



Volume 23, July 2023, Issue 3

AOGD BULLETIN



Issue Theme : Operative Obstetrics & Vaginal Surgery

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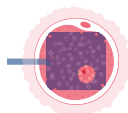
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Dr. Sandhya Jain on behalf of Association of Obstetricians & Gynaecologists of Delhi .

Published from

Department of Obstetrics & Gynaecology
UCMS & GTB Hospital, Dilshad Garden Delhi - 110095

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From the AOGD Office



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Dr A G Radhika

Dear Friends

June has been a hectic month with activities on full swing for the AOGD-FOGSICON 2023. It was very eventful too with several activities, including CMEs, webinars, yoga day celebrations and a wonderful clinical meeting by Apollo Indraprastha Hospital, Delhi.

The last bulletin on 'Imaging in Obstetrics and Gynecology' was well received and commendations on content by the members was gratifying.

This issue on 'Operative Obstetrics and Vaginal Surgery' is an attempt to equip our readers with skills and best practices of various surgical procedures. Despite modern technology, vaginal hysterectomy continues to be the most non-invasive of all surgical procedures! This issue carries useful embedded video links to the surgeries. Feel free to post your comments about the content.

Ballots for FOGSI elections will be reaching soon so don't forget to cast your valuable vote on time. Please ensure your mobile number & Email-ID are updated in FOGSI database on member.fogsi.org before 16 July 2023

This is again a reminder to save your dates for the AOGD-FOGSICON 2023, 45th Annual Conference of AOGD & FOGSI PG Conference to be held 18th - 20th August 2023 at Leela Ambience, Gurugram, NCT, Delhi. The preconference workshops are on 18th August. It is our endeavour to ensure an all-inclusive conference with involvement of maximum members from AOGD. Do register and send in your abstracts.

Cheers and Enjoy the Monsoons!

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From the Editor's Desk



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Dear Seniors and friends

Your appreciation instills enthusiasm and motivation in us for every new bulletin! We are overwhelmed and extremely thankful to our readers & contributors. We have chosen 'Operative Obstetrics and Vaginal Delivery' as the theme for current issue. We Obstetricians have come a long way, becoming more objective and protocol based in our approach. Also, we are witnessing a new era with advent of novel techniques such as retrograde hysterectomy, laparoscopy in pregnancy etc. which are covered in this issue.

In Gynaecology section, the art and science of vaginal surgery has been re-lived along with link to interesting surgical videos. You can enjoy these videos by clicking the link. Another dimension of gynaecological practice is vaginal rejuvenation, which is in demand these days and has been covered.

Health-Happiness-Harmony section talks of post operative recovery: healing the natural way. The medico-legal section covers legal issues in tubal ligation. Last but not the least, in 'Dil Se' do read the journey of human emotions from joy to agony, from heart to tears in eyes, until they finally meet the bliss of Self!

Warm Regards

AOGD Editorial Team 2023-24



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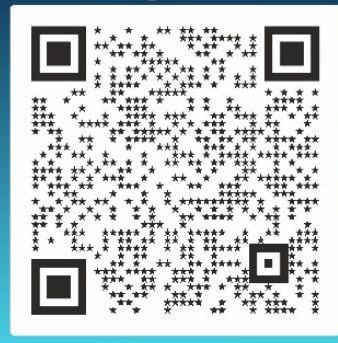
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Retrograde Hysterectomy in Obstetrics

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Senior Specialist

Department of Obstetrics and Gynaecology, UCMS and GTB Hospital, Delhi

Placenta accreta spectrum (PAS) refers to abnormal trophoblast invasion of part or all of placenta into the myometrium of the uterine wall and depending on its grade, it has been classified by FIGO¹ (Figure 1) as following:

Grade 1: Abnormally adherent placenta (accreta)

Grade 2: Abnormally invasive placenta (increta)

Grade 3: Abnormally invasive placenta (percreta)

3a: Limited to serosa

3b: With invasion in urinary bladder

3c: With invasion of other pelvic tissue (organs)

PAS has a global impact on maternal health as its incidence is steadily rising worldwide, possibly due to rise in number of pregnancies following various surgical procedures on uterus including cesarean section. PAS disorder after previous cesarean section develops due to implantation of pregnancy within the niche in the lower uterine segment created by previous surgery. The main risk associated with this condition is torrential life-threatening obstetric haemorrhage and associated secondary complications like coagulopathy, risks of massive transfusions and multisystem organ dysfunction.

It has thus become a leading cause of peripartum hysterectomy, maternal morbidity and even mortality. Hysterectomy remains the definitive surgical treatment for PAS disorders.² A primary cesarean hysterectomy is the safest and most practical option in low resource settings where, diagnostic, follow-up and additional

treatments are not freely available. Peripartum hysterectomy in PAS poses a surgical challenge due to the following reasons:

- Adhesions especially between uterus and bladder and uterus with rectus sheath due to previous caesarian deliveries.
- Thin and hypervascular lower uterine segment with bulging low-lying placenta in situ.
- Deep pelvic neovascularization due to development of collaterals originating from internal iliac, uterine, vesical, and internal pudendal vessels.
- Possible invasion into urinary bladder, cervix, parametrium and bowel.
- Life-threatening haemorrhage due to inadvertent opening of plexus of collateral vessels especially in uterovesical fold and uterine serosa over the adherent/invasive placenta.
- Unintentional injury to urinary bladder and ureter.

The collateral vessels with large lumen and deficient muscularis layer traversing the uterovesical space bleed severely during bladder dissection and also there is increased risk of bladder and ureteric injury, need for massive transfusion, perioperative morbidity, and mortality. In order to minimize the haemorrhage and risk of urologic injury surgeons worldwide have modified their techniques over the years to achieve an optimal outcome. The concept of performing Retrograde obstetric hysterectomy (based on retrograde hysterectomy used for ovarian cytoreduction) for PAS disorders especially in anterior invasive forms was published by AE Selman³ in 2015. This technique of retrograde hysterectomy from Pouch of Douglas allows early uterine devascularization, maximum separation of the bladder from the uterus and

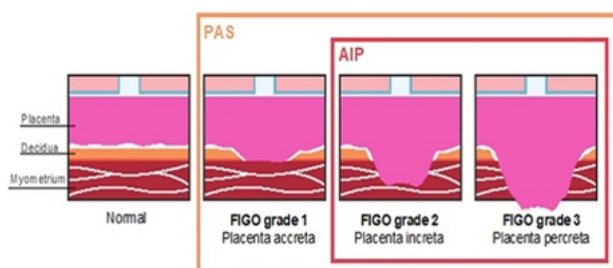


Figure 1

its safe resection in invasive forms. The author performed retrograde hysterectomy in 11 cases of PAS with safe and satisfying results in terms of blood loss and complications. On similar surgical principles Hiroshi et al⁴ also published a case series of modified retrograde caesarean hysterectomy for placenta previa accreta in 2016.

Pre-operative Planning

Multidisciplinary team care

Allows to deliver optimal and safest maternal and neonatal outcomes. This includes:

- Radiologic expertise for diagnosis by USG and/or MRI
- Experienced obstetrician
- Surgical expertise for complex surgery (Pelvic surgeon, urologist, vascular surgeon)
- Senior anaesthetist
- NICU and neonatologist
- ICU and intensivists
- Interventional radiology
- Massive transfusion capacity

Timing of delivery

Although individual factors are relevant, a window of 34-35 6/7 weeks of gestation is suggested as the preferred gestational age for scheduled caesarean delivery or hysterectomy in a stable patient.⁶

Correction of anemia

Preoperatively haemoglobin should be built upto 12 gm% and underlying anemia should be corrected.

Minimizing unintended urologic injury

The value of preoperative cystoscopy and ureteric stenting in women with suspected bladder invasion is unclear but can be individualized on a case-to-case basis and as per surgeon's preference. Stenting can be avoided if the surgeon is well versed with pelvic and retroperitoneal space anatomy.

Pre-operative ultrasound

This is useful for placental mapping to plan skin and uterine incision, determining urinary

bladder and parametrial invasion and counselling regarding the risks of urologic injury.

Intensive counselling and consent

This will help the patient and their relatives in decision making. All possible complications, risks and future fertility issues needs to be discussed in detail. Consent should include hysterectomy, internal iliac artery ligation, explanation of all possible injuries, ICU stay, massive transfusion and mortality.

Massive transfusion protocol alert

Massive transfusion means requirement of ≥ 10 PRBC or replacement of total blood volume within 24 hours. Once the massive transfusion protocol has been activated the blood bank sends the blood products in rounds for the patient⁵ as per the requirement. (Table-1)

Intraoperative Management

Anesthesia

Decision between general and neuraxial/regional anaesthesia must be made by attending anaesthesia team as both are acceptable.

Position of woman

Modified lithotomy position is favoured as it facilitates additional surgical assistance, monitoring vaginal blood loss and cystoscopy. It can be done in supine position as well.

Type of incisions

Midline skin incision extending supra umbilical allows for an upper segment uterine incision atleast 2cm above the upper margin of placenta, mapped on peri-operative ultrasound so that the placenta is not disturbed (Figure 2).

Blood conservation techniques

- Tranexamic acid 1g intravenously to reduce intra and post operative blood loss.
- Balloon occlusion catheters: These devices are usually inserted by interventional radiologists under fluoroscopic guidance

Table-1: Massive transfusion protocol

	PRBCs	FFP	Platelets	Cryoprecipitate
Round 1	6U	6U	6U	10U
Round 2	6U	6U	6U	10U
Round 3	Injection tranexamic acid 1g IV over 10 minutes			
Round 4	6U	6U	6U	

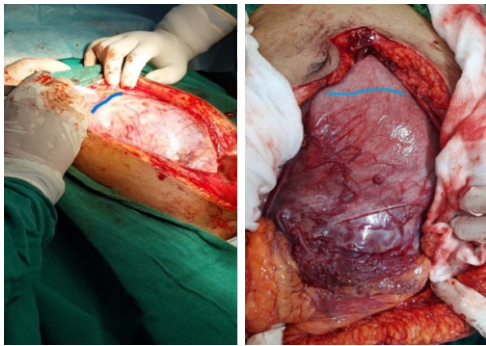


Figure 2: Blue line denotes the proposed uterine incision

preoperatively into aorta, common iliac, internal iliac or uterine arteries and are inflated after delivery of fetus when haemorrhage is encountered. However, the current evidence is insufficient to make a firm recommendation and are associated with potential complications like vessel rupture and thrombo-embolic catheter-related complications. Moreover, such facilities are not available in all hospitals in India.

- c) Internal Iliac artery ligation: has similar benefits as the balloon occlusion devices. Ligation greatly reduces the pulse pressure and converts the pelvic arterial system into venous-like system with slow and sluggish flow facilitating clot formation distal to ligation. This further helps to identify and ligate the other bleeding vessels. However, this step can be omitted if the surgeon is not skilled enough.
- d) Aortic compression with Aortic clamping: This procedure requires great surgical expertise as exposure of aortic bifurcation and extensive dissection in the region is needed.
- e) Cell salvage: Autologous cell salvage offers a way to minimize allogenic RBC transfusion in select patients but the facility is not easily available in our country.

Steps of Retrograde Hysterectomy

- a) Delivery of fetus by fundal hysterotomy: The ligated umbilical cord and attached placenta are left within the uterus and hysterotomy is closed in single layer to achieve hemostasis. (Figure 3). Occasionally, a classical cesarean

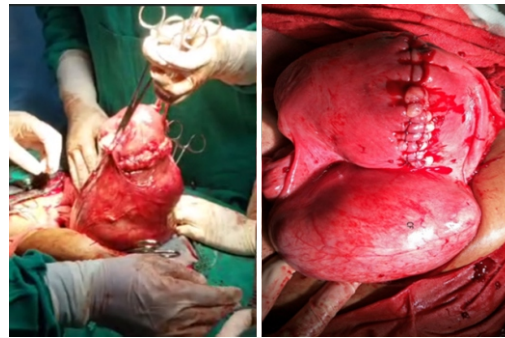


Figure 3: Fundal hysterotomy incision

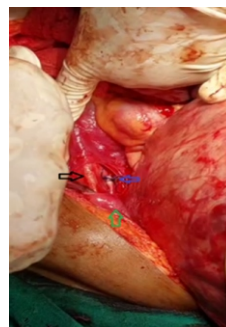


Figure 4: Retroperitoneal space (Blue arrow points internal iliac artery anterior division, Black arrow points external iliac artery, Green arrow points the ureter)



Figure 5: Ligation of anterior division of internal iliac artery

can be done with the lower limit of incision 1 cm above the placental margin.

- b) Round ligaments are cut and ligated on both sides followed by incision of broad ligaments parallel to infundibulo pelvic ligaments to expose the retroperitoneum.
- c) Dissection in retroperitoneal space is done to identify and isolate the ureter and internal iliac arteries on both sides: Ligation of anterior division of internal iliac arteries is done on both sides. Ureters are identified, dissected, and preserved through anterior bladder pillar. (Figure 4 and 5)
- d) Utero ovarian ligaments and fallopian tubes are cut and ligated on both sides. (Figure 6)



Figure 6: Ligation of cornual structures

- e) Assistant operator directs a sponge holding forceps towards the post vaginal fornix. Using the forceps as a guide

posterior vaginal wall is incised transversely just below the level of the cervix. (Figure 7 and 8)

- f) Uterosacral ligaments are cut and ligated taking care that the ureters are carefully dissected away from the clamps laterally to avoid injury. (Figure 9)



Figure 7: Arrow points towards the bulge of sponge holding forceps to identify posterior vaginal fornix

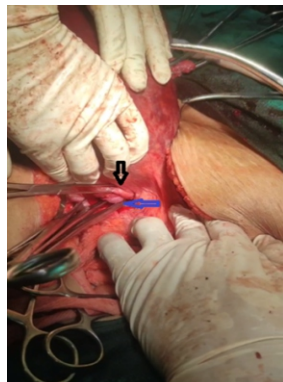


Figure 8: Opening of posterior vaginal fornix (Black arrow points the vaginal edge, blue arrow points the cervix)

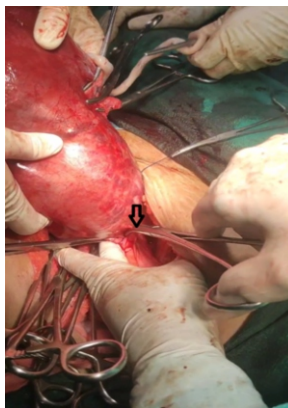


Figure 9: Black arrow points the clamping of uterosacral ligaments

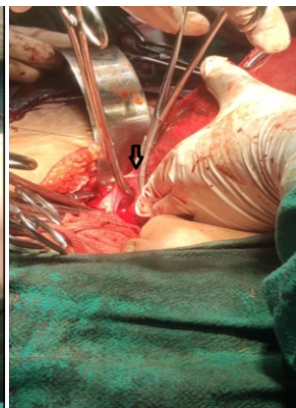


Figure 10

- g) Next the cardinal ligaments (with uterine vessels) are exposed medial to ureter and are then clamped, cut, and ligated. (Figure 10)
- h) Vaginal wall is incised from posterior to lateral.
- i) Bladder pillars are then clamped, cut and ligated keeping the ureters safe.
- j) At the level of anterior vaginal fornix, vesicovaginal space is developed by dissecting between the bladder and vagina, thus creating the tunnel. (Figure 11 and 12) Here, the bladder is not adherent and is further separated from the anterior aspect of uterus by dissection in cephalad direction until the bladder is separated till the lowermost extent of suspected bladder invasion is reached. (Figure 13)
- k) After incision of the anterior vaginal wall, only the bladder, invaded by the placenta is attached to the lower uterine segment.
- l) Cystotomy may be required in certain cases for completion which can be repaired in layers later (Figure 14)



Figure 11: Identification of vesicovaginal space



Figure 12: Development of vesicovaginal space (tunnel)



Figure 13: Arrow points the cephalad dissection of bladder



Figure 14

m) Vaginal walls are closed. Urologic integrity and hemostasis are ensured followed by intraperitoneal drain insertion and closure of abdomen.

