications and adverse pregnancy outcomes with untreated pyelonephritis.

It is reasonable to obtain blood cultures in those with signs of sepsis or serious underlying medical conditions such as diabetes. Other tests, such as a serum lactate level, can also be useful in women with suspected sepsis to inform the severity of disease.

Imaging is not routinely used to diagnose pyelonephritis. However, in patients with pyelonephritis who are severely ill or who also have symptoms of renal colic or history of renal stones, diabetes, history of prior urologic surgery, immunosuppression, repeated episodes of pyelonephritis, or urosepsis, imaging of the kidneys can be helpful to evaluate for complications. In pregnant women, renal ultrasound is the preferred imaging modality in order to avoid contrast or radiation exposure.

Differential diagnosis - Nephrolithiasis can present with significant flank or back pain and abnormal findings on the urinalysis, but fever is uncommon with uncomplicated stone disease. This can also be distinguished from pyelonephritis by visualization of the stones on renal ultrasound.

Management - It includes hospital admission for parenteral antibiotics. Antibiotic therapy can be converted to an oral regimen tailored to the susceptibility profile of the isolated organism following clinical improvement. Following the treatment course, suppressive antibiotics are typically used for the remainder of the pregnancy to prevent recurrence.

Empiric antibiotics - Parenteral, broad spectrum beta-lactams are the preferred antibiotics for initial empiric therapy of pyelonephritis (table 2). The choice between them should be guided by local microbiology and susceptibility data as well as expected patient tolerance. Fluoroquinolones and aminoglycosides, which are often used for pyelonephritis in nonpregnant individuals, should be avoided in pregnancy if possible.

Table 2: Parenteral regimens for empiric therapy of pyelonephritis in pregnancy

Antibiotic	Dose, interval
Mild to moderate pyelonephritis	
Ceftriaxone	1 gm every 24 hrs
Cefepime	1 gm 12 hrly
Aztreonam	1 gm every 8 hrs
Ampicillin Plus Gentamycin	1-2 g every 6 hrs 1.5 mg/ kg every 8 hrs
Severe pyelonephritis with impaired immune system/ incomplete urinary drainage	
Piperacillin- tazobactum	3.375gm every 6 hrs
Meropenum	1 gm every 8 hrs

Directed antibiotic therapy and follow-up – There occurs definite improvement within 24 to 48 hours of appropriate antibiotic therapy. Once afebrile for 48 hours, pregnant patients can be switched to oral therapy guided by culture susceptibility results and discharged to complete 10 - 14 days of treatment. Oral options are mainly limited to beta-lactams or, if in the 2nd trimester, trimethoprim-sulfamethoxazole. Nitrofurantoin and fosfomycin are not appropriate for treatment of pyelonephritis due to inadequate tissue levels.If symptoms and fever persist beyond the first 24 - 48 hours of treatment, a repeat urine culture and renal ultrasound should be performed to rule out persistent infection and urinary tract pathology.

For women who do not use antimicrobial prophylaxis for the duration of pregnancy following an episode of pyelonephritis, it is recommended to check monthly urine cultures to evaluate for recurrent bacteriuria and treat as indicated because of the risk of recurrent pyelonephritis.

Obstetric management – Pyelonephritis is not itself an indication for delivery. If induction of labor or cesarean delivery for standard obstetrical indications is planned in a patient on treatment for pyelonephritis, it is recommended to wait until the patient is afebrile, as long as delaying the delivery is relatively safe for the mother and fetus.

Pyelonephritis is associated with preterm birth. Tocolysis is typically not administered after 34 weeks gestation. If a woman with pyelonephritis prior to that gestational age experiences preterm labor, administration of tocolysis and steroids is reasonable to attempt to prolong the pregnancy. However, if the patient is septic, tocolysis is generally avoided. Pregnant women with pyelonephritis are at increased risk of pulmonary edema and ARDS, which may be exacerbated by administration of tocolysis with or without corticosteroids.

Preventing recurrence – Recurrent pyelonephritis during pregnancy occurs in 6% - 8%of women. As a result, after an initial episode of pyelonephritis, low-dose antimicrobial preventive therapy with an agent to which the original organism is susceptible for the remainder of the pregnancy is a reasonable strategy; but there are no randomized trials to inform the optimal approach. If preventive therapy is utilized, reasonable options include nitrofurantoin (50 to 100 mg orally at bedtime) or cephalexin (250 to 500 mg orally at bedtime).

Breakthrough bacteriuria can occur during preventive therapy, so we usually perform at least one later culture, such as at the start of the third trimester, to ensure preventive therapy is working. If a follow-up culture is positive ($\geq 10^5$ colony-forming units/ml), then a course of antimicrobial therapy based on susceptibility data should be administered. In addition, the preventive regimen should be reassessed and adjusted if needed.

Summary and Recommendations

- All pregnant women to be screened at least once for asymptomatic bacteriuria. It is performed at 12 - 16 weeks gestation with a midstream urine for culture. The diagnosis is made by finding high-level bacterial growth ($\geq 10^5$cfu/ml or, for group B Streptococcus, $\geq 10^4$ cfu/ml) on urine culture in the absence of symptoms consistent with UTI.
- Management of asymptomatic bacteriuria in pregnant women includes antibiotic therapy tailored to culture results, which reduces the risk of subsequent pyelonephritis and is associated with improved pregnancy outcomes. Potential options include beta-lactams, nitrofurantoin, and fosfomycin (table 1). Following treatment, follow-up culture is performed to confirm sterilization of the urine.
- Acute cystitis should be suspected in pregnant women who complain about new onset dysuria, frequency, or urgency. The diagnosis is made by finding of bacterial growth on urine culture in this setting. Management of acute cystitis in pregnant women includes empiric antibiotic therapy that is subsequently tailored to culture results. Potential options for empiric and directed therapy include beta-lactams, nitrofurantoin, and fosfomycin (table 1). As with asymptomatic bacteriuria, follow-up cultures are performed to confirm sterilization of the urine. For those women with recurrent cystitis, prophylactic or suppressive antibiotics may be warranted in addition to retreatment.