Intraoperative monitoring

Close monitoring of volume status, urine output, ongoing blood loss, electrolytes, blood gas and overall haemodynamics is critically important.

Replacement of blood and blood products

Timely replacement of estimated blood loss by PRBC and other blood components (1:1:1 of RBC:FFP:RDP) is equally important and essential to prevent maternal morbidity.

Post-operative Management

1. Intensive haemodynamic monitoring preferably in intensive care unit.
2. Continuous vigilance for ongoing bleeding is very important.
3. Blood replacement as per the patient's condition.
4. Prophylactic LMWH depending upon clinical risk factors and the intraoperative course.
5. Prophylactic antibiotics.
6. Bladder care.
7. Psychological and emotional support.

Complications²

The complications are mentioned in the table-2.

Table-2: Complications of retrograde hysterectomy

Complications	
Median estimation of blood loss	2-3 L
Median units of packed RBCs transfused	3.5-5.4 L
Large volume blood transfusion(>10L)	5%-40%
Injury to bladder	7%-48%
Injury to Ureter	0-18%
Admission to ICU	15%-66%
Bowel injury/obstruction	2%-4%
Venous thromboembolism	4%
Surgical site infection	18%-32%
Reoperation	4%-18%
Maternal mortality	1%-7%

Conclusion

Retrograde obstetric hysterectomy may enable safer surgery in expert hands in cases of anterior placenta previa with abnormally invasive placentation. The concept of developing vesico-uterine space at the level of anterior vagina and cephalad dissection of the bladder possibly invaded by placenta, once the uterus is completely devascularised, certainly reduces the haemorrhage compared to the life-threatening torrential bleeding which commences with the dissection of bladder from uterus in conventional hysterectomy.

To demonstrate and confirm the safety and efficiency of this novel surgical technique, analytical studies need to be performed.

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Laparoscopy in pregnancy

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Introduction

Around 1-2% of pregnant women require surgery for non-obstetric reason¹. Acute appendicitis and cholecystitis are the two non-obstetrical surgical emergencies that complicate pregnancy most frequently². The other common diagnoses that also necessitate surgery include ovarian cysts, ovarian masses or torsion, symptomatic cholelithiasis, adrenal tumours, splenic abnormalities and symptomatic hernias.

A few decades back, there were some serious concerns about the safety of laparoscopy during pregnancy, including the possibility of uterine damage from trocar insertion and foetal malperfusion caused by pneumoperitoneum. But things eventually changed and now Laparoscopy has replaced open surgery as the therapy of choice for a wide variety of surgical conditions in pregnant patients also.

Concerns

- Pneumoperitoneum may cause an increase in intraabdominal pressure, which may reduce placental blood flow and cause foetal hypoxia.
- Carbon dioxide (CO₂) absorption may cause foetal acidosis.
- If the uterus is punctured with a trocar or Veress needle, the foetus could suffer direct or indirect harm.
- Preterm membrane rupture and preterm delivery

However, numerous case reports detailing the safe execution of laparoscopic surgeries in pregnant women have been published, which has prompted us to reassess and alter the perspective.

Deciding the route

Once the procedure has been chosen, the surgical technique (laparotomy vs. laparoscopy) should be chosen depending on the surgeon's expertise, the availability of the necessary personnel and equipment³.

Benefits

The benefits of laparoscopy for pregnant patients are similar to those as for non-pregnant patients, including shorter hospital stays, less postoperative ileus, quicker return to work, and less postoperative pain⁴. Other benefits of laparoscopy in pregnant patients include lowered risk of wound complications, diminished postoperative maternal hypoventilation, lowered risk of thromboembolic events and decrease postoperative narcotic requirements.

When to perform

When surgery is necessary, a laparoscopy can be safely carried out in any trimester of pregnancy.³

To reduce the chance of spontaneous abortion and premature labour, it has traditionally been advised to postpone non-emergency treatments throughout the first and third trimesters of pregnancy. Due to this, several medical professionals have recommended postponing surgery until the second trimester⁴. The current research has shown that pregnant patients can successfully undergo laparoscopic surgery during any trimester without an additional risk to the mother or foetus.^{4,5}

During third trimester sometimes proper visualisation is a challenge due to large size of uterus. But many surgeons have successfully treated and published various case reports on appendicitis, cholecystitis, intussusception and different adnexal masses management laparoscopically in the third trimester, as late as

34 weeks of pregnancy. A third-trimester laparoscopic procedure's feasibility depends on certain clinical factors (such as the body habitus, uterus size and concurrent medical and obstetric conditions). There is no maximum gestational age for performing laparoscopy; if it is technically feasible and therapeutically acceptable.

Although laparoscopic surgeries in the first trimester are technically simpler, the introduction of a potential teratogen during organogenesis is a cause for concern. Furthermore, it is desirable to do surgery after the time when spontaneous miscarriages are most likely to occur.

Pre operative Care

An oro-gastric tube is introduced into the stomach before the treatment starts in order to prevent stomach perforation and lower the possibility of aspirating gastric contents. Depending on the surgery, a Foley catheter may or may not be inserted into the bladder.

Thromboprophylaxis

There are no data from randomised trials on the use of intermittent pneumatic compression or unfractionated or low molecular weight heparin for the prevention of venous thromboembolism in pregnant patients undergoing laparoscopy. Pregnant women undergoing laparoscopic procedures for surgical issues are advised to wear pneumatic compression devices on their lower limbs according to the Society of American Gastrointestinal and Endoscopic Surgeons³.

Prophylactic tocolysis

Neither the use of prophylactic tocolytics nor glucocorticoids is supported by any evidence. Yet, these medications may be indicated in management of threatened preterm delivery.

Patient Positioning

To prevent substantial compression of the aorta and inferior vena cava, the patient is positioned in the supine or low lithotomy position with a leftward tilt (after 16 weeks of gestation). The operating table's left lateral rotation may also aid in sufficiently shifting the uterus. First-

trimester pregnant individuals do not need to be positioned differently because the uterus's small size does not affect venous return. The intestines can be moved cephalad by varying the Trendelenburg posture, which enhances pelvic procedure visualisation. Pregnant patients' habitus, co-morbid risk factors and gestational age all influence the amount of Trendelenburg position they can tolerate.

Trocar Placement

All patients undergoing laparoscopy are susceptible to trocar damage, but the gravid uterus makes trocar insertion and the development of a pneumoperitoneum more challenging and potentially riskier. The accidental insertion of a Veress needle through the umbilicus and into the uterus of a pregnant woman has been documented.

When done properly, either an open or closed approach can provide safe abdominal access for laparoscopy. The potential greater risk of harm to the uterine or other intraabdominal organs has generally been the driving force behind opposition to closed access procedures (Veress needle or optical entry)⁶. In order to increase access safety because the intraabdominal domain changes throughout the second and third trimesters, trocar placement should differ from the usual position.

Intra-abdominal pressure

Pregnant patients can safely undergo laparoscopy with CO₂ insufflation of 10-15 mmHg. It is important to match the insufflation pressure to the patient's physiological needs³.

The growing foetus pushes the pregnant patient's diaphragm upward, which reduces the patient's functional residual capacity and residual lung volume. In a pregnant patient with pre-existing restricted pulmonary physiology, upward displacement of the diaphragm by pneumoperitoneum is particularly concerning. To prevent the pulmonary physiology of pregnant women from getting worse, several experts have advised keeping intraabdominal insufflation pressures below 12 mmHg³.

Post operative care

Fetal heart rate and uterine activity should be monitored in the recovery room, as appropriate for gestational age. Opioids and antiemetic can be used, as needed, to control postoperative pain and nausea. Nonsteroidal anti-inflammatory drugs should be avoided, especially after 32 weeks of gestation, because they may cause premature closure of the fetal ductus arteriosus. Caesarean delivery is performed for standard obstetric indications; the presence of a recent abdominal incision does not preclude pushing in the second stage of labour.

Author Experience

We at Rejoice hospital have performed about 20 cases of laparoscopic surgeries during pregnancies. The surgeries included all variety including lap cholecystectomy, lap appendectomy, ovarian torsion and cystectomy. About 4 cases of laparoscopic cerclage were also included in these cases. In our experience, laparoscopy has much better

outcome and many more benefits than laparotomy, but to achieve best results you need to have an experienced and skilled surgeon, a good team, instruments and support from anaesthetist.

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2. Augustin G, Majerovic M. Non-obstetrical acute abdomen during pregnancy. *Eur J Obstet Gynecol Reprod Biol* 2007; 131:4-12.
3. Pearl JP, Price RR, Tonkin AE, Richardson WS, Stefanidis D. SAGES guidelines for the use of laparoscopy during pregnancy. *Surg Endosc.* 2017;31(10):3767-82.
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5. Andreoli M, Servakov M, Meyers P, Mann WJ Jr. Laparoscopic surgery during pregnancy. *J Am Assoc Gynecol Laparosc.* 1999;6(2):229-33.
6. Friedman JD, Ramsey PS, Ramin KD, Berry C. Pneumoamnion and pregnancy loss after second-trimester laparoscopic surgery. *Obstet Gynecol* 2002; 99:512-3

Forthcoming Events

1. **Delhi PG Forum will organize a case discussion on urinary incontinence on 17th July by Lady Harding Medical College.**
2. **Community health and Public awareness committee is organizing a public forum webinar on 25.7.23 at 5.00pm on adolescent PCOS.**
3. **AOGD monthly clinical meeting will be held online on 28th July 2023, 4-5pm and will be organized by Army Hospital (Research & Referral), New Delhi.**
4. **AOGD Oncology sub committee will organize an online webinar: Case Based Discussions On Changing Perspectives With New FIGO Staging Of Carcinoma Endometrium on 29th July at 6pm-8pm. Convener: Dr Urvashi Miglani**
5. **AOGD - FOGSICON 2023: 45th AOGD Annual Conference & FOGSI PG Conference, on 18-20 August 2023 at Leela Ambience Hotel, Gurugram.**

Obstetric Injury

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Despite the fall in maternal mortality, there is still considerable morbidity associated with childbirth and as many as 91% of women report at least one new persistent symptom 8 weeks postpartum. Vaginal delivery is also a major aetiological factor in pelvic floor and perineal trauma with about one-third sustaining occult anal sphincter trauma. The short-term sequelae of childbirth include haemorrhage, hematoma formation, nerve palsy, perineal discomfort, fistulae and dyspareunia while the long term sequelae include uterovaginal prolapse, urinary and anal incontinence.

Perineal Injury

85% of women who have a spontaneous vaginal birth will sustain some form of perineal trauma and up to 69% of these will require suturing. Incorrectly approximated wounds can lead to major physical, psychological and social problems. Rate of obstetric anal sphincter injury (OASIS- both third and fourth degree perineal tears) is 1.7% (2.9% in primipara). With increased awareness and training, there appears to be an increase in the detection of anal sphincter injuries.

The following classification described by Sultan has been adopted by the International Consultation on Incontinence and the RCOG.

Risk factors

These include Asian ethnicity, nulliparity, birth weight >4 kg, shoulder dystocia, occipito-posterior position, prolonged second stage and instrumental delivery.

Prevention

Mediolateral episiotomy at 60°, perineal protection, warm compression and perineal massage at crowning prevents OASIS.

Assessment of OASIS

- Examine systematically to assess the severity of damage. This should include an assessment of the perineum, lower vagina and rectal examination to exclude any damage to the anal sphincter complex (external and internal anal sphincters and rectal mucosa).
- A second opinion must be obtained from an experienced clinician if the practitioner is inexperienced at assessing perineal damage or unsure of the degree of trauma sustained.
- If the trauma is complex, may need regional / general anaesthetic.

Surgical technique

Second degree tear repair

- Good light and exposure is needed, local anaesthesia (10-20 ml, 1% lignocaine) is

Type of tear	Definition
First-degree	Injury to perineal skin and/or vaginal mucosa.
Second -degree	Injury to perineum involving perineal muscles but not involving the anal sphincter.
Third -degree*	Injury to perineum involving the anal sphincter complex Grade 3a tear: Less than 50% of external anal sphincter (EAS) thickness torn. Grade 3b tear: More than 50% of EAS thickness torn. Grade 3c tear: Both EAS and internal anal sphincter (IAS) torn.
Fourth-degree	Injury to perineum involving the anal sphincter complex (EAS and IAS) and anorectal mucosa**

*Advisable to upgrade the tear stage, in case of doubt in third degree tear

** If the tear involves the rectal mucosa with an intact anal sphincter complex (button hole tear), it is not a fourth-degree tear and needs separate mention

- infiltrated directly around the tear.
- Vaginal apex is closed in continuous non locking fashion by vicryl rapid 2-0.
- The muscle (superficial and deep perineal) is apposed by interrupted sutures.
- Perineal skin is closed with interrupted or continuous subcuticular stitch.
- Vaginal examination is carried out to ensure vagina is not narrowed and rectal examination is carried out to ensure sutures have not pierced the anal canal.

Third- and fourth-degree tear repair

Principles of repair

- Suture as soon as possible following delivery to reduce bleeding and risk of infection.
- Informed consent, adequate lighting and expertise, repair under anaesthesia
- Do not take figure of eight sutures (hemostatic causes tissue ischemia)
- Anorectal mucosa: continuous / interrupted 3-0 vicryl knot tied in the anal canal
- Internal anal sphincter: repaired separately with interrupted or mattress sutures (either monofilament 3-0 PDS or 2-0 vicryl without any attempt to overlap it.
- External anal sphincter: Repaired either by an end to end or overlapping method. For partial thickness tears an end to end technique should be used.

Post operative management

- Broad spectrum antibiotics to reduce the risk of postoperative infections and wound dehiscence
- Laxatives is recommended to reduce the risk of wound dehiscence. Avoid stool bulking agents
- Physiotherapy following repair of OASIS could be beneficial
- Review at a convenient time (usually 6–12 weeks postpartum)

Future deliveries

- Women who are clinically asymptomatic can be allowed vaginal delivery by expert.

- Episiotomy should be only performed if indicated. No role of prophylactic episiotomy.
- All women who have sustained OASIS in a previous pregnancy and who are symptomatic or have abnormal endoanal ultrasonography and/or manometry should be counselled regarding the option of elective caesarean birth.

Cervical Tear

Cervical lacerations are seen in more than 50% deliveries with majority of them being upto 0.5 cm. Tears occur in cases of cervical oedema, pushing through the incompletely dilated cervix, large foetus, or instrumental delivery. Suspect a tear in cases of postpartum haemorrhage where there is good uterine retraction and uterine rupture has been ruled out.

Cervical tear exploration: it is done under good light and assistance, 3 sponge holders and doesn't requires anaesthesia. The sponge holder holds the cervix at 12 O' clock and rest two sponge holders are applied serially at 3, 6 and 9 O'clock to look for any cervical tear.

Management

- Small cervical tear, minimal bleeding: should heal spontaneously with no suturing and without complications.
- Larger cervical tear (2 cm), heavy bleeding: An assistant applies downward pressure on the uterus while the operator is grasping the anterior and posterior lips in a downward direction. Place the initial suture (vicryl 1-0) 1 cm above the apex of laceration to control retracted arteries. If the apex is not easily seen a traction on a stitch taken as high as possible in the tear will show the apex.

Complications: Fatal hemorrhage following undiagnosed upward extension into uterine vessels, cervical stenosis due to overzealous repair.

Colporrhexis

Colporrhexis is defined as rupture of vaginal vault or upper one third of the vaginal wall. Most cases of colporrhexis are of traumatic origin

associated with unskilled instrumental delivery, vaginal birth after C-section, myomectomy, precipitate labour and injudicious use of oxytocics in labour. Extensive tears of the vaginal vault should be explored carefully and usually require laparotomy. If there is suspicion of peritoneal perforation or of retroperitoneal or intraperitoneal haemorrhage internal iliac artery ligation with or without hysterectomy is performed.

Hematoma of the Genital Tract

Puerperal hematomas occur in 1:300 to 1:1500 deliveries and potentially life threatening, if goes undiagnosed.

Vulval (infra levator) hematoma

- Small not-increasing hematoma: is managed conservatively as it usually resolves spontaneously. Prophylactic antibiotic may be given to guard against secondary infection.
- Large increasing hematoma: It is incised longitudinally, evacuation of the clotted blood, bleeding points are ligated and the gap is closed in layers.

Vaginal (Supra-Levator) hematoma

It occurs more commonly after instrumental delivery, characterized by rectal pain, pressure, enlarging vague vaginal mass. Management depends on clinical condition of women. Surgical management is indicated in women with hypovolemic shock, large, expanding hematomas which may cause pressure, septicemia and necrosis. Exploration is done under general anaesthesia. Incision is given over maximum bulge and hematoma is evacuated. Any bleeders are ligated, in case of uncontrolled bleeding, anterior division of internal iliac artery is ligated. Dead space is obliterated and vaginal incision closed. Vaginal pack can be inserted upto 24 hours and an indwelling catheter placed.

Broad Ligament (Retroperitoneal) hematoma

- It is caused by upper vaginal, cervical, or uterine tears which usually involve the vaginal or uterine artery. It is suspected when

grade of hypovolaemia, anaemia or shock is disproportionate to amount of haemorrhage. The swelling on one side of the uterus which increase over a period of hours or days. The uterus is felt separate and deviated to the opposite side.

- Small not-increasing hematoma: is managed conservatively as vulval hematoma.
- Large increasing hematoma: Laparotomy is done under general anaesthesia. The incision over the anterior leaflet of the broad ligament is given and blood clots are evacuated. The haemostasis is secured, bilateral internal artery ligation or hysterectomy may be indicated.

Rupture Uterus

Uterine rupture can be complete, involving the all the layers of uterus or incomplete which does not involve the peritoneal coat.

Causes:

1. *Antenatal*: Rupture of a uterine scar, rupture of rudimentary horn, perforating mole or trauma.
2. *Intrapartum*: Rupture of uterine scar, obstructed labour, grand multipara, injudicious use of oxytocics or traumatic due to versions, manual removal of placenta, destructive procedures.

Diagnosis

Impending rupture: Lower abdominal pain, Tender uterine scar, Vaginal spotting

Acute rupture: Clinical signs of haemorrhagic shock, sudden severe pain, vaginal bleeding, Fetal heart irregularity, fetal parts palpable easily through abdomen, loss of station of presenting part

Management

Preventive:

- Early detection of causes of obstructed labour as contracted pelvis and malpresentations.
- Proper use of oxytocics.
- Version is not done if liquor amnii is drained.
- Forceps application and breech extraction should not be done before full cervical

dilatation.

- Elective caesarean section for susceptible scars for rupture as upper segment C.S.
- Exploration of the genital tract after difficult or instrumental delivery.

Curative:

- Initial resuscitation, blood arrange and patient to be prepared for emergency laparotomy.
- At laparotomy diagnosis is confirmed and baby and placenta delivered quickly following which control of hemorrhage is priority. Surgical repair depends on the extent and site of rupture, patients hemodynamic condition and desire for future fertility. If tear is simple, transverse in the lower segment- repair it with interrupted sutures in layers using no. 1 vicryl.
- If rupture is longitudinal or involves lateral aspects of lower or upper segment, bleeding is uncontrollable or tissues are infected caesarean hysterectomy is done. Consideration should be given to adjacent structures broad ligament, bladder, ureter.

Urinary Tract Injury

Fistulae (vesicovaginal and uretrovaginal) can form due to pressure necrosis following obstructed or prolonged labour, direct injury due to bladder adhesions or following instrumental delivery. When identified intraoperatively, should be repaired immediately. If diagnosed post operatively, prolonged bladder catheterization for 2-3 weeks is practiced and if fistula is still persistent, then delayed closure after 3 months.

Nerve Injury

In obstetrics, compressive neuropathies are most common, with the most commonly affected nerve being the lateral cutaneous nerve of the thigh. Other susceptible nerves are the femoral nerve, common peroneal nerve, lumbosacral plexus, sciatic nerve and obturator nerve.

Etiology: Not by an obstetric intervention but by nerve compression between body structures, between the fetal head and the bony pelvis or between the body and external structures (for example, lithotomy supports).

Management: Self resolving within 3 months. However, some injuries may be missed in the early postnatal period and some may persist. In the case of a more profound or long-lasting deficit, referral to a neurologist and physiotherapist is recommended.

Prevention

- Only putting patients into the lithotomy position immediately before surgery. Avoid more than 2 hours in lithotomy position
- Helping women to change position frequently during labour and delivery – especially avoiding prolonged thigh flexion

Suggested Reading

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ALGORITHM

Operative Vaginal Delivery

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The goal of operative vaginal delivery is to mimic spontaneous vaginal birth, thereby expediting delivery with a minimum of maternal/ neonatal morbidity and thus safely avoiding cesarean delivery.

The obstetrician should review the case and perform complete abdominal and vaginal examination to determine the valid indication for instrumental delivery, whether prerequisites are met and classify the procedure (Fig 1).

Preparation for Instrumental Delivery

Consent

Take informed consent from the patient. Verbal consent is acceptable in labor ward with clear documentation of discussion in the case records. For difficult deliveries like mid cavity or rotational procedures and all cases of trial of instrumental delivery in operation theatre,

written informed consent should be taken.

Operator for instrumental vaginal delivery

Operative vaginal deliveries should be performed/ supervised by the competent obstetrician

Choosing the Instrument for Operative vaginal Delivery

Choose the instrument (Forceps or Ventouse) as per clinical situation and own level of competence. Vacuum deliveries are easier to learn and can be used even in asynclitism. They have higher rate of failure, more risk of cephalhematoma and retinal hemorrhage in fetus but less maternal perineal/ vaginal trauma as compared to forceps deliveries. Forceps application is more secure, has better success rate, can be used for rotational deliveries, but has significantly higher vaginal/ perineal trauma.

Indications:	Classification:	Pre-requisites/ checklist:
<p>No indication is absolute and caesarean section is an alternative choice</p> <p>Fetal compromise – suspected or anticipated (non reassuring fetal heart rate patterns, abnormal fetal scalp blood sampling results, thick meconium, abruptio placentae).</p> <p>To cut short second stage e.g. cerebral aneurysm, risk of aortic dissection, proliferative retinopathy, severe hypertension or cardiac disease, etc.</p> <p>Prolonged second stage/ failure to progress with arrest of descent or rotation of fetal head.</p> <p>Maternal fatigue/exhaustion</p> <p>Contraindications</p> <p>Fetal Head not engaged.</p> <p>Position of fetal head not known</p> <p>Fetus suspected to have bone demineralization condition predisposing to fractures (eg. Osteogenesis imperfecta) or a bleeding disorder (eg, alloimmune thrombocytopenia, hemophilia, von Willebrand disease)</p> <p>Vacuum delivery is contraindicated in preterm life fetus at gestational age < 32 weeks. Even at 32-36 weeks, caution is required.</p>	<p>Outlet Forceps:</p> <ol style="list-style-type: none">Fetal Scalp is visible at introitus without separating labiaFetal skull has reached pelvic floorFetal head is at the perineumSagittal suture is in antero posterior or one of the oblique diametersRotation =45° <p>Low Forceps:</p> <p>Leading point of fetal skull is at station = +2 but not on pelvic floor. It is further subdivided into:</p> <ol style="list-style-type: none">Without Rotation (rotation required is =45°)With Rotation (rotation required is > 45°) <p>Mid Forceps: Station is between 0 and + 2cm</p> <p>Same classification can be used for Vacuum deliveries except the fact that vacuum is used only for traction and not rotation</p>	<p>Pre-requisites/ checklist:</p> <ul style="list-style-type: none">Completely dilated and effaced cervixRuptured MembranesEngaged Head (P/A fetal head should be non palpable 1/5th palpable in cases of deflexed head, on P/V station should be at or below 0 station)Vertex presentation (Forceps can be applied in Face – Mento anterior and aftercoming head of the breech)Precisely assessed fetal position.Fetal weight assessed and pelvis adequate for vaginal deliveryNo cephalopelvic disproportionBladder should be emptyAdequate anaesthesiaInformed consent taken from the patientBack up plan in case of failure of the procedureNeonatal care provider should be informed about the procedure

Figure 1: Indication, contraindication, prerequisites and classification for instrumental delivery

Ventouse is also contraindicated in preterm deliveries.

Episiotomy

Routine episiotomy for all operative vaginal deliveries is not recommended. The evidence supporting mediolateral episiotomy to prevent obstetric anal sphincter injury is stronger for assisted births in nulliparous women and for forceps deliveries. Therefore episiotomy should be tailored to the situation and woman's choice.

If episiotomy is to be given, mediolateral episiotomy should be performed at 60 degree angle when head is distending the perineum.

Steps of Procedure

Apply the appropriate technique (Fig 2) in conducting the delivery with the chosen instrument. Ensure optimal uterine contractions and close fetal heart rate monitoring during the procedure.

Vacuum Delivery

Either metal or soft cups can be used. Choose the appropriate size cup that will fit the baby's head

- Vacuum Extraction cup should be placed *symmetrically over the sagittal suture at median flexion point which is 2 cm anterior to the posterior fontanelle or 6 cm posterior to the anterior fontanelle.*

-Ensure that no cervix or the vaginal wall is trapped beneath the rim of the cup both before and after vacuum creation as well as prior to traction.

-Rapid creation of vacuum by increasing the negative pressure to 0.8 kg/cm² (500-600mm Hg) is recommended. -Hold the handle and establish gentle intermittent traction coordinating with maternal expulsive efforts.. Traction is initially directed downwards and then progressively directed upwards as head emerges. Rocking motions and application of torque for forceful rotation should be avoided. During pulls, non dominant hand should be placed inside vagina, with thumb on the extractor cup and fingers on the scalp.

With three pulls fetal head reaches the perineum in majority of the cases. Three additional pulls can be used to deliver the head out of perineum.

Perform episiotomy at crowning if indicated.

Release suction and remove cup once the head is delivered and complete delivery as normal.

Forceps Delivery

Select appropriate instrument according to the station and rotation of the fetal head.

Phantom application: Lock the blades outside and identify left & right blade corresponding to the maternal sides

Note the time of forceps application.

Assess the blades to ensure correct application & lock the blades together when positioned correctly. In Occipito Anterior, correct applications is when:

Post fontanelle 1cm above the plane of the shanks

Sagittal suture lies in the midline of the shanks /perpendicular to the plane of the shanks

Lambdoid sutures should be equidistant from the forceps blades.

Apply traction during a contraction while the woman bears down (unless contraindicated), following the pelvic curve. The dominant hand gives outward pull while the other hand gives continuous downward pressure.

Unlock the blades between contractions.

Perform episiotomy during the crowning of the head if indicated.

After horizontal traction, when occiput is delivered, handles are gradually elevated, delivering head by extension.

Remove forceps in opposite order to the application. Note time forceps removed. Then complete rest of delivery as normal.

Figure 2: Steps of Procedure

Discontinue the procedure if

Vacuum Delivery

If there is no evidence of progressive descent with moderate traction during each pull of correctly applied instrument, discontinue the procedure
If there is minimal descent with first 2 pulls, reassess for optimal application, fetal position, any cephalopelvic disproportion. Reassessment by more experienced person may be warranted. Either change of approach or abandonment of procedure is warranted.
If there are two pop offs of the instrument, discontinue. After one pop off, senior support should be sought.

Forceps Delivery

If the blades can not be easily applied and handles can't be locked.
If there is no progressive descent with moderate traction
For rotational procedures, if rotation is not easily achieved with gentle pressure
If birth is not imminent after three pulls of a correctly applied instrument by experienced obstetrician.
If there is minimal descent with first one or two pulls, reassess for optimal application, fetal position, any cephalopelvic disproportion. Reassessment by more experienced person may be warranted. Either change of approach or abandonment of procedure is warranted.

Post procedure Care

Examine for any traumatic lacerations to the maternal genital tract and rectum/anal sphincter and perform timely repair.
Neonates should be examined and monitored for any injuries.
A single prophylactic dose of intravenous amoxicillin and clavulanic acid after assisted vaginal birth as it significantly reduces infections.
Women should be reassessed for venous thromboembolism risk
Regular non steroidal anti inflammatory drugs and paracetamol should be offered
Women should be counselled and encouraged for bladder emptying in postpartum period to avoid retention. Timing and volume of first void urine should be documented.
Prior to hospital discharge counsel the woman about the indication for operative delivery, management of complications & prognosis for future births.