References

1. Patterson TF, Andriole VT. Detection, significance, and therapy of bacteriuria in pregnancy. Update in the managed health care era. Infect Dis Clin North Am 1997; 11:593.
2. Nicolle LE, Bradley S, Colgan R, et al. Infectious Diseases Society of America guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults. Clin Infect Dis 2005; 40:643.
3. Sobel JD and Kaye D. Urinary tract infections. In: Mandell, Douglas, and Bennett's Principles and practice of infectious diseases, 7, Mandell GL, Bennett JE, and Dolin R (Eds), Elsevier, Philadelphia 2010. Vol 1, p.957.
4. Alvarez JR, Fechner AJ, Williams SF, et al. Asymptomatic bacteriuria in pregestational diabetic pregnancies and the role of group B streptococcus. Am J Perinatol 2010; 27:231.
5. Schnarr J, Smaill F. Asymptomatic bacteriuria and symptomatic urinary tract infections in pregnancy. Eur J Clin Invest 2008; 38 Suppl 2:50.
6. Golan A, Wexler S, Amit A, et al. Asymptomatic bacteriuria in normal and high-risk pregnancy. Eur J Obstet Gynecol Reprod Biol 1989; 33:101.
7. Smaill FM, Vazquez JC. Antibiotics for asymptomatic bacteriuria in pregnancy. Cochrane Database Syst Rev 2015; : CD000490.
8. Moore A, Doull M, Grad R, et al. Recommendations on screening for asymptomatic bacteriuria in pregnancy. CMAJ 2018; 190:E823.
9. Kazemier BM, Koningstein FN, Schneeberger C, et al. Maternal and neonatal consequences of treated and untreated asymptomatic bacteriuria in pregnancy: a prospective cohort study with an embedded randomised controlled trial. Lancet Infect Dis 2015; 15:1324.
10. Gilstrap LC 3rd, Ramin SM. Urinary tract infections during pregnancy. ObstetGynecolClin North Am 2001; 28:581.
11. Harris RE, Gilstrap LC 3rd. Cystitis during pregnancy: a distinct clinical entity. ObstetGynecol 1981; 57:578.
12. Hill JB, Sheffield JS, McIntire DD, Wendel GD Jr. Acute pyelonephritis in pregnancy. ObstetGynecol 2005; 105:18.
13. Pathak A, Chandran SP, Mahadik K, et al. Frequency and factors associated with carriage of multi-drug resistant commensal Escherichia coli among women attending antenatal clinics in central India. BMC Infect Dis 2013; 13:199.
14. Cunningham FG, Lucas MJ. Urinary tract infections complicating pregnancy. Baillieres ClinObstetGynaecol 1994; 8:353.
15. Cunningham FG, Lucas MJ, Hankins GD. Pulmonary injury complicating antepartum pyelonephritis. Am J ObstetGynecol 1987; 156:797.
16. Towers CV, Kaminskas CM, Garite TJ, et al. Pulmonary injury associated with antepartum pyelonephritis: can patients at risk be identified? Am J ObstetGynecol 1991; 164:974.

Management of Female Stress Urinary Incontinence: An update

Monika Gupta
Associate Professor, VMMC & Safdarjung Hospital, New Delhi

Introduction

Stress urinary incontinence (SUI) is a condition of involuntary loss of urine on effort, physical exertion, sneezing, or coughing that is often bothersome to the patient and frequently affects quality of life. The approach to treatment of incontinence is dependent on clear understanding of the cause and pathophysiology underlying the patient's symptoms. The clinician must determine whether the cause of the symptom is a bladder or an outlet problem or a combination of both. Management includes careful assessment of patient including history and physical examination and investigations followed by case oriented treatment planning.

The usual approach to the treatment of SUI is a stepped-care plan starting with conservative techniques involving noninvasive behavioral modifications, followed by devices and pharmacologic interventions, and finally surgery in those whose symptoms do not respond to initial treatment. When patients have mixed incontinence, treatment should be directed towards the predominant symptom.

The aim of surgical procedures is to provide support to the urethro-vesical junction and improve deficient urethral closure. The surgery usually addresses the failure of normal anatomic support of bladder neck and proximal urethra and intrinsic sphincter deficiency.

Patient Evaluation

The diagnosis of SUI needs to be made after careful assessment of past and current incontinence urinary symptom review including urinary tract infection, dysuria, or hematuria, medical problems and prior surgeries and medications. This can also be supported by a bladder diary which can be useful for quantifying symptoms and recording the number and type of episodes of urinary incontinence. Several validated tools (e.g. incontinence impact questionnaire (IIQ-7)) are available to assess the severity of urinary incontinence (UI) and measure condition specific quality of life.

Physical examination is required as part of the initial diagnosis, especially recommended prior to prescribing medications. This includes evaluation of BMI, edema in extremities, abdominal examination for any abdominal mass or enlarged bladder, pelvic examination to rule out vaginal atrophy, pelvic organ prolapse, cystocele and neurologic examination (anal wink reflex, bulbocavernosus reflex, and perineal **sensation**) especially in cases of sudden-onset incontinence, or other neurologic symptoms

Routine digital assessment of pelvic floor muscle contraction before the use of supervised pelvic floor muscle training for the treatment of UI is an integral part of assessment. Confirm the patient's ability to contract pelvic floor muscle of each side by feeling for pelvic floor rising and vaginal narrowing during a bimanual digital exam.

Objective demonstration of SUI with a comfortably full bladder should be done. Visualization of fluid loss from the urethra simultaneous with a cough is diagnostic of SUI. Delayed fluid loss is considered a negative cough stress test result and suggests cough-induce detrusor overactivity. The cough stress test can be performed with the patient in the supine position during the physical examination. However, if urine leakage is not observed, the cough stress test needs to be repeated with the patient standing and with a full bladder (or a minimum bladder volume of 300 mL) to maximize test sensitivity

The "Q-tip test" is no longer recommended due to low test specificity. Bonney's Test is done to judge feasibility of surgical correction in cases of stress urinary incontinence.

Assessment of post-void residual urine (any method) and urinalysis completes the list for initial assessment.

Additional Work-up:

In the patients being considered for surgical intervention, additional evaluations need to be performed if the patients have following conditions:

- Inability to make definitive diagnosis based on symptoms and initial evaluation
- Inability to demonstrate stress urinary incontinence
- Known or suspected neurogenic lower urinary tract dysfunction
- Abnormal urinalysis, such as unexplained hematuria or pyuria
- Urgency-predominant mixed urinary incontinence

- Elevated post-void residual urine
- High grade pelvic organ prolapse(POP-Q stage 3 or higher) if SUI not demonstrated with pelvic organ prolapse reduction
- Evidence of significant voiding dysfunction

Urodynamic testing:

As per the latest recommendations, Urodynamic studies (multi-channel filling and voiding cystometry) can be avoided in the group of women where pure SUI is diagnosed based on a detailed clinical history and examination. In patients where surgical intervention has been decided, urodynamic studies should be offered before surgery in women who have:

- symptoms of overactive bladder leading to a clinical suspicion of detrusor overactivity
- symptoms suggestive of voiding dysfunction
- anterior compartment prolapse
- history previous surgery for stress incontinence. Ambulatory urodynamics or videourodynamics should only be considered if the diagnosis is unclear after conventional urodynamics.[2]

Routine cystoscopy before surgery is not recommended.

Treatment

Non-pharmacologic therapy

1. Lifestyle modifications

   Moderately and morbidly obese women who experience stress incontinence should be encouraged to lose weight, which has been shown to reduce the frequency of incontinence symptoms.

   Dietary change; avoiding foods and drinks that can adversely affect normal bladder function (caffeinated products, alcohol, and acidic or spicy products). Smoking cessation for patients with stress UI or stress-predominant mixed UI. Reduction of fluid intake in patients who are drinking excessive amounts. To avoid the risk of urinary tract infections, constipation, and dehydration, patients generally should not lower their intake below six to eight 8-ounce glasses of fluid each day. Avoid constipation.

   Review of medications that may

   - Cause incomplete bladder emptying (overflow incontinence), such as anticholinergics (dicyclomine, hyoscyamine, benztropine, trihexyphenidyl, etc.), antihistamines (diphenhydramine, chlorpheniramine, etc.), and beta-blockers (atenolol, metoprolol, propranolol, etc.).
   - Cause edema, such as calcium channel blockers (amlodipine, felodipine, nifedipine, etc.) and NSAIDs (ibuprofen, naproxen, etc.).
   - Cause cognitive changes, such as narcotics.
   - Affect bladder function, such as alpha-blockers (doxazosin, prazosin, terazosin), oral or transdermal estrogen (Premarin, Climara, etc.) and antipsychotics (clozapine, chlorpromazine, haloperidol, thioridazine, etc.).
   - Increase urinary output, such as diuretics (furosemide, hydrochlorothiazide, etc.)

2. Behavioral therapy

   Behavioral therapy, which includes pelvic floor muscle training (PFMT), should be offered as a first-line therapy for the management

   Kegel exercises are based on the on the principle of strength training, and involve squeezing and releasing the pelvic floor muscles used to stop urination. These contractions increase the strength and tone of the pelvic floor muscles, which increases the force of urethral closure, which in turn prevents stress incontinence during an abrupt increase in intra-abdominal pressure. The basic recommended regimen involves 3 sets of 8–12 slow-velocity contractions sustained for 6–8 seconds each, performed 3–4 times a week and continued for at least 20 weeks.

3. Pessaries & devices

   For women with stress or mixed UI with stress predominance, and those who are not ideal candiates for surgery, pessaries can reduce episodes of UI. Fittings for pessaries must be done under clinician's supervision.

   Vaginal inserts, including incontinence tampons, can be used for treating stress incontinence in pregnant women, in those who are not surgical candidates, and in those whose symptoms have not responded to previous surgeries. Vaginal inserts compress the bladder neck and urethra, thus decreasing urine loss caused by stress incontinence. Urethral plugs are devices that are inserted into the urethra to prevent urine loss during activities that cause stress incontinence (e.g., running)

4. Biofeedback

   Evidence does not indicate additional benefit from biofeedback with PFMT in comparison with PFMT alone in treating UI. Biofeedback with PFMT is more costly than PFMT alone and therefore is not cost effective given a lack of additional benefit.

Pharmacological Therapy:

Duloxetine

This drug should not be used as a first-line treatment for women with predominant stress UI and may be offered as second-line therapy only if women prefer pharmacological to surgical treatment or are not suitable for surgical treatment. Before starting, counsel women about its adverse effects. Adverse effects, particularly nausea, and discontinuation rates are very common (more than 10%). Long-term safety profile is not known.

Surgical Management:

If conservative management for SUI has failed in women with uncomplicated SUI and in women with mixed UI (after appropriate treatment) who have stress-predominance or fail medical management following surgical interventions can be offered:

- mid-urethral slings (MUS) / synthetic tapes
- autologous fascia pubovaginal slings (AUS)
- open / laparoscopic retropubic colposuspension (Burch Colpsuspension)
- urethral bulking agents

Anterior colporrhaphy, needle suspensions, paravaginal defect repair and the Marshall–Marchetti–Krantz procedure for the treatment of SUI are no longer offered as per latest recommendations.

In women with Mixed Urinary Incontinence (MUI), consider an initial trial of medication for Urge Urinary Incontinence (UUI) regardless of the dominant symptom. Inform women with MUI about the unpredictable long- term resolution of urgency symptoms, even after surgical management.

The decision for the choice of surgery is made after properly evaluating the following

- Relative degree of Urethral Hypermobility and ISD (intrinsic sphincter deficiency)
- Previous trial of conservative treatment
- Need for concomitant surgeries like genital prolapse, hysterectomy and fistula repair
- Patient's life style: Sedentary/heavy physical activity
- Age and overall medical condition of patient
- Previous pelvic or retropubic surgery
- Previous abdominal surgery or mesh hernia repair
- Previous fractured pelvis or road traffic accident or problems with hip abduction

Discuss the potential for failed correction, intraoperative injury, postoperative retention, erosion, infection or voiding dysfunction. Women should be advised of the risks and prognosis for different procedures so that an informed decision can be made.

Laparoscopic colposuspension is not recommended for routine surgical treatment of SUI. However, it might be considered in women who need a concomitant laparoscopic surgery in hands of experienced laparoscopic surgeons.

Synthetic Mid-Urethral Tapes

Offer the mid-urethral sling to women with uncomplicated stress urinary incontinence as the preferred surgical intervention whenever available. Colposuspension and autologous fascial sling is offered if mid uretheral slings are not available.

For uncomplicated SUI, TOT (Transobturator) is preferred over TVT (retropubic) due to lesser postop voiding dysfunction and lesser bladder perforation risk.

Synthetic slings have generally low rate of complications, high efficacy and safety but small possibility of irreversible tape-related adverse events and the consequent need for long-term follow up.

Women who are being offered a *single-incision sling* should be informed that long-term efficacy remains uncertain. The evidence on the safety of single-incision short sling mesh insertion for SUI in women shows infrequent but serious complications. These include lasting pain, discomfort and failure of the procedure. The mesh implant is intended to be permanent but, if removal is needed because of complications, the anchoring system can make the device very difficult or impossible to remove. The evidence on efficacy in the long term is inadequate in quality and quantity.

Autologous Fascial Sling

Autologous Fascial Sling is an effective treatment for SUI that has longevity and may be more effective than other biological and synthetic slings. The porcine dermal graft appears to lose tensile strength over time and is associated with a decreased cure rate compared to AFS and MUS.

But, this modality has a high risk of voiding difficulty than MUS and the women opting for this modality need to be informed about the requirement of clean intermittent self-catheterization.

Bulking Agents

Intramural bulking agents (silicone, carbon- coated zirconium beads or hyaluronic acid/dextran copolymer) are used for the management of SUI in selected cases. Major disadvantages are multiple sessions and poor long-term efficacy.

Artificial Urinary Sphincter

There is lack of good quality evidence for efficacy of AUS (artificial urinary sphincter), Women need to be counselled about the cumbersome procedure of installation and need for life long follow up because of involved risk of malignancy.

Surgical management in Special Clinical situations

- SUI and a fixed, immobile urethra (often referred to as 'ISD') : offer pubovaginal slings/ Bladder neck Slings, retropubic MUS, urethral bulking agents, or AUS.
- Inadvertent injury to urethra in a planned MUS procedure: Avoid mesh sling
- Patients undergoing concomitant urethral diverticulectomy, repair of urethrovaginal fistula, or urethral mesh excision and SUI surgery: synthetic MUS containdiacted
- Patients at risk for poor wound healing (e.g., following radiation therapy, presence of significant scarring, poor tissue quality): mesh sling contraindicated
- Patients undergoing concomitant surgery for pelvic prolapse repair and SUI: any of the incontinence procedures (e.g., MUS, pubovaginal sling, Burch colposuspension) but surgery for prolapse should be performed first to avoid displacement of sling if done afterwards.
- Patients with SUI and concomitant neurologic disease affecting lower urinary tract function (neurogenic bladder): surgical treatment of SUI after appropriate evaluation and counselling have been performed.

Follow-up Assessment

First follow up should be offered within the early postoperative period to assess if patients are having any significant voiding problems, pain, or other unanticipated events. If patients are experiencing any of these outcomes, they should be seen and examined. Early intervention is required to avoid potential complication

Asymptomatic patients should be seen and examined by their treating surgeon within six months post-operatively. Patients should be asked about residual incontinence, ease of voiding/force of stream, recent urinary tract infection, pain, sexual function and new onset or worsened overactive bladder symptoms.

Voiding dysfunction can be seen after any type of intervention for SUI and may involve both storage and emptying symptoms. There is a risk of de novo storage symptoms (urgency, frequency and/or UUI) or worsening of baseline OAB symptoms for patients with MUI or SUI with urinary urgency. Depending on the symptoms, this may require one of the many options available to treat OAB or, if the symptoms are thought to be related to post-operative obstruction, may require sling incision, sling loosening, or urethrolysis. Obstruction resulting in urinary retention is also a potential complication and would require intermittent catheterization, indwelling Foley catheter drainage, and possible sling incision, sling loosening, or urethrolysis if this does not resolve spontaneously.