Use of Alternative Instrument after failed procedure

Not recommended in view of higher risk of fetal injuries, neonatal complications and sphincter injuries

Documentation & Auditing

Documentation for assisted vaginal birth should include detailed information on the assessment, decision making and conduct of the procedure, a plan for postnatal care
Paired cord blood samples should be processed and recorded following all attempts at assisted vaginal birth.
Adverse outcomes, including failed assisted vaginal birth, major obstetric haemorrhage, injuries, shoulder dystocia and significant neonatal complications should trigger an incident report as part of effective risk management processes

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SNAPSHOT

Volume reduction in NDVH: A video article

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It is now well established that route of choice for hysterectomy should be vaginal, because of its various advantages that it is least invasive, can be performed under spinal anesthesia, fast recovery, low cost, no special instruments required, early discharge and least morbidity.

Removal of a mobile uterus up to 12 weeks size or 200 cm³ volume usually does not pose any problem in expert hands. However, an enlarged uterus, more than 14- 16 weeks or more than 300cm³ volume require volume reduction in majority of cases. With expertise, perseverance, good assistance, even very large uteri with fibroids, adenomyosis can be removed safely vaginally by various techniques as follows

Debulking Procedures

Usually, debulking is required when all available tissue around uterus have been secured and still there is no descent. Also, when surgeon is not able to reach fundus, even after securing all possible tissues around uterus, debulking may be required.

Lateral incision

Many times, we give inverted V incisions anteriorly and posteriorly, sometimes along with bisection. This facilitates descent and uterus delivers easily. Idea is to not pull infundibulopelvic ligament too much in an attempt to deliver uterus.

Bisection

Hemisection of mild to moderate sized uterus, reducing the mass by one half, may be all that is needed to deliver uterus. Bisection may begin at cervix or fundus.

In many cases, It is helpful to cut the cervix first to make uterus apple shaped from bulky pear shaped. Using tenaculum, cervix and fundus is divided by knife or heavy scissors. In big uteri,

additional morcellation may be required. Carry the incision upwards towards fundus, always under vision and through cavity to maintain proper orientation. Beware of adhesions to fundus and always palpate before advancing. Any obstructing myomas in the line of incision must also be bisected or enucleated and removed separately. Place one half of uterus inside pelvis to displace bowel and increase exposure.

Wedge resection

Excellent for gross enlargement when coring or simple bisection fail. It can be started in a number of ways—by amputating the cervix and removal of V shaped or triangular or quadrangular or oval shaped pieces of tissues from the most accessible uterine wall, either anteriorly or posteriorly, the apex of wedge being carried to the highest level the surgeon can reach with scissors or scalpel.

Special techniques

Pryor's technique

Well suited for broad subpubic arch. Anterior uterine wall is bisected in midline, wedges of tissues are cut bilaterally from edges of midline incision. The procedure is repeated and uterus is delivered anteriorly, similar to doderlein's hysterectomy.

Posterior fundal morcellation

Very useful when there is sufficient space posteriorly, but still the uterus cannot be delivered by simple traction. Can also be done when anterior pouch is yet to be opened. Only posterior part of fundus is excised. Big chunks of tissues are removed posteriorly repeatedly till uterus collapses. No cervical amputation or bisection of uterus is done.

Intramyometrial coring/Lash technique

Excellent method when uterine body is movable but too large to permit comfortable delivery by flipping the fundus anteriorly or posteriorly. Best suited for smoothly enlarged globular uterus, but applicable in other conditions also. Safer for Broad ligament and anterior fibroids which are below bladder.

Start at isthmus area where corpus begins to widen, above the level of ligated uterine artery. The myometrium is incised circumferentially parallel to the long axis of uterine cavity and its serosa.

Care is taken not to incise serosa. Also, care is taken not to enter the cavity. Stay closer to serosa for a large core. Avoid going into multiple planes.

After core is removed, adnexae are easily accessed. Any adhesiolysis on serosal surface of uterus, tube or ovary can be easily done. Core, if still large may again be morcellated.

Very favorable when vaginal canal is narrow, or suprapubic arch is narrow

Morcellation

Very effective specially when uterus is asymmetrically enlarged and there is undue disproportion between uterine size and pelvic space. Here, uterine tissue is excised from inside and multiple chunks of tissues are removed till uterus becomes smaller. Any fibroid coming in the way is also taken out.

Myomectomy/adenomyomectomy

Information about exact no. size and location of fibroids from endometrium, internal os and fundus (fibroid mapping) and other masses by

ultrasound / CT / MRI gives details of exact site for incision on uterine wall or endometrium and / or need for bisection or morcellation. Also differentiate between fibroid and adenomyoma.

Adenoma / adenomyosis dissection more difficult than myomectomy. Subserosal coring / Lash technique or removal of wedges from the center may be required

Debulking one large fibroid easier than many small fibroids. Also, enucleation is easier & simpler than morcellation

Always attempt debulking after securing uterine vessels. Exception may be cervical or LUS fibroids, which may interfere with safe ligation of lower pedicles and uterines, specially when fibroid is subvesical or intraligamentous. Here enucleation may be needed before securing uterines, by infiltrating dilute vasopressin.

Augmentation Of Vaginal Space

In some conditions like nulliparous women, android pelvis, distortion of pelvis following malunited pelvic fracture, scarring following trauma or perineal repair, vaginal fibrosis following chemical use etc, gynaecological episiotomy, Schuchardt incision, may be helpful. However many such cases are better managed by laparoscopic hysterectomy or by abdominal route.

Video Of Various Techniques Can Be Accessed At

- <https://youtu.be/0Des82oUri4>
- https://drive.google.com/file/d/1bWlqIWtg-ICWF79I1BUESc3vMD6QasJW/view?usp=drive_link
- https://drive.google.com/file/d/1bWlqIWtg-ICWF79I1BUESc3vMD6QasJW/view?usp=drive_link

Calendar of Virtual Monthly Clinical Meetings 2023-24

Date	Name of Institution
28 th July, 2023	Army Hospital (Research & Referral)
18 th -20 th August, 2023	AOGD FOGSICON 2023
25 th August, 2023	Deen Dayal Upadhyay Hospital
29 th September, 2023	ESI hospital, Basaidharapur
27 th October, 2023	All India Institute of Medical Sciences
24 th November, 2023	MAMC & LNJP Hospital
29 th December, 2023	Sir Ganga Ram Hospital
30 th January, 2024	Dr RML Hospital
23 th February, 2024	VMMC & Safdarjung Hospital
28 th , March, 2024	UCMS & Guru Teg Bahadur Hospital
19 th April, 2024	LHMC & Smt. Sucheta Kriplani Hospital
31 st May, 2024	B L Kapoor Hospital



Empowering Women by Promoting their Reproductive Health



And here is the **Opportunity!!**

World Population Day Campaign 2023

**आज़ादी के अमृत महोत्सव में हम लें संकल्प
परिवार नियोजन को बनाएंगे खुशियों का विकल्प**

"ON THE OCCASION OF AZADI KA AMRIT MAHOTSAV, LET US TAKE A PLEDGE TO ADOPT FAMILY PLANNING AS A CHOICE FOR HAPPINESS AND PROSPERITY"

**Mobilization Fortnight
27 Jun - 10Jul**

WPD 11 JULY 2023

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11 Jul - 24 Jul**

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- ★ Revitalize Family Planning Services
- ★ Generate Demand for Family Planning
- ★ Satisfy acceptors

OUR PLEDGE:
WE OWN
THE RESPONSIBILITY
OF RENDERING QUALITY
FAMILY PLANNING
SERVICES

OUR COMMITMENT:
FREE FAMILY PLANNING
SERVICES DURING
THE CAMPAIGN

Let us:

- Encourage Eligible couples to use effective methods of contraception
- Promote Short acting reversible contraception (SARC) and Long acting reversible contraception (LARC)
- Motivate Eligible Couples with need for permanent contraception to prefer NSV over Female Sterilization
- Organizing Intensive IEC (Information, Education and Communication) drives



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दिल्ली सरकार
आप की सरकार

Post Operative Recovery: Healing the Natural Way

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In the realm of post operative recovery, the natural way of healing offers a promising path to restoration and wellness. Beyond conventional medical interventions, there exists a holistic approach rooted in the principles of naturopathy. This therapeutic system recognizes the body's innate healing abilities and emphasizes the use of natural modalities such as yoga, hydrotherapy, acupuncture and more. By harnessing these powerful tools, individuals cannot only enhance their physical recuperation but also nourish their mental and emotional well-being. In this article, we will explore how these treatment modalities within naturopathy can contribute to a more holistic and rejuvenating post operative recovery experience.

Stress Management through Yoga

Multiple studies have examined the association between stress management techniques, including yoga, and immune function. One proposed mechanism by which yoga may affect immune function is through the reduction of stress and promotion of relaxation. Prolonged stress has been shown to detrimentally impact the immune system, leading to diminished immune responses and increased vulnerability to illnesses. By mitigating stress levels, yoga has the potential to regulate the immune system and enhance its functionality.

Specifically, research findings have indicated that pre-surgical stress management interventions, including yoga, can lead to heightened levels of natural killer (NK) cells, proinflammatory cytokines, and tumour necrosis factor (TNF). NK cells are a subset of lymphocytes that play a crucial role in the body's defence against viral infections and tumour cells. Proinflammatory cytokines and TNF are molecules involved in modulating immune responses and regulating inflammation.¹

These observed alterations in immune function subsequent to pre-surgical stress management techniques may significantly contribute to improved post-operative outcomes. Enhanced immune function resulting from these interventions may further facilitate superior wound healing, reduce the risk of infections and promote more favourable recovery following surgical procedures.

Wound Healing

Furthermore, a randomized controlled trial (RCT) published in the International Journal of Yoga has revealed that practicing yoga during the preoperative period can potentially enhance wound healing. Specifically, it was observed that incorporating yoga prior to surgery resulted in a shortened interval period for suture removal and reduced plasma tumour necrosis factor-alpha (TNF-alpha) levels following the surgical procedure.²

Pain Management

Yoga may help manage post-operative pain. A systematic review published in the Journal of Alternative and Complementary Medicine in 2017 analysed several studies and found evidence supporting the effectiveness of yoga in reducing pain and improving pain-related outcomes in various conditions. Another study examining the effects of higher dispositional mindfulness meditation during the preoperative period has demonstrated favourable postoperative pain outcomes, specifically reduced pain scores, in patients undergoing gynaecological surgery. The findings indicate that increased mindfulness, coupled with decreased amygdala activation and increased prefrontal cortex activity (known as the primary centre for pain regulation), may contribute to these positive outcomes. It is important to note that further research is required to fully understand the mechanisms

underlying the observed effects. These findings highlight the potential benefits of dispositional mindfulness meditation and preoperative yoga interventions.³

Physical Function and Mobility

Yoga may aid in restoring physical function and mobility after surgery. A study published in the *Journal of Surgical Research* in 2016 examined the effects of yoga in post-operative recovery following colorectal surgery. The results indicated that a yoga intervention improved physical function and quality of life compared to a control group.

Psychological Well-being and sleep quality

Post-operative recovery can be stressful, and yoga may help improve psychological well-being. A systematic review and meta-analysis published in *Complementary Therapies in Medicine* in 2019 assessed the effects of yoga on stress reduction. The findings suggested that yoga interventions were associated with decreased stress levels and improved mental well-being. Yoga also has a positive impact on sleep quality.

Hydrotherapy

The precise physiological mechanisms underlying the effects of sitz baths remain unclear. One hypothesis proposes that the pain relief especially in acute anal fissures experienced after a sitz bath may be attributed to the relaxation of the internal anal sphincter, leading to a reduction in pressure at the rectal neck. In research investigations, it has been observed that cold sitz baths exhibit a greater reduction in perineal oedema compared to warm sitz baths, despite the fact that patients generally express a preference for the latter. Also, studies have shown that use of ozonised water in sitz baths significantly decreased pain levels and facilitated a faster healing process in patients following a haemorrhoidectomy.

Acupuncture

Acupuncture is a traditional Chinese medicine practice that involves inserting thin needles into specific points on the body to promote healing and relieve pain. While there is some evidence

suggesting that acupuncture may have benefits in certain areas of post-operative recovery, it is important to note that the overall scientific consensus is mixed, and more research is needed to draw definitive conclusions. The mechanism behind how acupuncture may contribute to post-operative recovery is not fully understood and is still an area of ongoing research. Several proposed mechanisms that could potentially explain the effects of acupuncture on post-operative recovery are:

Modulation of Pain Perception

Acupuncture is thought to stimulate the release of endogenous opioids, such as endorphins, which are natural pain-relieving substances in the body. By activating specific acupuncture points, acupuncture may help modulate pain perception, leading to pain relief in the post-operative period. A systematic review which analysed 39 randomized controlled trials involving over 3,000 participants found that acupuncture, when used alongside conventional pain management strategies, provided significant pain relief compared to control groups.⁴

Regulation of Inflammation and Immune Response

Studies have shown that acupuncture may regulate the release of cytokines, which are signalling molecules involved in the inflammatory response. By modulating the immune and inflammatory response, acupuncture may contribute to reducing post-operative inflammation and promoting healing.

Activation of Neural Pathways

Acupuncture is believed to stimulate sensory nerves in the skin and muscles, sending signals to the central nervous system. This stimulation may activate various neural pathways, including those involved in pain regulation, stress response, and autonomic function. By activating these pathways, acupuncture may help restore balance and promote recovery after surgery.

Improvement of Blood Circulation

Acupuncture is thought to enhance blood circulation in the body. By stimulating specific

acupuncture points, blood flow to the affected areas may increase, facilitating the delivery of oxygen, nutrients, and immune cells to promote tissue healing and repair and has a positive impact on wound healing.

Regulation of Neurotransmitters and Neurohormones

Acupuncture has been shown to influence the release and activity of neurotransmitters and neurohormones in the body, such as serotonin, dopamine, and norepinephrine. These substances play essential roles in pain perception, mood regulation, and stress response. By modulating these neurotransmitters and neurohormones, acupuncture may contribute to post-operative recovery by reducing pain, improving mood, and promoting relaxation.

Nausea and Vomiting

Post-operative nausea and vomiting are common side effects of anaesthesia and according to a meta-analysis including 30 randomized controlled trials acupuncture was found to be effective in reducing post-operative nausea and vomiting compared to standard antiemetic medication alone.⁵ Additionally, patients who received acupuncture also have had a significantly shorter duration of post-operative ileus.

Conclusion

In conclusion, both yoga and acupuncture show promising potential in facilitating post-operative recovery. Yoga, through its stress

management techniques, has been associated with improved immune function, enhanced wound healing, pain reduction, restored physical function and mobility, and improved psychological well-being. Acupuncture, on the other hand, has demonstrated benefits in pain management, reduction of post-operative nausea and vomiting, promotion of bowel function recovery, and potential positive effects on wound healing. However, it is important to note that more research is needed to fully understand the mechanisms underlying these practices and to establish their effectiveness in various surgical contexts. Further exploration of these mind-body interventions will contribute to optimizing post-operative outcomes and improving patient care.