Key Recommendations for management of SUI

- For most women with uncomplicated SUI desiring surgical treatment , midurethral transobturator sling remains the procedure of choice.
- Retropubic MUS have superior efficacy than transobturator approach in patients of SUI with ISD, provided they are prepared to accept higher rates of complications.
- Patients having apical prolapses being corrected by abdominal approach may be simultaneously offered Burch colposuspension for SUI. However vaginal MUS is also an acceptable option.

Suggested Reading

1. Kobashi KC, Albo ME, Dmochowski RR, Ginsberg DA, Goldman HB, Gomelsky A, Kraus SR, Sandhu JS, Shepler T, Treadwell JR, Vasavada S, Lemack GE. Surgical Treatment of Female Stress Urinary Incontinence: AUA/ SUFU Guideline. J Urol. 2017 Oct;198(4):875-883.
2. Urinary Incontinence in Women: The Management of Urinary Incontinence in Women. National Collaborating Centre for Women's and Children's Health (UK). London: Royal College of Obstetricians and Gynaecologists (UK); 2013 Sep.
3. Bettez M1, Tu le M, Carlson K, Corcos J, Gajewski J, Jolivet M, Bailly G. 2012 update: guidelines for adult urinary incontinence collaborative consensus document for the canadian urological association. Can Urol Assoc J. 2012 Oct;6(5):354-63.
4. Lucas MG, Bosch JLHR, Cruz FR, et al. EAU Guidelines on Urinary Incontinence, Issued in 2014.

12. Richter HE, Albo ME, Zyczynski HM, Kenton K, Norton PA, Sirls LT, et al. Retropubic versus Transobturator. Midurethral Slings for Stress Incontinence. N Engl J Med 2010; 362: 2066-76.

14. Stanford EJ, Paraiso MFR. A comprehensive review of suburethral sling procedure complications. J Min Invas Gynecol. 2008; 15: 132-45.

Different Methods of Rectovaginal Fistula Repair

Kavita Pandey[1], Rajesh Kumari[2], JB Sharma[3]
1Fellow, 2Assistant Professor, 3Professor, Deptt. Of Obst.Gynaec. & Urogynaecology, AIIMS, New Delhi

Recto-vaginal fistula (RVF) is the most distressing surgical condition that a woman can experience. Obstetric trauma is the cause of upto 88% of RVFs[1]. The second commonest cause of RVF is Crohn's disease; upto 10% of women with Crohn's disease will develop an RVF[2]. Other causes include radiation, malignancy, iatrogenic injury and infection[3].

Rectovaginal fistula (RVF) is an epithelial lined tract between the rectum and vagina, and generally presents with passage of air, stool or even purulent discharge from the vagina. This can result in recurrent urinary tract or vaginal infections, but also creates a serious psychosocial burden for the patient[4]. They are well known to dramatically lower a female's self-esteem and prevent successful intimate relationships. Unfortunately, they are also notoriously difficult to manage, despite the numerous surgical options presently described, and may even require fecal diversion to aid closure.

Typically, the presenting symptoms of RVF are passage of liquid stool or flatus per vagina, recurrent attacks of UTI, perineal and vulval irritation and difficulty keeping the area clean. For women with small fistula and minimal symptoms which don't interfere with lifestyle, conservative treatment should be considered.

Classification of RVF

1. According to anatomical locations (5):

- Low fistula (simple fistula): Rectal opening is at the dentate line and vaginal opening just inside the vaginal fourchette
- High fistula (complex fistula): Vaginal opening near the cervix
- Middle fistula: Between high and low fistula

2. Classification system based on etiology:

Type I: Traumatic (Obstetric trauma: 88%)[6]

Type II: Inflammatory Bowel Disease (IBD): (Crohn's Disease: 10%)[7]

Type III: Post-Radiation injury[8]

Type IV: Postoperative injury (Iatrogenic: 0.9%)[9]

Others: Infection, Malignancy and Sexual trauma[10,11,12]

3. OTHER CLASSIFICATION

Low fistulas - located through or distal to the sphincter complex, but proximal to the dentate line and approached *via* anal, perineal or vaginal route.

High fistulas are proximal to the sphincteric complex, with a vaginal opening near the cervix, and generally require an abdominal approach for repair.

Simple fistula- is one that is smaller in size (< approximately 2.5 cm), more distally located along rectovaginal septum, and generally occurred a result of trauma or a cryptograndular infection.

Complex fistulas- are typically a result of inflammatory bowel disease, radiation or invasive cancer, fistulas that have failed prior attemps. Complex fistulas are commonly more proximal on the rectovaginal septum and are not amenable to primary repair, though may occur anywhere due to the underlying etiology.

Rectovaginal Fistula – Treatment

Treatment is based on fistula classification and localization of the fistula in relation to the vagina and rectum. Conventional therapy frequently fails, making surgery the most viable approach for fistula repair.

RVFs present a difficult problem that is frustrating for patients and surgeons alike. Multiple trips to the operating room are generally needed to resolve the fistula, and the recurrence rate approaches 40% when considering all of the surgical options. While there are many therapeutic approaches for RVF, they depend on the fistula's localization and the patient's comorbidities. Lower RVF are usually reconstructed using an anal, perineal or vaginal approach. Transabdominal approaches are used for the repair of higher fistulas[13]. Anatomic fistula repair alone is associated with lower success rates compared to combined procedures with the adjunctive interposition of healthy, vascularized tissue[14].

In most therapeutic approaches healthy tissue is transposed into the perineal space between the rectal and vaginal layer to enhance blood supply and granulation tissue, obliterate "dead" space, protect the sutures of anatomic fistula repair of the different layers, and prevent rectal and vaginal stenosis. The rate of spontaneous healing is low, making it important to ensure that RVF repair is adequate, as the success rate

decreases with the number of prior operations. (15,16)

At present, surgical options range from simple fistulectomy and endorectal advancement flaps to sphincter repairs or resection with colo-anal reconstruction.

There are general principles that will allow the best chance for resolution of the fistula with the least morbidity to the patient. These principles include**: resolving the sepsis, identifying the anatomy, starting with least invasive surgical options, and interposing healthy tissue for complex or recurrent fistulas**.

Operative techniques used for treatment of different types of RVF ;

Local Repair;

1. Transanal Advancement flap repair.
2. Transvaginal inversion repair.
3. Bioprosthetic repair.
4. Conversion to complete perineal laceration with layer closure.
5. Simple fistulotomy.

Transabdominal Repair;

1. Fistula division and closure wuthout bowel resection.
2. Bowel resection.
3. Ancilliary approach (Bickers patch).
4. Repair in Crohns disease patients (proctectomy).

Preparation for Surgery

Preoperative Preparation

Complete mechanical bowel preparation is essential for transabdominal repair of RVF and is also recommended for local repair. The practice of including poorly absorbed oral antibiotics in the bowel preparation is under scrutiny. Administering intravenous (IV) antibiotics in such a way as to ensure appropriate tissue levels at the start of the procedure is sufficient for prophylaxis. Although diverting colostomy was used in the past, the overwhelming majority of RVFs are now repaired without this procedure being performed beforehand.

Cleanse the vaginal lumen with an antiseptic solution, such as povidone-iodine. Insert a catheter into the urinary bladder.

If a transabdominal procedure is planned, perform standard preoperative cardiopulmonary evaluation as appropriate. Prophylaxis against venous thromboembolism is essential and may include the use of fractionated or unfractionated heparin, as well as the employment of sequential compression devices. If the pelvis has been irradiated or previously operated on, the use of ureteral catheters may aid in dissection.

Different Surgical Technique Involved in RVF Repair;

Local Repair

Transanal Advancement Flap Repair;

The best results have been reported with transanal advancement flap repair.[17] General, regional, or local anesthesia may be used. The patient is placed in the prone, flexed position with a hip roll in place; the buttocks are taped apart for exposure. The fistula is identified using the operating anoscope. A flap is outlined, extending at least 4 cm cephalad to the fistula, with the base of the flap twice the width of the apex to allow adequate blood supply to the flap tip. Local anesthetic with epinephrine is injected submucosally to facilitate raising the flap and to diminish bleeding.

The flap, consisting of mucosa and submucosa, is raised; some surgeons include circular muscle as well. Meticulous hemostasis is imperative. The fistula tract is curetted gently. Circular muscle is closed over the fistula. The tip of the flap, which includes the fistula opening, is excised. The flap is sutured in place with simple interrupted absorbable sutures, effectively closing the rectal opening of the fistula. The vaginal side of the fistula is left open for drainage.

This approach separates the suture line from the fistula site and interposes healthy muscle between the rectal and vaginal walls. Proponents point out that the relatively high pressure within the rectum serves to buttress the repair, in contrast to a transvaginal repair, in which the intrarectal pressure is more prone to disrupt the repair. If indicated, sphincteroplasty can be performed concomitantly.[18]

Transvaginal inversion repair

The vaginal mucosa is circumferentially elevated, exposing the fistula. Two or three concentric purse-string sutures are used to invert the fistula into the rectal lumen. The vaginal mucosa is reapproximated. This approach is suitable only for small, low fistulas in otherwise healthy tissues with an intact perineal body.

Bioprosthetic repair

A bioprosthetic interposition graft is placed by making a transverse incision over the midportion of the perineal body with dissection through the subcutaneous tissue. The fistula tract is transected. The dissection is continued 2 cm proximal to the transected fistula tract and laterally. The fistula openings are closed with 3-0 interrupted absorbable sutures.

The graft requires an overlap of 2 cm on all sides of the

rectal and vaginal mucosal closures. A bioprosthetic plug is placed through the rectal opening and out the vaginal opening. The excess plug is trimmed and secured on the rectal side with 2-0 absorbable suture.

Conversion to complete perineal laceration with layer closure

In a conversion to complete perineal laceration with layer closure, [19] the fistulous tract is laid open in the midline, essentially creating a cloaca. Closure in layers follows, identical to the classic obstetric repair of a fourth-degree perineal laceration. This method is described in the gynecologic literature; it is rarely employed by colorectal surgeons, because of concerns about juxtaposed suture lines.

Simple fistulotomy

Simple fistulotomy works well for true anovaginal fistulas, in which no sphincter is involved in the tract. If the technique is used to treat an RVF, however, partial or total fecal incontinence results.

Transabdominal repair

Transabdominal approaches are generally used for high RVFs when the fistula originates from a neoplasm, from radiation, or, occasionally, from IBD. They are also used if concomitant disease (eg, diverticulitis) warrants an abdominal approach.

Fistula division and closure without bowel resection

This is the simplest abdominal approach. The rectovaginal septum is dissected, the fistula is divided, and the rectum and vagina are closed primarily without bowel resection. Interposition of healthy tissue, such as omentum, may be used to buttress the repair and separate the suture lines. Good results have been reported when the fistula is not large and the tissues available for closure are healthy.

Bowel resection

When tissues are abnormal because of irradiation, inflammation, or neoplasm, the repair is doomed to failure unless the abnormal tissues are resected. Preserve functional anal sphincters whenever possible by use of a low anterior resection, a coloanal anastomosis technique, or a pull-through; the last alternative has the poorest results with respect to continence.

Rarely, abdominoperineal resection may be necessary for symptom control in the setting of radiation damage or neoplasm. An alternative, particularly in cases of poor operative risks or with patients whose survival is limited, is simple fecal diversion with a loop ileostomy or colostomy.

Ancillary procedures

A host of supplementary procedures have been described to augment bowel resection in the difficult pelvis. These include local flaps, such as the bulbocavernosus flap, and a variety of muscle, fascial, and musculocutaneous flaps for repair of large pelvic defects. A variety of graft procedures also have been described. [20] All of these procedures have the goal of interposing healthy tissue between vaginal and rectal repairs.

Bricker patch

The onlay Bricker patch also has been used to repair RVFs, chiefly those produced by radiation. Briefly, the rectosigmoid colon is mobilized transabdominally, and the RVF is exposed. The rectosigmoid is divided above the fistula. The proximal end is brought out as an end sigmoid colostomy. The distal rectosigmoid is turned down, and the open end is anastomosed to the debrided edge of the rectal opening of the fistula, essentially creating an internal loop with drainage through the anus.

When healing of the inferior-patched rectum can be demonstrated radiologically several months later, continuity of the colon is reestablished by anastomosis of the colostomy to the apex of the patch loop in an end-to-side fashion.

An advantage to this procedure is that it is less difficult than resection and therefore may be less likely to cause hemorrhage or organ injury. A disadvantage is that the radiation-damaged rectum is left in place and in use, with the possibility of further morbidity, including bleeding and stricture.

Although situations exist where this approach may be preferable to a resection approach, the author believes that resection of the radiation-damaged bowel provides the best long-term results in patients who are reasonable operative candidates.

Management of RVF associated with Crohn disease

RVFs associated with Crohn disease are difficult to manage. [21] When symptoms are few, operative intervention may not be indicated. Conversely, severely symptomatic patients may require proctectomy.

Patients with relatively normal rectal mucosa and

an RVF are good candidates for an endorectal advancement flap. In this specific setting, outcome is good, though not as good as in patients without Crohn disease. An endorectal advancement flap is considered the preferred technique for local RVF repair in patients with Crohn disease and a relatively normal rectum.

Postoperative Care

Local repair

Attention must be paid to the patient's bowel habits. Constipation or diarrhea can disrupt a repair. The goal is a soft, formed, deformable stool. The patient is carefully counseled regarding diet, copious fluid intake, and the use of stool softeners. Oral broad-spectrum antibiotic for 3-5 days postoperatively, take 1 tablespoon of mineral oil orally twice daily for 2 weeks postoperatively, and avoid bulking agents for 2 weeks postoperatively. Patients need to refrain from sexual activity or any physical activity more strenuous than a slow walk for 3 weeks.

Transabdominal repair

Postoperative care after transabdominal repair is identical to the care administered to all patients who have undergone major laparotomy with bowel resection and anastomosis. Postoperative gastric decompression is performed selectively, in the expectation that 15-20% of patients require cessation of oral intake or gastric decompression for symptomatic postoperative ileus. Most patients can be offered sips of clear liquids on postoperative day 1.

Early ambulation is beneficial in many ways. Continue perioperative prophylaxis for thromboembolic events until the patient is ambulating well.

Complications

Local repair

Bleeding is rarely encountered postoperatively, probably because of careful intraoperative hemostasis. If bleeding occurs beneath the flap, fistula recurrence is common. Infection is a feared complication, because it almost invariably results in a failed repair. Repairs may fail in the absence of infection as well. Rarely, postoperative pain precipitates urinary retention.

Transabdominal repair

These may include the usual complications of any laparotomy with bowel resection, including fistula recurrence. The most common complications are bleeding and wound infection, each with an incidence of less than 2-5% in reasonable-risk candidates. Pelvic abscess occurs in 5-7% of patients. Anastomotic leak is another feared complication.

Long-Term Monitoring

Patients are seen 2 weeks after discharge for evaluation of wounds and bowel habits. In the absence of recurrent fistula symptoms or other specific indications, no follow-up investigation, aside from physical examination, is required.