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Challenging Situations In Vaginal Surgery

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Introduction

Despite evidence supporting vaginal surgery, current statistics indicate vaginal route is still underutilized in treating benign gynecological conditions. The success of vaginal surgery is largely determined by the experience and expertise of the performing surgeon. However, there can be many challenging situations like scarred uterus, adhesions due to previous pelvic surgeries, large and distorted uterus. The knowledge of anatomy and right surgical skills are the essential prerequisites for successful completion of vaginal surgery.¹

Surgical experience, adequate exposure, entry into the anterior pouch, uterine mobility and good morcellation techniques have been considered as key determinants for successful completion of the procedure.

Challenging Situations

Scarred uterus

In cases of scarred uterus i.e in cases of previous caesarean section, myomectomy, adenomyomectomy; the challenges are due to intrapelvic adhesions and altered pelvic anatomy. Repeated surgical attempt can cause neovascularization which might bleed unexpectedly especially at the lower pedicles including uterine artery. Omentum and on few occasions small intestine can be found to be adherent to and occupying both anterior and posterior pouches which may lead to difficulty in opening the pouches. Anterior uterine wall can get adhered to anterior abdominal wall leading to longitudinally stretched and fixed uterus. This can be confirmed by pulling the cervix downwards and forwards which will cause simultaneous visible dimpling of anterior abdominal wall; also known as Shirish Seth's cervico-fundal sign. In cases where this sign is

positive, vaginal approach should be taken with caution and should be either abandoned by surgeons lacking appropriate vaginal surgical skills or should be assessed laparoscopically and decision for route taken after adhesiolysis.²

In scarred uterus one should stay close to the uterus whatever may be the anatomical alteration of pelvic structures. There are few safety steps that can be adopted in such cases. The clamps should be applied only after defining the pedicle for some length. Two clamps should be applied instead of one to keep the knot secured with good visible pedicle throughout the surgery. The layered dissection of fascia both in anterior and posterior fornix can enable safe entry into the pouches and also avoid omental and bowel injury. The abnormal vasculature can be tackled by clamping small pedicles instead of large ones and securing them properly before proceeding to the next step. In case of neovascularisation the vessels are thin walled, only having intimal layer which slips easily and bleeds profusely.

The adherent bladder wall to uterus requires meticulous stepwise sharp scissor dissection. Digital dissection can cause blunt trauma to the bladder larger in size than expected. The lateral window approach carries utmost safety to bladder which gradually gets separated from uterine surface as we proceed medially and plane remains visible in the mid part of surgical field. In cases of uterine adhesions in previous pelvic surgeries, uterine fundus remains stretched and under tension, leaving upper pedicles to fall lower down and thus can be dissected from the lateral uterine wall. In such cases the fibrous adhesive band can be visibly divided from the surface of uterus along with myometrial tissue towards abdominal wall.³

Removal of Adnexa

For adnexectomy once the broad ligament pedicle is separated from the lateral side of the uterus, cornual structures are better visible. First, the round ligament is cut and ligated at the lateral most area as we do during abdominal hysterectomy. This step makes infundibulopelvic (IP) ligament accessible for applying clamp to tackle the upper pedicle. The uterus can be hemisected or bisected and then each half of the uterus can be brought down and ipsilateral cornual structure dealt with while keeping the other half inside the pelvic cavity. A reverse angled clamp is specially designed to reach the IP ligament with ease. Here bipolar energy device is useful for separating the pedicle with adequate haemostasis. In presence of an ovarian cyst, the heavy structure drops down to the pelvis. In such cases, the benign ovarian cyst can be removed in toto or cystectomy can be done after reducing the size with needle aspiration. Endometriotic cyst mostly remains adherent to the lateral pelvic wall and can be separated with finger dissection. In a similar way, large hydrosalpinx also can be aspirated first before applying the clamp.

Adnexectomy in case of endometriotic cyst with adhesions can make the surgery challenging. Endometriosis is a special situation where apart from cystic nature, ovary gets firmly attached to the neighbouring structures including uterus, rectum, small bowel and lateral pelvic wall. During vaginal procedure these adhesion gets spontaneously detached while performing vaginal hysterectomy. Due to both lateral and medial adhesion of ovaries the ligaments get shortened and no space is left available for the clamp application. Adnexal adhesions can be mobilized with gentle finger movements which releases the fixed ovaries downwards. In such cases long and sleek clamp or an energy device are the most suitable to tackle these structures. Care should be taken while using energy devices to avoid energy spread laterally and injury to the vital organs.⁴

An atrophic uterus is delicate to handle specially when the omentum and bowel occupy the

surrounding space and are thus liable for injury. In majority of such cases adnexal structures lose flexibility and elasticity and stay very close to the lateral pelvic wall. Thus, removing these structures becomes challenging and risky. An atrophic tube and ovary can be left undisturbed after direct inspection when supported with normal ultrasound findings pre-operatively.

Bladder Injury

Inadvertent bladder injury is likely in difficult vaginal surgery cases. Few manoeuvres have been found to be beneficial to avoid inadvertent bladder injuries like use of trendelenburg position, staying on the uterus, staying deep and cutting into the uterus for difficult fibrotic adhesions, retrograde filling of the bladder with normal saline or dye to help in defining the anatomy, postponing anterior entry, entering through the posterior fornix (i.e POD) first only after the cardinal ligaments have been divided, using sound in urinary bladder to see its extent, and in case of small uterus, a finger through the posterior pouch can hook the uterine fundus. Cases of masked anterior lip like in large cystocele and cervical elongation may make the access to anterior pouch challenging. In cases of large cystocele instead of vulsellum, Allis forceps can be used to hold the cervix and instead of the 12'o clock position they may be held in the 3 and 9'o clock position. To clearly demarcate the site of incision for opening the anterior pouch the non dominant hand can be used to hold the anterior vaginal wall with the underlying cystocele and give traction while counter traction is given by the Allis forceps holding the cervix.⁵

Cervical Elongation

In women with cervical elongation it is important to differentiate between supra and infra vaginal cervical elongation. The elongation of the cervix which is above the bladder sulcus is supravaginal cervical elongation. In such cases the bladder sulcus is at the same level as in patients with a normal uterocervical length. The circular incision on the anterior vaginal wall is made in the usual way and further dissection is carried on in the usual way. In patients with infra

vaginal elongation, the cervical elongation is below the bladder sulcus. Depending on the length of the cervical elongation, the bladder sulcus may be away from the external os and closer to the bladder neck (transverse vaginal sulcus). In such cases caution is advised in identifying the site of bladder attachment and placing the circular incision in the anterior vaginal wall correctly to enter the surgical plane.

Large Distorted Uteri

In uterus with multiple fibroids it is easier to manage as compared to single large fibroid especially in the fundus which stays fixed at the pelvic brim and does not descend despite traction on cervix. There are many type of debulking procedures that can reduce the uterus size to make the procedure easier. Once the uterine artery gets ligated, around 80% of the blood supply to the uterus gets reduced which provides a safety window to proceed for the debulking procedure.

In cases of large submucous myoma, once both pouches are opened, hemisection of uterus is attempted starting from cervix upwards keeping both the speculum in place. The lower pole of fibroid will pop up inside the cavity which can be grasped with the help of tenaculum. Then myomectomy can easily be proceeded which will in turn help in reducing the uterine volume to proceed further.

In cases with large cervical fibroid, the lower pole of the fibroid is usually palpable as well as can be reached in per speculum and per vaginal examination. This enables us to proceed for myomectomy with morcellation. Unlike uterine myoma, cervical myoma does not show a definite capsule, instead thickened vagina covers the fibroid. Extra caution should be exercised for remaining inside the vaginal lining and keeping both anterior as well as posterior speculum in place at all times to prevent neighbouring viscera from injury. Intra-op bleeding can be grossly reduced with prior vasopressin infiltration or uterine artery ligation. After myomectomy the dead space can be obliterated with temporary suturing.

Anterior cervical fibroid can make the dissection

between the bladder and the cervix challenging. In such cases, it is better to proceed with opening the pouch of Douglas, clamping the uterosacral-cardinal ligament complex and achieving some descent.

There are various types of debulking procedures. Bisection/hemisection of the uterus is the most common method to reduce the volume to half. Here one half is pushed inside to the sacral area, to proceed with the other half. Subserosal coring is another type of debulking procedure suitable in case of generalized myohyperplasia seen in cases of adenomyosis or AUB. Extra caution must be exercised by the surgeon to stay below the serosa in order to keep the anatomical outline of the uterus intact and visible all the time. In cases of multiple myomas step by step myomectomy approach can be beneficial. Each myomectomy helps the other one to descend further. An efficient technique of transvaginal uterine wedge morcellation was developed by William Pryor. Wedge resection is another type of debulking procedure in which cervix is detached from the uterus. This approach can be utilised in presence of long and high volume cervix in order to approach the uterus directly and effortlessly. In another approach, unilateral oblique slashing incision to the lateral aspect of the uterus after ligating both the uterine arteries can help to mobilize the other half to descend even upto the introitus. The surgeon should assess the bulk of the uterus and be aware of the various debulking procedure to make the procedure easier.

Dealing with obese women

Though vaginal route is most indicated in these patients, obesity is associated with a number of issues during vaginal surgery. Narrow vagina along with fat distribution over bladder, rectum and vaginal walls can restrict the vaginal space further obscuring the field. The digital feeling of pelvic structures is not possible most of the time, which is a key element for a vaginal surgeon. Few tips to tackle these difficulties are using extra-long instruments to reach deep seated pelvic structures along with gradual sequential steps, taking small pedicles at a time remains the key to

success. Utmost care should be taken to avoid bleeding in all steps, as dealing with bleeding pedicles is tricky and difficult in a narrow restricted space. A pelvic pack is often required and is advisable to avoid omentum as well as intestine coming into the surgical field.

Conclusion

Vaginal route is an underutilised route and can prove to be a boon for gynaecologists for benign gynaecological conditions. A difficult surgery should always be anticipated beforehand, and should be planned in a systematic way. Adequate training to acquire relevant surgical skills along with right patient selection and use

of tips & tricks to overcome challenging conditions can make the path to successful vaginal surgery much easier.

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A message from future

Dr. Pooja Sharma

From the corner of my eyes
Down the memory lane;
An image refuses to fade away
Hiding behind its silent presence
Through unspoken words;
It had something to say!
Its face showed no signs of protest
But the eyes could barely hold the tears of pain
With empathy in my eyes, I said a silent pray
"May your thoughts surely find their way..."
Wish there was a way to tell your past self;
When the agony reaches its highest limit
And there seems only darkness ahead
Just hold on tight, don't let you sway...
Coz there's always a new day after the dark night
There's always a hope to get through the plight
So don't make misery hold you back and
Let the sun shine to guide you through rain!!

Vaginal Rejuvenation: Surgeries and Role of Energy Based Devices

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With increasing life expectancy, many women are going to get affected by vaginal laxity, urinary leak, uterine prolapse and GSM of menopause. These conditions are highly prevalent but under reported unspoken problems affecting women's quality of life. Women may be dissatisfied during sex and lack of sexual satisfaction can cause marital discord. Sexual health is grossly undervalued and it's been a taboo discussing about it; but now with communication barriers being broken more and more women are talking about their problems. There is a growing demand of vaginal rejuvenation /aesthetic procedures. Both surgical procedures and less invasive and noninvasive procedures using energy based devices are used

Energy based devices

These are thermal energy based devices for feminine rejuvenation

1. Radiofrequency based devices: These devices work on thermal effect of Radiofrequency¹. These can be monopolar, bipolar or multipolar E.g.thermiVa, Forma Vs.
2. Fractional CO2 laser (10600 nm): This laser has high absorption in water. It is ablative in nature , acts by creating equidistant microscopic thermal injury treatment zones with predefined depth due to thermal effect of laser.² This stimulates collagen and elastin fiber synthesis as part of healing process. E.g. Fem touch, Femilift , Monalisa touch
3. Erbium YAG laser (2940 nm): This laser has higher absorption in water than CO2 laser. Therefore, the effect is mainly ablative with minimal thermal damage to surrounding tissue. e.g.Intimalase
4. HIFEM: High intensity focused

electromagnetic (HIFEM) technology causes supramaximal pelvic floor muscle contractions, causing strengthening of pelvic floor. Person sitting on HIFEM chair receives almost 11000 keigels over 28 minutes. Various studies have shown promising results³.

5. Solid state diode laser

This is Infrared 1470 nm laser. It is noninvasive non ablative (acts by transfer of heat energy in the form of electromagnetic waves without contact). It acts by accelerating the production and remodeling of mucosal collagen⁴. E.g. Sabrina laser (Fig 1), Lyra laser

The proposed indications and contraindications are summarized in Table 1. The various devices are compared in Table 2.⁵

Mechanism of action

Various mechanisms of action include promotion of collagen production, vaginal mucosa shrinkage and remodeling and strengthening of supporting ligaments. They also cause contracture of elastin fibers, vaginal lubrication, neo vascularization, improve tissue density and blood flow, thickening of vaginal and vulvar orifices, improvement in maturation index and may increase small nerve density.



Figure 1 : 1470 nm solid state diode laser

Table 1: Indications and contraindications of energy based devices

Proposed Indications	Contraindications
<ul style="list-style-type: none"> Urinary leak (mild/moderate) Stress urinary incontinence Frequent wash room visits Vaginal and labial skin laxity (post-delivery/after menopause) Menopausal symptoms like vaginal itching, vaginal dryness, recurrent vaginitis (GSM of menopause) Dyspareunia Lichen sclerosus Grade 1 prolapse 	<ul style="list-style-type: none"> Abnormal pap smear Gynae cancer / premalignant condition Active HPV/ herpes infection Active vaginal infection/ vulvar / urinary infection Undiagnosed vaginal bleeding Recent vaginal injury Uncontrolled diabetes Chronic steroid usage Patient on medicine which cause photo sensitivity Collagen disorders Poor responders in smokers Pregnancy

Advantages of energy based devices

- Outpatient procedure
- No anesthesia
- Painless
- Noninvasive/ no cut/ scars
- Almost no discomfort except warming sensation
- Likely effective and safe
- No/minimal downtime (no interruption of social/sexual life)
- No stitches
- No blood loss

Pre procedure requirements

- Detailed history/ counselling
- Rule out pregnancy

- Patient to be well hydrated x 48 hours
- No active infection
- Post menstrual
- Negative pap smear
- Give herpes prophylaxis if needed
- Consent and documentation for procedure/ photography
- Questionnaire (FSFI/ICIQ- UI /VAS/VHI)
- Investigations: Hba1C, Urine R/M, ultrasound pelvis

Side effects

When used correctly, the overall risk of complications appears low (< 1 %). The most common complaint is dissatisfaction due to failure to achieve the desired results (patient must be counselled for realistic goals). Some side effects are local vulvar edema and swelling, vaginal bleeding, vaginitis, mild vaginal burn, itching, burning and possibility of scarring in remote future.

Controversy

- Maintenance sessions may be required. Effect of single cycle of EBD treatment lasts 12 – 18 months. Repeat sessions may be required after that. Long term effect of repeat sessions is yet to be known.
- Technique and number of sessions is not standardized and varies as per the machine and manufacturer’s settings
- FDA has not approved the use of EBD for

Table 2: Comparison of energy based devices for feminine rejuvenation

	RF devices Monopolar	RF devices Bipolar and others	Co2 laser based devices	1470 nm diode laser	Erb: YAG
Portability	yes	no	No	Portable	no
Hand probe	Disposable	Barrel shaped hand pieces for vagina , small hand pieces for vulva and introital area	Large barrel shaped with disposable sheath	Reusable slim hand piece	Large barrel shaped with disposable sheath
Laser protection eye wear	No	No	Yes	Yes	yes
Depth of penetration	0.2- 0.5 mm	4 mm	0.5 mm	0.5 mm	0.6 mm
Downtime	No	No	3 days	No	3 days
MOA	Thermal	thermal	coagulation	Thermal	Ablation

vaginal rejuvenation and issued safety communication regarding use of energy based devices in vagina. However, complications reported could have been due to lack of treatment effect and due to disease progression itself⁶

Vaginal Rejuvenation Surgeries

Often referred to as 'designer vagina', 'vulvo vaginal aesthetic surgery', 'barbiplasty' and 'vaginal rejuvenation', these are non-medical marketing terms. Women may request these for cosmetic or functional reasons (sexual discomfort, feeling uncomfortable in tight clothing etc.).

Before undertaking any such procedure, it is important to take medical, gynecological and psychosexual history. Sexual abuse must be enquired for and managed appropriately. Women may need to be educated about variations in normal appearing genitalia (access to online resources like 'The Great Wall of Vulva'). Women may be offered psychological screening if BMD is suspected. Women should be informed of procedural risks and lack of long term data concerning positive effects. Treating professional should be clear about laws of the land as demarcation between female genital mutilation (FGM) and female genital cosmetic surgery (FGCS) is thin and patients consent alone is not an adequate defense. If needed a second opinion may be sought. All discussion with patient should be documented carefully.

Commonly performed procedures include

1. **Labioplasty:** It is the most common (50%) FGCS requested and performed. It involves removal of tissue from labia minora that extends beyond the labia majora. Patient common complaint is vulvar discomfort or functional symptoms or concerns about vulvar appearance. Labia minora hypertrophy is generally described as stretch labial width more than 6 cm. To evaluate stretch width, the labia minora is gently extended medio-laterally to its full width, maximal width between the midline and the lateral free edge of the labia minora is the stretch width. Patients can be offered

surgical correction if she presents with persistent symptoms or if stretch width is more than 5-6 cm. Surgical aim is resection of the hypertrophic tissue and creation of symmetrically reduced labia with improved functionality. Labioplasty is usually a well-tolerated procedure, healing may take up to 2 weeks.

Common techniques used are:

- **Amputation technique, or labial trim:** where the edge of the labium is cut out antero posteriorly and the edges are over sewn (interrupted suture, 4-0 monocryl or vicryl). Natural contour of labia may be lost at lateral edges post healing.
 - **Central wedge resection:** Removal of a central section of the labia to preserve the natural lateral contour is done. This may be associated with excessive post op swelling due to interference with lymphatic drainage.
2. **Clitoral hood reduction (clitoroplasty):** Sometimes combined with labioplasty, this procedure aims at increasing sensitivity by removal of extra tissue that covers clitoris and exposing it.
 3. **Vaginoplasty:** Women may request vaginal tightening due to loose vagina after childbirth or aging. Surgeons carry out a procedure known as posterior repair, in which the vagina is separated from the rectum and the muscles pulled together to tighten the vaginal structures. Improvement in sexual function is doubtful with this procedure and it may rather cause dyspareunia.
 4. **Hymenoplasty:** also called 'revirgination' and is designed to restore the hymen. Margins of hymen remnants are freshened up and stitched with remnants on opposite side. Other methods described in literature include flap method, Taiwan circlage method, Canadian luminal reduction method and vestibule – introital tightening technique.
 5. **Vulval lipoplasty:** removal of fat from mons pubis

6. **Labia majora augmentation:** If labia majora are too small, augmentation can be done to create a fuller look. This can be done with autologous fat transfers, grafts and injections.

Risks and complications

The potential risks associated with FGCS include bleeding, wound dehiscence, infection, scarring, decreased sexual pleasure and dyspareunia. None of the cosmetic vaginoplasty surgeries are considered accepted, routine procedures by ACOG.

Conclusion

Female cosmetic gynecology is a fast upcoming field. Surgical or use of EBD for vaginal rejuvenation and urinary incontinence is a clinical reality. EBD therapy is a new upcoming technology, data on long term safety and complications is not unavailable and further studies are required for standardization of treatment modality⁷. Although it appears safe and at least as effective as vaginal estrogens, there is no formal guidance for its use for vaginal rejuvenation or urinary leaks.

The long-term outcomes of FGCS are yet to be researched. Aesthetic ideal that is promoted now might change with changing trends.

Controlled evaluation of short- and long-term clinical effectiveness of cosmetic procedures is not available. Appropriate counselling, consent and proper documentation must be in place before undertaking any of these procedures.

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Safe NDVH

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Introduction

Hysterectomy through vaginal route for non prolapsed uterus is popularly known as Non Descent Vaginal Hysterectomy (NDVH). It has proved to be feasible, safe, cost effective and justifiable option in comparison to abdominal route even in large size uterus by various studies.

Despite the guidelines and known advantages of lower morbidity and faster recovery, only 25 - 40 % of hysterectomies are performed by the vaginal route although there is feasibility rate of 79 %. The current article will discuss the tips and tricks of safe NDVH so that it becomes the most preferred choice of approach for hysterectomy by the gynecologists.

Indications and Contraindications for NDVH

The benefits of utilizing NDVH in surgical practice are contingent upon the specific clinical scenario outlined in Table 1 but the method may pose challenges as outlined in Table 2.

Tips to make NDVH a safe and gratifying experience both for the surgeon as well as the patient

Positioning

To ensure a safe NDVH procedure, the patient must be positioned correctly. Lithotomy position is the most appropriate position for the patient. However, there are some risks associated with this position. Hyperflexion of the hip can cause stretching of the sciatic nerve, especially during prolonged surgery. Prolonged groin folding can cause compression of the lateral cutaneous nerve of the thigh, leading to numbness and tingling on the anterolateral aspect of the thigh. The lateral peroneal nerve at the neck of the fibula may also get compressed,

which is why padding is preferred. Both legs should be reverted simultaneously, and the patient should be shifted with care. Figure 1 depicts the appropriate position for NDVH.

Pre-operative assessment

Before undergoing NDVH, the patient must

Table 1: Indications of NDVH

Common indications	
1.	Abnormal uterine bleeding (AUB)
2.	Uterine adenomyosis
3.	Uterine fibroid(s)
4.	Endometrial polyposis/hyperplasia
4.	Uterine prolapse
Uncommon indications	
1.	Premalignant conditions of cervix and uterus
2.	Hydatidiform mole in multipara
2.	Early endometrial cancer in high risk women
Associated conditions	
1.	Nulliparity
1.	Severe mental handicap
3.	Surgery in the past
3.	Comorbid Conditions as obesity, asthma etc.

The list is not conclusive and depends on the surgeon's confidence and ever developing operative skill.

Table 2: Contraindications to NDVH

Common absolute contraindications	
•	Uterus more than 20 weeks size (Operator skill dependent)
•	Uterine size more than 10 cm in each dimension
•	A 90 degree angle between the lateral cervical wall and uterine wall
•	Large lateral cervical fibroid
•	Severely restricted uterine mobility
•	Adnexal pathology
Uncommon absolute contraindications	
•	Cervix flushed with the vagina or Fothergill's operation which can make the cervix look missing or absent
•	Previous vesicovaginal and/or rectovaginal fistula repair
•	Pelvic endometriosis
•	Invasive cervical cancer beyond stage Ia

No doubt contraindications become less or relative as the gynecologist gains more experience.

undergo a pre-operative assessment. This assessment includes evaluation of the size and mobility of the uterus and vaginal mucosa, the depth of fornices, the presence of adnexal mass, the descent with volsellum, the subpubic angle, and the inter-tuberos distance. Vaginal inaccessibility is defined as an intertuberos diameter less than 9 cm along with a suprapubic angle of less than 90 degrees and a 2-finger calibre. The cervix should not be pulled up and fixed, and the uterine volume and transverse diameter of the uterus should be assessed. The Sheth's Cervico Fundal Sign can be used to anticipate adhesions between uterus and anterior abdominal wall.

Uterine volume assessment

When it comes to measuring the size of the uterus, uterine volume assessment with ultrasound (Figure 2) is a better indicator than fundal height. Even if two women have the same fundal height, their uterine volumes can be very different. If the volume is less than 250-300 cm³, laparoscopic assistance is not required for hysterectomy. However, if the volume is greater than that, a trial vaginal hysterectomy (VH) may be necessary. Vaginal surgeons need to determine their own surgical skills and limitations and draw a line accordingly. With experience, these limitations may increase. Algorithm in figure 3 promoted by ACOG guides regarding the approach to hysterectomy

Safe dissection of pouches

To understand the placement of pouches, it is important to assess the length of both the intra and supra vaginal portions of the cervix. Supravaginal elongation means the pouch is

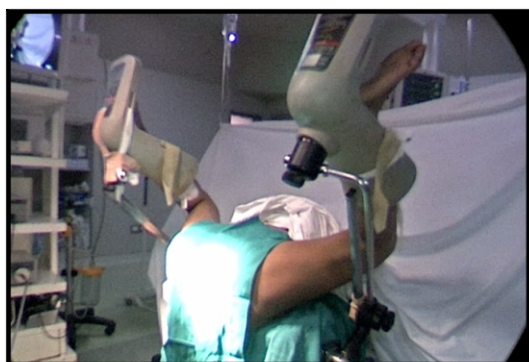


Figure 1: Positioning for NDVH

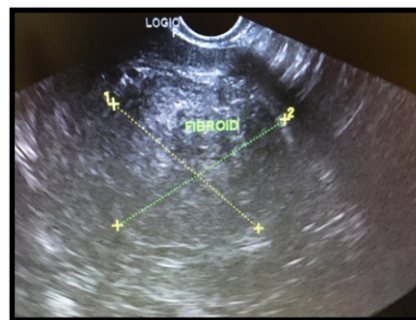


Figure 2: Ultrasonographic uterine volume assessment

away from the initial incision, while infravaginal elongation means the pouch is close to the initial incision (Figure 4). Catheterization, aqua dissection (Figure 5), and sharp dissection in an adequate plane are necessary for safe dissection of pouches. For the posterior pouch, use the loose fold of peritoneum (Figure 6).

NDVH in Nullipara

Tissue firmness resulting from the nulliparous state requires a different skill set and should always be given a trial if the uterus is less than 12 weeks in size or has a volume less than 250-300 cm³, is freely mobile, and without adnexal pathology.

Volume Reduction

Volume reduction techniques can be used for adenomyosis and asymmetrically enlarged uterus due to multiple fibroids. Various techniques practiced are bisection, myomectomy, cervical amputation, wedge morcellation, intramyometrial coring, slicing &

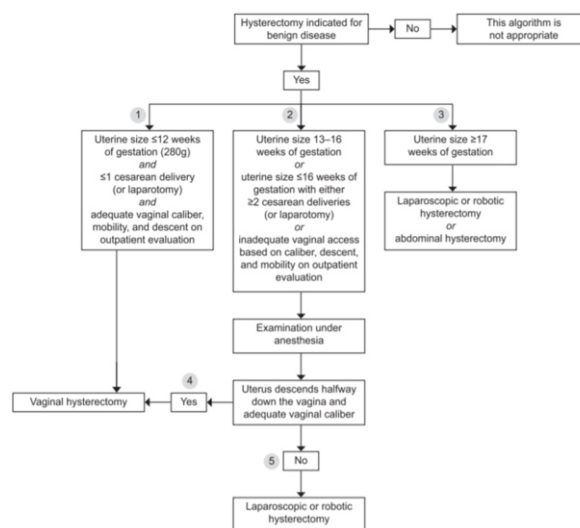


Figure 3: ACOG 2020-Decision-Tree Algorithm for Route of Hysterectomy

combination.(Figure 7)

A distally placed anterior wall and/or fundal myoma is likely to require extra attention; however, a rounded uterus with all three dimensions of 10 cm or more with an angle of around 90° between the lateral cervical and uterine borders contraindicates the vaginal route as it is likely to result in failure. Orientation of the cavity and lateral margins should never be lost during surgery.

Prevention of Vault Prolapse

Each patient undergoing NDVH must be subjected to a prophylactic procedure to prevent vault prolapse. Mc call's culdoplasty (Evidence level Ib), suturing the cardinal & utero sacral ligament to the vaginal cuff & high circumferential obliteration of the peritonium (Evidence level III) are the best options. Sacrospinous fixation may be done if the vault

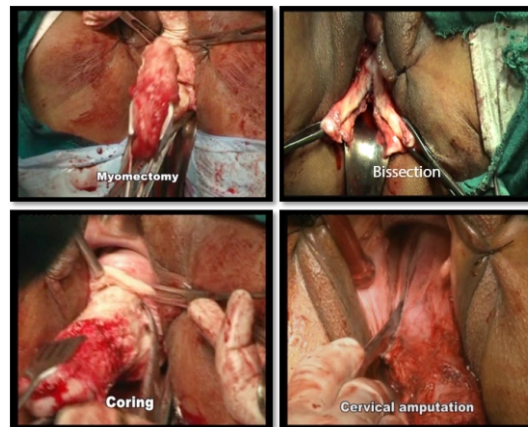


Figure 7: Volume Reduction Techniques
(Courtesy Dr Amita Suneja)

descends to the introitus during closure (Evidence level III). Mc call's culdoplasty is superior to sacrospinous fixation since its associated with lesser bleeding and lesser chances of recurrence of anterior vaginal wall prolapse.

Complications

Common complications encountered while doing a Vaginal hysterectomy are hemorrhage, injury to the bladder, ureter, or rectum, pelvic hematoma due to injury or slippage of ligature from a pedicle and sepsis.

In event of haemorrhage from a loose pedicle, suture ligature is preferred after proper exposure and coagulation is used with caution. For minor oozing, packing is preferred and for major retropublic intra or retro peritoneal bleed, exploratory laparotomy is suggested.

Intraoperative bladder injury is suspected if haematuria is present. Whenever in suspicion, inflate bladder with normal saline, methylene blue or indigo carmine solution to locate the site of leak. Look for multiple sites of injury by cystoscopy and stent if ureteric orifices are close to the rent. Secure the angles of the rent carefully and close it in two layers with vicryl suture .

To rule out intraoperative ureteric injury cystoscopy is done to assess urinary efflux from ureteral orifices. Universal Cystoscopy detects 97.4% of ureteral injuries. Retrograde or Antegrade Urography using radio opaque contrast is considered the gold standard to confirm the injury and its site.