If specific signs and symptoms are present, they are investigated appropriately. For example, fever, diarrhea, and low abdominal pain indicating an abscess are evaluated by means of computed tomography (CT) of the abdomen and pelvis. In this setting, physical examination may be difficult because of patient discomfort.

References

1. Abasiattai, A.M., S.J. Etuk, E.A. Bassey and E.E. Asuquo, 2005. Vaginal injuries during coitus in Calabar: A 10-year review. Nig. Postgrad. Med. J., 12: 140-144.
2. Abulafi, A.M. and A.H Sultan, 2010. Rectovaginal Fistulae. In: Pelvic Floor Disorders, Santoro, G.A., A.P. Wieczorek and C.I. Bartram (Eds.). 5th Edn., Springer, New York, pp: 635-654.
3. Corman, M.L., J.F. Gravie, T. Hager, M.A. Loudon and D. Mascagni *et al*., 2003. Stapled haemorrhoidopexy: A consensus position paper by an international working party-indications, contra-indications and technique. Colorectal Dis., 5: 304-310.
4. Ommer A, Herold A, Berg E, Fürst A, Schiedeck T, Sailer M. German S3-Guideline: rectovaginal fistula. Ger Med Sci. 2012;10:Doc15.
5. Raksha, R., 2016. Rectovaginal and recouretheral fistulas.
6. Hudelist, G., J. Gelle'n, C. Singer, E. Ruecklinger, K. Czerwenka, O. Kandolf and J. Keckstein, 2005. Factors predicting severe perineal trauma during childbirth: Role of forceps delivery routinely combined with mediolateral episiotomy. Am. J. Obstet. Gynecol., 192: 875-881.
7. Kodner, I.J., A. Mazor, E.I. Shemesh, R.D. Fry, J.W. Fleshman and E.H. Birnbaum, 1993. Endorectal advancement flap repair of rectovaginal and other complicated anorectal fistulas. Surgery, 114: 682-690.
8. Kosugi, C., N. Saito, Y. Kimata, M. Ono and M. Sugito *et al*., 2005. Rectovaginal fistulas after rectal cancer surgery: Incidence and operative repair by gluteal-fold flap repair. Surgery, 137: 329-336.
9. Lowry, A.C., A.G. Thorson, D.A. Rothenberger and S.M. Goldberg, 1988. Repair of simple rectovaginal fistulas: Influence of previous repairs. Dis.Colon Rectum,31:676-678.

10. Mazier, W.P., A.J. Senagore and E.C. Schiesel, 1995. Operative repair of anovaginal and rectovaginal fistulas. Dis. Colon Rectum, 38: 4-6.
11. McDonald, P.J., R. Bona and C.R.G. Cohen, 2004. Rectovaginal fistula after stapled haemorrhoidopexy. Colorectal Dis., 6: 64-65.
12. Muleta, M. and G. Willams, 1999. Postcoital injuries treated at the Addis Ababa fistula hospital, 1991-97. Lancet, 354: 2051-2052.
13. Ommer A, Herold A, Berg E. et al.German S3-Guideline: rectovaginal fistula. Ger Med Sci. 2012;10:Doc15.
14. Songne K, Scotte M, Lubrano J. et al.Treatment of anovaginal or rectovaginal fistulas with modified Martius graft. Colorectal Dis. 2007;9:653.
15. Lowry A C, Thorson A G, Rothenberger D A. et al.Repair of simple rectovaginal fistulas. Influence of previous repairs. Dis Colon Rectum. 1988;31:676–678.
16. Reisenauer C, Huebner M, Wallwiener D. The repair of rectovaginal fistulas using a bulbocavernosus muscle-fat flap. Arch Gynecol Obstet. 2009;279:919–922.
17. Casadesus D, Villassana L, Sanchezl M et al. Trearment of rectovaginal fistula; a 5- year review. Aust NZJ Obstet Gynecol.2006 Feb.46(1);49-51.
18. Khanduja KS, Yamashita HJ, Wise WE Jr. Delayed repair of obstetric injuries of anorectum and vagina. A stratified Lsurgical approach. Dis Colon Rectum.1994 Apr.37(4);344-9.
19. Galandiuk S, Kimberling J, Al-Mishlab TG et al. Perianal Crohns disease: predictors of need for permanent diversion. Ann Surg. 2005 May. 241(5); 769-801.
20. Jasonni VM, La Marca A, Manenti A. Rectovaginal fistula repair using fascial graft of autologous abdominal mua=scles. Int J Gynaecol Obstet. 2006 Jan. 92(1); 85-6.
21. Loffler T, Welch T, Muhl S, Hinj U, Schmidt J, Kienle P. Long term success rate after surgical treatment of anorectal and rectovaginal fistula in Crohns disease. Int J Colorectal Dis. 2009 May.25(5);521-6.

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Journal Scan

Karishma Thariani
Associate Consultant, Center for Urogynecology and Pelvic Health, New Delhi

1. **Am J Obstet Gynecol 2019;220:255.e1-9**

Development of a Standardized, Reproducible Screening Examination for Assessment of Pelvic Floor Myofascial Pain.

Melanie R. Meister, Siobhan Sutcliffe, Chiara Ghetti, Christine M. Chu, Theresa Spitznagle, David K. Warren, Jerry L. Lowder

Background: Pelvic floor myofascial pain is common, but physical examination methods to assess pelvic floor muscles are defined poorly. We hypothesized that a simple, transvaginal pelvic floor examination could be developed that would be highly reproducible among providers and would adequately screen for the presence of pelvic floor myofascial pain.

Objective: The purpose of this study was to develop a simple, reproducible pelvic floor examination to screen for pelvic floor myofascial pain.

Study Design: A screening examination was developed by Female Pelvic Medicine & Reconstructive Surgery subspecialists and women's health physical therapists at our institution and tested in a simulated patient. We recruited 35 new patients who underwent examinations by blinded, paired, independent examiners. Agreement was calculated with the use of percent agreement and Spearman's rank correlation coefficient.

Results: The final examination protocol begins with examination of the following external sites: bilateral sacroiliac joints, medial edge of the anterior superior iliac spine, and cephalad edge of the pubic symphysis (self-reported pain: yes/no). The internal examination follows with palpation of each muscle group in the center of the muscle belly, then along the length of the muscle proceeding counter-clockwise: right obturator internus, right levator ani, left levator ani, left obturator internus (pain on a scale of 0e10). Thirty-five patients were enrolled. Correlation was high a teach external (0.80e0.89) and internal point (0.63e0.87; P<.0001).

Conclusion: Our newly developed, standardized, reproducible examination incorporates assessment of internal and external points to screen for pelvic floor myofascial pain. The examination is straightforward and reproducible and allows for easy use in clinical practice.

Key words: myofascial pain, pelvic pain, trigger point

Comments: *Chronic pelvic pain is a distressing condition for the patients and a diagnostic and therapeutic challenge for the urogynecologist. Myofascial pain is a form of chronic pelvic pain which is characterized by presence of tenderness on palpation of muscles and connective tissues of the pelvis causing both local and referred pain. This pain has also been proposed to contribute to lower urinary tract symptoms and symptoms of pelvic organ prolapse. Till date, there are no standardized protocols of detailed examination of the pelvic floor muscles. Owing to lack of examination techniques the symptoms are often thought to be due to the bladder or prolapse of the pelvic organs leading to more invasive treatments which often lead to suboptimal outcomes. This article gives a screening protocol for examination of myofascial pain of pelvic muscles which is easily reproducible. It is also easy to perform in day to day clinical practice. Where myofascial tenderness is found to be present and implicated to the cause of chronic pelvic pain, physical findings could be used to direct treatment toward factors that are more likely to contribute to pain. Such treatment might include pelvic floor physical therapy for pelvic floor myalgia or tenderness and systemic pain therapies for more generalized pain beyond the pelvis.*

2. Int Urogynecol J (2019) 30: 301.

Association of Baseline Severity of Lower Urinary Tract Symptoms with the Success Conservative Therapy for Urinary Incontinence in Women

Aneta Obloza, Roderick Teo, Emily Marriott, Gillian Parker, Douglas Tincello

Introduction and hypothesis: To identify the association between the symptom severity and outcome of conservative management for OAB, SUI and MUI. Conservative treatments are recommended for overactive bladder (OAB), stress urinary incontinence (SUI) and mixed incontinence (MUI). It is unclear whether disease severity affects treatment outcome.