Figure 4: Supra and Intravaginal Elongation of the Cervix
(Courtesy Dr Manju Puri)

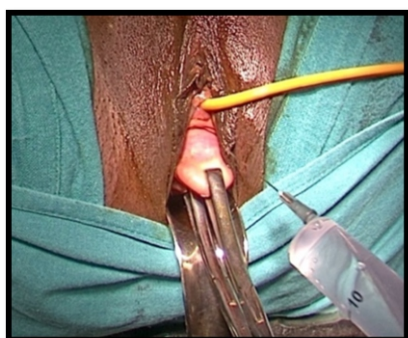


Figure 5: Aquadissection

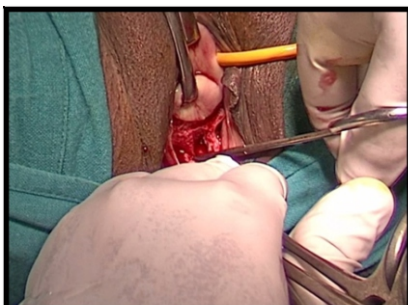


Figure 6: Opening of the Pouch of Douglas

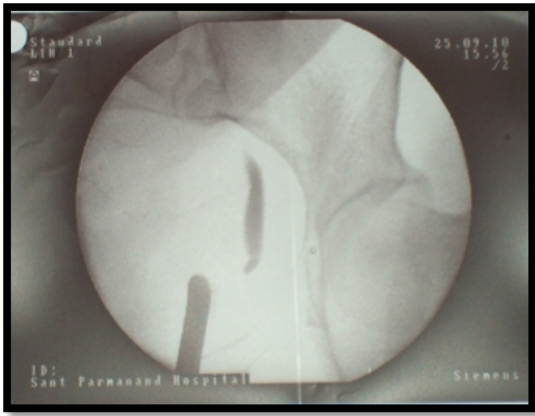


Figure 8: Retrograde Pyelogram

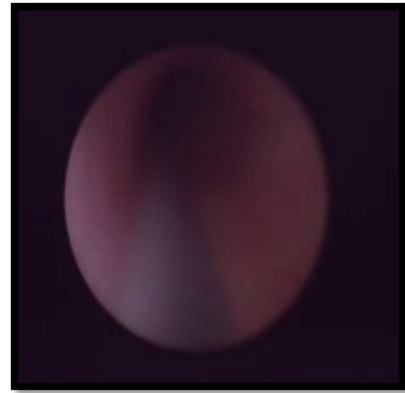


Figure 9: Ureteral Stenting

Imaging studies ie renal ultrasound, CT urogram with contrast , retrograde pyelogram (Figure 8) and color doppler ultrasonography for ureteral jets is suggested if injury is suspected in the post operative period. Ureteral stenting (Figure 9) may be beneficial if injury is detected in intra or immediate post operative period.

Conclusion

Cochrane Database Systemic Review 2015 advocates vaginal hysterectomy as the best minimally invasive surgery through natural orifice in all practically possible clinical situations. It is scarless, associated with lesser blood loss, lesser cost, shorter hospital stay, lesser post op morbidity, safer anaesthesia, no risk of incisional hernia, no trained assistant required, can be offered to women with asthma, morbid obesity without increasing the risk of

anaesthesia. If all the safety tips are taken into consideration then NDVH is most rewarding for both the patient as well as the surgeon.

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RESEARCH HUB

Ethics in Research Involving Women Participants

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A physician involved in research has a dual responsibility of adhering to the research protocol and at the same time not compromising the safety and quality of care for the participants. The last few decades have seen emergence of evidence-based medicine; data derived from clinical studies is frequently needed for any new drug or intervention to be introduced in clinical practice. These clinical studies or trials involving human participants are tightly regulated to adhere to ethical guidelines without compromising their scientific value. It is therefore imperative for a physician involved in human research to be aware about the ethical guidelines to protect the dignity of the research participants and to preserve the scientific merit of the clinical research.

The practice of medicine always had an inherent ethical component in the form of Oath of Hippocrates which dates back to 400 BC but it did not specifically address the ethics related to clinical research. The need for ethical guidelines for human research was clearly felt after the revelation of torturous human experiments on prisoners in Nazi concentration camps by German medical practitioners during Second World War. The judges prosecuting the Nazi doctors for horrific medical experiments formulated the Nuremberg code (1947) which serves as a landmark document in the history of research ethics. The Nuremberg code emphasized the autonomy of a research participant and made the voluntary consent absolutely essential for participation in any biomedical research or experiment. However, it had several limitations and consequently its provisions were ignored till in 1964, a set of Ethical Principles for Human Research were adopted at the 18th World Medical Association, General Assembly at Helsinki, Finland.¹ The

Declaration of Helsinki emphasized that a physician must safeguard the health of all the patients even those who are included as research participants and their wellbeing must take precedence over any other interest. It further states that medical research involving human participants should take into consideration the country specific rules and regulations but it prohibits to reduce or eliminate any of the protections provided for the research participants in the declaration of Helsinki.¹

Introduction of the Belmont report, was a cornerstone in the area of human research ethics and provided the fundamental guiding principles for the protection of research participants after the revelation of the horrific Tuskegee experiment. In its aftermath, the National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research was created in 1974 by the US Congress. The commission delineated biomedical and behavioral research, defined the accepted and routine practices of medicine, spelt out risk-benefit ratio for research participants, established guidelines for research involving human subjects, with focus on protection of pregnant women and their fetuses, children and prisoners and defined informed consent. The commission also suggested removal of prohibition imposed on "abortion research" with a rider that no inducements be given to participants to undergo an abortion for the purpose of research. The commission also approved research on a dead fetus or dead fetal tissue. Further, non-therapeutic research involving consenting pregnant woman was permitted provided the evidence so generated could not be obtained through any other means. In 1979,

the Commission published the Belmont report which identified the three core ethical principles of clinical research: Respect for Person, Beneficence and Justice. In 1979, Beauchamp and Childress published the four fundamental principles of ethics, viz., autonomy, beneficence, non-maleficence and justice, in their book "Principles of Biomedical Ethics" which laid the foundation of bioethics as a separate field.²

- Autonomy or respect for an individual refers to a person's right to have an opinion and to make decisions based on his/her choices or beliefs, provided he/she is free from any external influences (Liberty) and has decision making capacity (Agency). The investigator must obtain informed consent from a competent participant without any coercion or inducement.
- Beneficence refers to an action done with the intention to benefit another person. The two principles of beneficence are positive beneficence and utility. Positive beneficence requires to provide benefits while utility requires to weigh the risks and benefits to provide overall best outcome for a research participant. It is the duty of a physician to act in the best interest of the patient including those involved in medical research as per the International Code of Medical Ethics (1949).
- Non-maleficence refers to avoiding harm to the patient and is inherent to the practice of medicine as expressed by the Latin aphorism "Primum non nocere" i.e., "First do no harm". This applies to all clinical situations, especially when a diagnostic test or therapeutic intervention carries significant risk of causing more harm than expected benefit to a patient or participant. Indeed, it is the foremost duty of a physician to keep the health and wellbeing of his patient or a research participant as their first consideration as per the Declaration of Geneva (1948).
- Justice emphasises the need of equality and fairness among individuals. Equitability and distributive justice are its two important components. Equitability means that no patient or research participant should be

discriminated by the physician while providing medical care based on the non-medical factors like colour, race, religion, region, gender, socio-economic status, etc. The term distributive justice refers to the equitable distribution of resources among individuals based on their requirement.

The Indian Perspective

In 1980, The Central Ethics Committee of the Indian Council of Medical Research (ICMR) drafted a policy statement on "Ethical Considerations involved in Research on Human Subjects" to protect the rights of the research participants in India by advocating informed consent process and ensuring competency of the clinical investigator.³ The Council further urged every medical college and research centre involved in human research to constitute an ethics committee to review research proposals in their institutes. In 2000, ICMR subsequently developed "Ethical Guidelines for Biomedical Research on Human Subjects" which were published in 2000 and were revised later in 2006 and 2017.⁴ The recommendations in these ethical guidelines were also partly enforced through revisions in the Schedule Y of Drug and Cosmetic Act, 1940 and subsequently in New Drugs and Clinical Trial (NDCT) Rules, 2019.¹¹ The Ethical Guidelines for Biomedical Research on Human Subjects, further elaborated the four fundamental principles of ethics into twelve general principles (Table-1).^{5,6} The biomedical research work should be planned and conducted in accordance with the abovementioned general principals of ethics and the IEC must ensure their adherence to safeguard the rights of the participants.

Table 1: General ethical principles

1)	Principle of essentiality
2)	Principle of voluntariness
3)	Principle of non-exploitation
4)	Principle of social responsibility
5)	Principle of ensuring privacy and confidentiality
6)	Principle of risk minimization
7)	Principle of professional competence
8)	Principle of maximization of benefit
9)	Principle of institutional arrangements
10)	Principle of transparency and accountability
11)	Principle of totality of responsibility:
12)	Principle of environmental protection

Informed consent process

Informed consent is a continuous process of providing relevant information to the participants in a simple language that is easily comprehended. A meticulous informed consent process is the hallmark of ethics in biomedical research which protects the individual's freedom of choice and all investigators involved in human research must be well versed with this process. The informed consent should be obtained from a participant who has the ability to understand the proposed research and is competent to make a decision regarding participation and can convey the same to the investigator. The voluntariness must be ensured and a written consent must be obtained prior to initiating any study related intervention. In case of minors or those who are not capable of giving voluntary informed consent, the consent should be obtained from their legally authorized representative.⁵ In case of minors, an assent becomes applicable in addition to consent obtained from caregivers/parents, wherein an investigator is obliged to obtain permission from any child aged 7-18 years who is participating in research.

The investigator must provide adequate details regarding the proposed research in a language which is simple, scientifically accurate, non-technical and understandable to the participant in the form of a participant information sheet (PIS) which should be approved by the institutional ethics committee (IEC). PIS should clearly mention that the participant is invited for a research study and should briefly describe the purpose of doing the same. The research methodology should also be provided in a non-technical language, along with the expected duration of study and any foreseeable risks, discomfort or inconvenience to the participants. The benefit from participation and information regarding any compensation or free treatment for research-related injury must be mentioned in the PIS. It should be clearly stated in PIS that participation in the study is voluntary and one can withdraw at any point of time without any prejudice or loss of benefit to which he/she was otherwise entitled. The participant must be

given adequate time to read or discuss PIS with his friends or family members, before signing the informed consent form (ICF). After obtaining a copy of the signed ICF, a copy of PIS and signed ICF should also be given to the participant. The investigator should also remember that informed consent is not a one-time event but a continuous process and a re-consent may be warranted in certain scenarios like new information related to study becomes available that changes the risk-benefit ratio or there is an amendment in the study protocol or any change in the intervention.⁵

Ethical consideration for women participants

Participation of women in research trials is required to understand the difference in biological response and applicability of research outcomes to both the genders. The principle of justice also requires that sufficient number of women participants are included in a research and investigators should address any hurdle to their participation like lack of child care facility, contraception requirement, pregnancy, partner consent, etc. Indeed, many clinical trials require women participants of reproductive age group to use at least one reliable contraceptive method irrespective of the nature of study intervention. Although such a demand may be reasonable at times, but is often the anticipated risk is much lesser than the actual risk and the choice of contraceptive method offered may not be acceptable or preferred by the participants. The contraception requirement for clinical research should be evaluated and tailored in consultation with the obstetrician/gynaecologist based on the study intervention, potential risk in pregnancy and consideration of its acceptability among participants.⁷

Pregnant and breastfeeding women are mostly excluded in clinical trials unless the study offers a direct medical benefit to this group of participants. As a consequence of this broad exclusion over the years from most clinical trials there are limited number of drugs approved for use in pregnancy and lactation. Most new drugs entering the markets have virtually no data

regarding their efficacy and safety in pregnant and breastfeeding women to enable clinicians to take evidence based therapeutic decisions. In fact, many pregnant and breastfeeding women suffer from comorbid chronic illnesses like hypertension, diabetes, epilepsy, depression, asthma, etc. which require drug treatment. The use of medication during pregnancy and breastfeeding is associated with potential risk of toxicity in fetus or newborn. However, pregnant and lactating women are excluded from most clinical trials designed to test novel therapeutics for these medical conditions and due to which it takes years to generate sufficient evidence to recommend novel treatment options for treatment during pregnancy and postpartum period. This broad exclusion of pregnant and lactating women from research studies without considering the risk and benefits of participation is not only unscientific but is also against the spirit of the fundamental principles of ethics.

The ethical guidelines also label pregnant and lactating women as a vulnerable group i.e., those who have a compromised ability to safeguard their rights and give a valid informed consent. However, a pregnant or lactating woman is equally competent to take an autonomous decision regarding participation in a research as their non-pregnant counterpart. It has also been recommended that pregnant or lactating women in a research trial should be categorized as "scientifically complex" rather than vulnerable population.

Another challenge is to address the ethical and safety concerns while conducting research on violence against women (VAW). The research studies on VAW needs to be carefully designed to prioritize the safety of the participants. The participants must be interviewed in non-judgmental manner and their confidentiality must be protected to minimize any distress or risk to them. The researchers also have an ethical obligation to provide support and refer such participants to appropriate services for victim of violence. Overall, the research on VAW should ensure safety of participant; confidentiality of data, sound methodologically to minimize underreporting of violence; minimum distress to

participants; competent research team; trained field workers to provide necessary referrals; and proper interpretation and dissemination of the research findings.

Some other issues which are debatable include obtaining a written consent process for research on issues like evaluating genetic disorders in the fetus where the woman carries a risk for stigmatization and family members may also be drawn into the research as secondary participants. Obtaining consent from partner or spouse in research in pregnant women may be unnecessary in situations like where the partner is not accessible or where purpose of the study is also to meet the health needs of the pregnant woman or where the pregnancy is the result of rape. The issue of ethical relativism includes social norms like consulting the husband or elders in family before a woman can participate in any research; this may be particularly relevant in our country with diverse sociocultural norms. In any society ridden with gender bias, it is pertinent to ensure that any research on "prenatal diagnostic studies" should be confined to detecting fetal anomalies and must prevent sex determination of fetus.