Methods: Patients receiving conservative management were reviewed. Disease-specific questionnaires (OAB-q SF, ICIQ-UI SF) and bladder diaries recorded baseline symptoms. Success was defined by Patient Global Impression of Improvement questionnaire (PGI-I) response of "very much better" or "much better". Non-parametric statistical tests and logistic regression were used.

Results: In 50 OAB patients success was associated with lower symptom severity [30 (0–80) vs. 80 (23–100), p = 0.0001], fewer urgency episodes [4 (0–12) vs. 6 (0–11), p = 0.032] and lower ICIQ-UI SF [5.5 (0–20) vs. 15 (0–21), p = 0.002], but higher QoL [67 (20–101) vs. 24 (6–58), p = 0.0001]. In 50 MUI patients, variables were fewer urgency episodes [3 (0–10) vs. 6 (0–16), p = 0.004] and lower ICIQ-UI [11 (1–18) vs. 15 (5–21), p = 0.03]. In 40 SUI patients, variables were fewer incontinence episodes [1 (0–4) vs. 2 (0–5), p = 0.05] and lower ICIQ-UI [11 (6–16) vs. 13.5 (11–19), p = 0.003]. Multiple regression confirmed OAB-q QoL [odds ratio (OR) 1.10 (95% confidence intervals 1.04, 1.1)] for OAB, urgency episodes [OR 0.74 (0.56, 0.98)] and ICIQ-UI [OR 0.83 (0.71, 0.98] for MUI and ICIQ-UI [OR 0.57 (0.40, 0.83)] for SUI.

Conclusions: Milder baseline disease severity was associated with successful outcome. There is potential for triage at initial assessment to second-line interventions for women unlikely to achieve success.

Comments: *Lower urinary tract symptoms such as SUI, OAB or MUI are prevalent in women and account for a significant disease burden all over the world. Severity of these symptoms may vary from patient to patient. Conservative treatments including pelvic floor muscle therapy have been recommended as first line treatment modalities for all of the above conditions. The authors of the study conclude by saying that only patients with the milder form of these conditions benefit from conservative management and hence women with more severe symptoms may directly be offered the second line treatments.*

Currently, there is paucity of evidence as to which women will benefit most from the conservative treatment options. The results of this study may be used to counsel the women about their expectations regarding first-line treatment of conservative management. Nevertheless, women less likely to benefit from conservative treatment may still be offered conservative treatment, following which they can choose their preferred treatment method after appropriate counseling. Having conservative management can be of additional value when medical or surgical treatment is started. Moreover, directly moving to the second line medical or surgical treatments may have cost and resource implications as well.

Clinical Proceedings of AOGD Clinical Meeting held at Apollo Hospital, New Delhi on 26th April, 2019

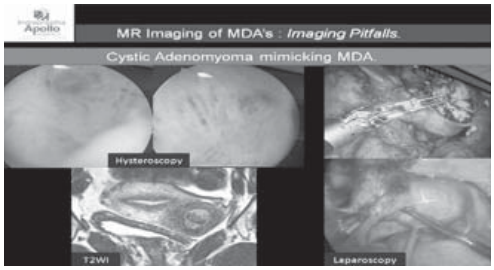
Case report of Juvenile Cystic Adenomyoma

Iram Wani, Sarika Gupta

A 22-year-old, unmarried girl, presented with complaints of severe dysmenorrhea and menorrhagia for last three years, refractory to medical management. Pain was severe, incapacitating her routine activities and not associated with gastrointestinal or urinary symptoms. Transabdominal ultrasonography, showed endometrioma in left adnexa. Dienogest was given but her dysmenorrhea was not controlled. MRI suggested chronic cornual gestation, obstructed hypoplastic uterine horn or noncommunicating rudimentary horn. Patient's systemic examination was within normal limits.

Diagnostic laparoscopy was planned and intraoperatively, a 4x4cm mass seen extruding from the uterus at the left cornua. The left tube and left round ligament were seen separate from mass. Diagnostic hysteroscopy showed normal endometrial cavity with both ostia visualized. Robotic excision of the mass was planned. Diluted vasopressin was injected into the mass; a transverse incision was given on anterior uterine surface over the mass with the monopolar scissors. The lesion was excised in entirety without entering endometrial cavity. Uterine wall was reconstructed in 2 layers. Cut section showed cystic cavity filled with thick chocolate material; indicating juvenile cystic adenomyoma. Histopathology showed Islands of endometrial glands cuffed by compact spindle cell stroma within myometrial tissue and hemosiderin laden macrophages.

Post operatively patient remained well. She had 4 successive normal periods with no dysmenorrhea.



Cystic adenomyoma, although rare lesion in young girls, may be considered when severe dysmenorrhoea is associated with uterine cyst. The principal differential diagnosis includes congenital anomaly with haematometra in a non-communicating horn. Diagnostic criteria of juvenile cystic adenomyoma (Hiroyuki *et al*, 2009) include age <30 years, presence of cystic lesion ≥1 cm in diameter independent of uterine lumen and covered by hypertrophic myometrium on imaging, associated with severe dysmenorrhea. Recently, these adenomyomas are categorized under accessory cavitated uterine masses (ACUM). Acién et al have proposed that these type of juvenile cystic adenomyomas (JCA) should be considered as a new type of congenital mullerian anomaly because of its juvenile onset and its peculiar location which is always on the anterior wall of the uterus near the origin of the round ligament. Medical management for juvenile cystic adenomyoma include nonsteroidal anti-inflammatory drugs for pain relief, GnRH analogs and continuous oral contraceptive pills, however, it only provides temporary relief. Early surgery and complete excision of lesion, using minimally invasive method is the treatment.

Successful Intervention by Pleuro-amniotic Shunting in a case of Non Immune Hydrops

Smriti, Anita Kaul

A 32 years old South Asian second gravida with spontaneous non consanguineous conception was referred at 31 weeks 3 days with fetal non immune Hydrops. Personal and family history were unremarkable. A repeat scan in our unit concurred with NIH (bilateral pleural effusion, ascites, subcutaneous edema) with polyhydramnios without any visceromegaly or fetal anemia. The couple were counselled about plausible etiologies. Maternal complete blood count, blood group with atypical antibody screen, serum TORCH screen and hemoglobin electrophoresis were sent. Detailed structural scan and fetal echocardiography , diagnostic amniocentesis for chromosomal microarray and viral PCR assay was done. A therapeutic pleurocentesis was performed on the same day and 32 ml yellow pleural fluid was sent for biochemical and cytological evaluation. All maternal and fetal investigations were unremarkable.

Ten days later, follow-up scan revealed recurrence of the pleural effusion. The couple were extensively counselled about the three options; 1) Repeat pleurocentesis, 2) Elective preterm delivery at 32 weeks, 3) Pleuroamniotic shunting with their benefits and risks. A mutual decision was taken to proceed with pleuroamniotic shunting and a Rodeck's shunt was inserted into the fetal right hemithorax. Successive scans at 33 and 35 weeks showed a functioning shunt, draining freely into the amniotic sac.

Elective LSCS was done at 37 weeks 2 days (previous LSCS and maternal choice) and a live female baby weighing 3000 gm was delivered, cried immediately at birth and shunt was clamped. The baby developed respiratory distress on Day 1 and was put on mechanical ventilation. Chest X Ray showed pleural effusion and a subsequent pleural tap was indicative of chylothorax. MRI reported tortuous lymphatic channels along with a prominent azygous vein. In view of suspected lymphatic pathology, the parents opted for a Lymphoscintigraphy which was normal. Clinical Exome sequencing did not show any pathogenic variants causative of the phenotype, however variants of uncertain significance were detected. The baby was finally tapered off respiratory support and discharged on full feeds and is doing well now at 2.5 months of age.

Review of the literature indicates favourable outcome in cases of NIH with timely and appropriate intervention. The aim of this case summary is to create awareness about the increasing incidence of NIH (with a parallel decrease in immune hydrops due to good preventive and therapeutic measures), the fact that fetal NIH is not an indication for termination of pregnancy, rather warrants an urgent referral to a specialist Maternal fetal unit whereby timely intervention (pleuroamniotic shunting /pleurocentesis) can be offered to salvage these fetuses. Post shunt, the usual obstetric care can be provided to these mothers with consideration for delivery in a tertiary neonatal facility.

Atypical cases in obstetrics

Aishvarya Gupta, Madhu Roy

Case - 1

A 29 years old primigravida was referred at 18 weeks of gestation with high grade fever (102-103°F) associated with chills and rigors and persistent cough for 1 month. Patient had received amoxicillin and clavulanic acid combination for a week followed by injectable ceftriaxone for a week. Blood investigations including complete blood picture, liver function test and renal function tests were within normal range. Urine culture and blood culture showed no bacterial growth. On further investigation HRCT chest revealed multiple small miliary nodules in bilateral lung parenchyma with no significant mediastinal lymphadenopathy or pleural effusion suggesting tubercular pathology. Patient was started on anti-tubercular drugs to which she responded gradually. Presently patient is at 33 weeks of gestation on ATT (HRE) with fetal growth appropriate to gestational age on regular follow up.

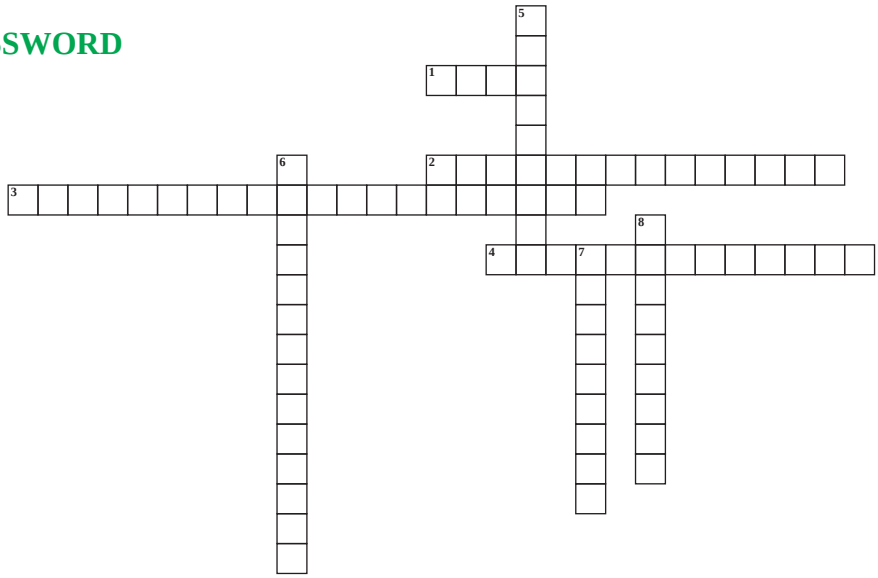
Case - 2

A 36 years old para-1 came with amenorrhea for 2 months (history of irregular cycles), nausea and weakness since 2 weeks. Urine pregnancy test was positive. USG revealed ? blighted ovum. Serum beta-HCG showed no significant rise after 48 hours but gradually increased in repeat tests. USG repeated after 2 weeks revealed a viable intra-uterine pregnancy at 8 weeks period of gestation. Second and third trimesters were uneventful. At term gestation patient presented to us as G2P1L1 at 38+2 weeks period of gestation with previous LSCS with GHTN with IUGR with leaking P/V (blood stained liquor). While preparing the patient for emergency LSCS for fetal distress with abruptio placenta, she progressed to second stage soon and delivered a female baby weighing 2.45 kg vaginally with 1 min APGAR of 5/10 and 5 min APGAR of 7/10. Presently child is 9 months old weighing 7 kgs with milestones appropriate to gestational age.

The Maze of Knowledge

Bharti Uppal Nayyar
Fellow, Department of Obst. Gynaec. and Urogynaecology, AIIMS, New Delhi

CROSSWORD



ACROSS

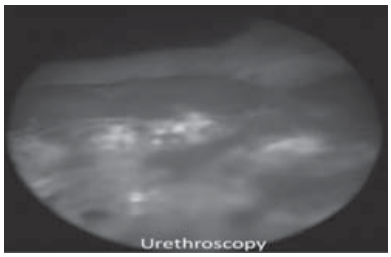
1. The passage of trocar is inside-out in this type of transobturator mid-urethral sling
2. Ligament with which para-urethral fascia is sutured in Burch colposuspension
3. Drug used in Interstitial cystitis
4. Intravenous preparation used to detect bladder injury

DOWN

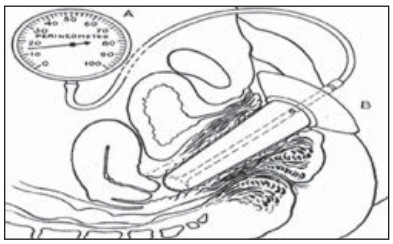
5. Most common complaint after TVT-O insertion
6. Condition in which urethral sphincter fails to relax during voiding
7. Implantable device for sacral neuromodulation
8. Drug injected into bladder in OAB

PICTORIAL QUIZ

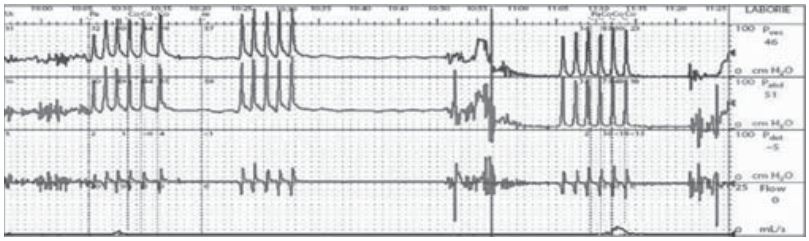
Q1. What do we see in the following picture?



Q2. Which instrument is shown in the following figure?



Q3. What is the urodynamic diagnosis?



Watsapp your answers to **9868138205.**

Names of first three correct entries willbe mentioned in the next issue

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Speaker: **Professor Zarko**
Coordinator: **Dr Nirmala Agarwal**
Dr Asmita Rathore
Dr Arbinder Dang

Date: **8th September 2019, Sunday**
Venue: **Varanasi**
Coordinator: **Dr Nirmala Agarwal**
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