Conclusion

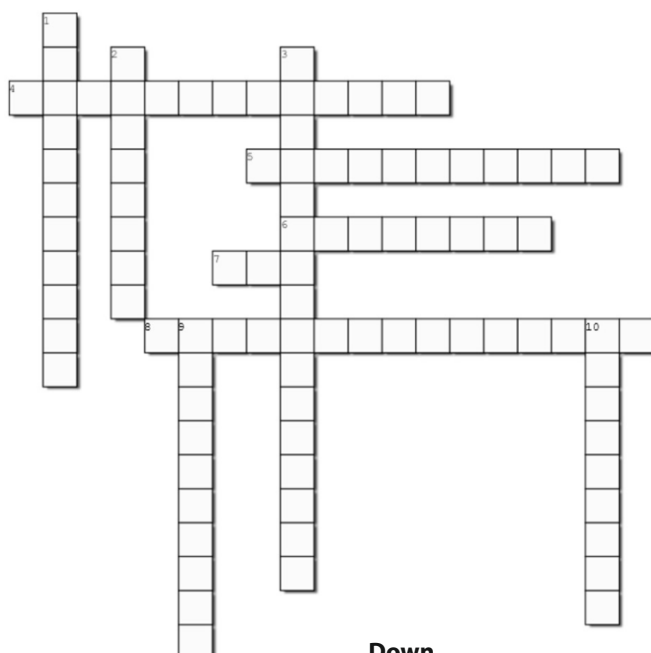
It is important that a physician doing research is well versed with the ethical guidelines and understand the dual responsibility of promoting innovation in medicine without compromising the patient well-being. The emphasis should also be laid to promote participation of women in clinical research to reduce the knowledge gaps about the health and diseases in women. Further, pregnancy should not be considered as an automatic exclusion criterion in clinical trials without weighing the risk and benefits the intervention. It is our moral duty to ensure that the dignity, rights, privacy and safety of every woman participant (and her child/fetus) is maintained in research.

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CROSSWORD PUZZLE



Across

4. ligament running bladder nerves which are preserved in type C1 hysterectomy
5. technique used for full thickness anal sphincter tear repair
6. hysteroscopic myomectomy technique for type 1, 2 myomas
7. most promising endometrial aspirator
8. surgery done with scarocolpopexy to reduce post op SUI

Down

1. ligament ligated to prevent post hysterectomy vault prolapse
2. position of arms and hands during laparoscopy
3. technique for dealing POD adhesions in NDVH
9. medial pararectal space
10. vessels at risk in TOT procedure

Word bank: *cervicocolpotomy, obturator, colposuspension, uterosacral, coldloop, vesicouterine, military, okabayashi, tao, overlapping*

Legal issues in Female Sterilisation

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Introduction

Female sterilization is one of the popular method of contraception in world. In India protocols are laid down by the National Government based on World health Organisation criteria. Though vasectomy is safer, more reliable and easier method of permanent method of contraception, female sterilization is performed four times more commonly in the world. Sterilization procedures, both male and female, are a frequent subject of litigation.

Reasons of litigations in female sterilization

- Population undergoing sterilization is large
- It is performed on young and healthy individual
- It is elective procedure and usually not for treatment prescribed by a doctor for medical

condition hence people can not accept any adverse outcome.

Common areas for litigation include operation with out consent, complications and failure of surgery, mortality, non compliance to guidelines of female sterilization or other miscellaneous reasons.

Examples of cases decided for different allegations related to Female sterilization are shown in table-1

What to do? How to prevent Litigation?

Protocols are laid down by National Government based on WHO criteria, one has to follow them strictly

Selection of patient

- Client should be married including ever –married

Table1: Case based examples of litigation in female sterilization

<p><u>Dr.Janaki Vs Mrs.Sarafunnisa.1(2000)CPJ 66 Kerala</u> During C/S Tubectomy done Alleged with out consent Defence – during operation found next pregnancy to be dangerous Patient was asked Operation under G.A. Consent was not possible Case was allowed in favour of patient</p>	<p><u>A.Ravi Vs Dr.Usharani I(1999)CPJ 521 TL</u> Owner of nursing home called surgeon for Tubal ligation During operation patient died Case was filed and Compensation was demanded Defence: -Surgeon contended that he never operated -Record was contrary and it was proved that that surgeon had operated Inference held by court -only surgeon was held liable -only fee promised would be enough to make patient consumer Case was decided in favour of patient</p>	<p><u>Shikha Vs Dr.Jindal 2003 CTJ775 NC</u> Tubectomy done Tubectomy failed Case filed Compensation demanded Defence: Operated as per standard norms Inference held by court: Failure rate admitted to be 0.4% No expert evidence that operation not carried out as it should have been done Case was dismissed in favour of doctor</p>
---	--	---

- Female client should be more than 22 years and less than 49 years
- She should have at least one child more than 1yr of age (unless the sterilization is medically indicated)
- Client or her partner must not have undergone sterilization in the past (not applicable in cases of failure of previous sterilization)
- Client must be in a sound state of mind so as to understand the full implications of sterilization
- Mentally ill clients must be certified by a psychiatrist, and a statement should be given by the legal guardian/spouse regarding the soundness of the client's state of mind
- Before surgery, compilation of client's medical history, physical examination and laboratory investigations as specified in guide line need to be done to ensure the eligibility of the client for surgery.
- She should also be explained about side effects / potential complications
- Features of the sterilization procedure must be explained to the client
- It is a surgical procedure that has a possibility of complications including failure and ectopic pregnancy in future requiring further management
- It does not affect sexual pleasure, ability or performance
- Sterilization does not protect against RTI /STI/ HIV/AIDS
- Reversal of this surgery is possible but again it is - major surgery and success cannot be guaranteed
- Clients must be encouraged to ask questions to clarify their doubts, if any
- Clients must be told that they have the option of deciding against the procedure at any time without being denied of their rights to other reproductive health services

The final selection of the case should be based on the case selection criteria guided by the medical eligibility

Informed consent is must

Informed or written consent of husband are necessary in most countries. In one case hon. court mentioned that when you are going to put full stop on possibility of giving birth, spouse should also be taken in to consideration and consent should be taken. However, it depends on country's rule. In India as per Government guideline consent of spouse is not required for sterilization.

Counseling

- Available methods of family planning, temporary and permanent should be explained.
- She should be explained that for all practical purpose this operation is a permanent one.
- She should have informed decision and it should be voluntarily with out any pressure.
- It should be explained in language she understands.

Who can do sterilization operation ?

- Minilap – any allopathic gynecologist or trained MBBS
- Laparoscopic – any allopathic gynecologist or surgeon trained in laparoscopy.

Physical requirements

Infra structural facilities required for performing female sterilization are defined precisely which includes the required space, facilities, equipment and supplies, essential drugs. Laparoscopic tubal occlusion should only be performed at a site where there are facilities to perform a Laparotomy safely

Which are the mandatory investigations before doing tubal ligation?

- Blood Hemoglobin should be more than 8 gm %
- Urine analysis for sugar and albumin
- Other investigations as indicated
- The operating doctor will ensure that counseling, information exchange, history

taking, examination have been completed and be satisfied that patient does not suffer from concurrent conditions which may require an additional or alternative procedure or precaution.

- He will fill up checklist before operation.

Situation 1

If surgeon is called to a nursing home owned by a non allopathic doctor or non medical person to perform female sterilization and there is a death of patient, both the owner and the operating surgeon are called for inquiry. Surgeon cannot give any excuse like "I did not know the Hb %", "I did not know that the oxygen cylinder was empty", "I did not know she was a cardiac case", "I was not informed about the post op condition" etc. Operative surgeon is under obligation to manage pre operative assessment and post operative care.

Situation 2

One can perform laparoscopic tubal ligation along with MTP or spontaneous abortion. Laparoscopic tubal ligation should not be done concurrently with second-trimester abortion and in the post-partum period.

Situation 3: Can one do female sterilization operation with Lower segment caesarian section (LSCS)?

As such there is no rule that sterilization operation can not be done with LSCS but being a "National Program" tubal ligation death is an issue discussed in parliament and doctors become soft targets. Death cases make breaking news for media, so doctors afraid of doing sterilization with LSCS

Contraindications:

No absolute contraindications. Relative contraindications are summarized in table-2.

Insurance scheme related to sterilization

- In response to a writ Ramakant Rai Vs Union of India, Supreme Court, 5th May 2005 Came with 50 pages "Manual for Family Planning Insurance Scheme" December 2005-

Table 2: Relative contraindications of female sterilization

- | |
|--|
| <ul style="list-style-type: none"> • Psychiatric disorders <ul style="list-style-type: none"> • psychiatrist certificate and • Consent from legal guardians are needed • Allergy to local anesthesia –use alternatives • Gross obesity • Physical illness making surgery risky • Some post partum conditions like <ul style="list-style-type: none"> • Puerperal fever • Premature rupture of membrane for more than 24hrs. • Pre-eclampsia or Eclampsia • Ante partum hemorrhage or post partum hemorrhage with hb less than 8gm % • Trauma to the genital tract • h/o Post partum psychosis. |
|--|

Government Of India, Ministry of health and family welfare.

Salient features

- Sterilization procedure and norms for bringing out uniformity
- Family Planning Insurance Scheme (with Oriental Insurance, now ICICI Lombard)
- Settlement of cases not covered under the scheme

There are two parts of that manual

The first part...

- Empanel doctors and hospital
- Create pre-op checklist
- Draft consent
- Set up quality assurance committee for ensuring proper pre and post op norms

The second part...

Compensation to relatives/patient

SECTION NO 1

- A) Death following sterilization in hospital or within 7 days from the date of discharge from the hospital: Rs. 2 lakh. (to spouse or legal heir)
- B) Death following sterilization within 8 - 30 days from the date of discharge from the hospital.:Rs. 50,000/- .(spouse or legal heir)
- C) Failure of Sterilisation : Rs 25,000/- (to patient).
- D) Cost of treatment of complications upto 60 days from the date of discharge. Actual not

exceeding Rs 25,000/- (to patient).

SECTION 2

- A) Upto Rs 2 lakhs per claim
- B) Maximum 4 cases per year

To take advantage of the scheme doctor has to empanel himself and his nursing home or hospital

Conclusion

Female sterilization is a common area for litigation. Failure, lack of communication and

inadvertent injury are main areas of litigation. Most of the allegations can be avoided by giving importance on proper counseling and informed consent. Doctor will not be held negligent if he had taken due care and caution while performing the operation and maintains the records properly. The protocol of standard sterilization procedure laid down by central government should be strictly followed to avoid or minimize litigation.

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JOURNAL SCAN

Upasana Verma

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The long-term outcomes of vaginoplasty using acellular porcine small intestinal submucosa (SIS) grafts in patients with Mayer–Rokitansky–Küster–Hauser syndrome: A case series

Zhi-yang Xu, Ling-xia Li, Xing-guo Wang, et al.

BJOG 2023;130(6):645-652.

Study Objective: To investigate the long-term outcomes for Mayer–Rokitansky–Küster–Hauser syndrome (MRKH) patients undergoing vaginoplasty using acellular porcine small intestinal submucosa grafts (SIS).

Design: A case series.

Population: Seventy-eight MRKH syndrome patients and a post-SIS patient who delivered a baby following the world's first robot-assisted uterus transplantation.

Methods: Mayer–Rokitansky–Küster–Hauser syndrome patients were grouped based on the postoperative time and the diagnosis–surgery interval. Outcomes of sexual function and psychological status were assessed using the female sexual function index (FSFI), self-rating scale of body image (SSBI) and self-acceptance questionnaire (SAQ). Anatomical outcomes were measured by clinicians.

Main Outcome Measures: The primary outcome was restoration of sexual function, defined by an FSFI score in the 'good' range. Anatomical and psychological outcomes were also analysed.

Results: Sexual function was restored in 42.3% (33/78) of patients and the total FSFI score was 23.44 ± 4.43 . Three factors (body defect, recognition of physical appearance and willingness to change physical appearance scores) in the SSBI and two in the SAQ decreased as the postoperative time increased. Based on the interval between diagnosis and surgery, the

total SSBI score was lower in the short-interval group than in the long-interval group (7.25 ± 5.55 versus 12.04 ± 10.21 , $p = 0.038$).

Conclusions: Nearly half of MRKH patients in our study had good long-term sexual function after SIS vaginoplasty. Sexual function and psychological status improved as postoperative time increased. In addition, reducing the diagnosis to surgery interval was associated with improved psychological function.

Author's comment

Mayer–Rokitansky–Küster–Hauser syndrome (MRKH) is a congenital disorder typically presents as variable müllerian duct abnormalities with a normal female karyotype. Vaginal reconstruction is the hallmark procedure to achieve the sexual function and common techniques used include Mc Indoe's vaginoplasty, William's procedure and laparoscopic peritoneal vaginoplasty (Davydov procedure). Vaginal reconstruction using acellular porcine small intestinal submucosa graft (SIS) have reported to be successful in treatment of these patients, the advantages being shorter operation time, shorter learning curve, fewer complications and reduced hospital stay compared with the widely used laparoscopic vaginoplasty. This study focused on the long-term outcomes of vaginoplasty using SIS with a relatively large number of patients. There are several potential limitations. This is a case series without a control group, the lack of which prevents the authors from assessing the nonspecific factors affecting sexual function restoration and patient psychology. Meanwhile, patients with severe psychological problems did not participate in study and potential selection bias could not be ruled out.

Minimally invasive meshless and minimal dissection ligament fixation system for apical organ prolapse procedures: A 4-year prospective follow up study

Ben Zvi M, Weintraub AY, Friedman T, Neuman M, Tsivian.

Int J Gynecol Obstet 2022;158:657–62

Objective: EnPlace™ (formerly named NeuGuide™) is a minimally invasive meshless anchoring system for pelvic organ prolapse (POP) repair designed to provide centroapical pelvic floor support. We present a 4-year prospective follow up evaluation of this repair system.

Methods: This was a single-centre longitudinal prospective study of women with advanced POP who underwent pelvic floor apical repair using EnPlace™ with at least 4 years of follow-up. The primary outcome was surgical success defined as anatomical success, no symptoms of vaginal bulging and no need for re-treatment. A standardized validated questionnaire to assess symptom burden was used.

Results: Fifteen women were enrolled in the study. Two patients were lost to follow up. The median follow-up was 51 months (range 42–57) with a surgical success rate of 92.3%. One patient (7.7%) reported symptoms of vaginal vault prolapse and underwent a repeated prolapse surgery. Using the UDI-6 questionnaire, an improvement in all domains was seen.

Conclusion: The 4-year prospective follow up suggests that apical repair using the EnPlace™

device may be considered safe and effective for sacrospinous ligament fixation with a sustainable long-term success. This procedure is a minimally invasive meshless addition to pelvic surgeon's armamentarium.

Author's comment

Pelvic organ prolapse (POP) is a common condition associated with a significant impairment in overall quality of life (QoL) that often necessitates surgical repair. Vaginal approaches like sacrospinous ligament fixation (SSLF) is the commonest procedure to support the apex owing to shorter procedural time, fewer complications, faster return to daily routines. But still due to deeper dissection of pelvic tissues vaginally, it is technically challenging and potentially dangerous. The above study defined well the use of new surgical approach EnPlace™ system in the treatment of apical POP by vaginal SSLF. This system allows rapid and safe introduction of a suspending suture through the sacrospinous ligament and makes SSLF easy and fast to perform without the need for dissection or mesh implant. Moreover, it is effective with long term sustainable success. The EnPlace procedure may be appropriate for patients who need to undergo apical suspension and wish to avoid complications, from mesh augmentation, deep surgical dissection, and more invasive transvaginal or abdominal surgeries for POP repair. The primary limitations of the study is that it is a small, single-arm evaluation with no control group.

EVENTS HELD JUNE 2023

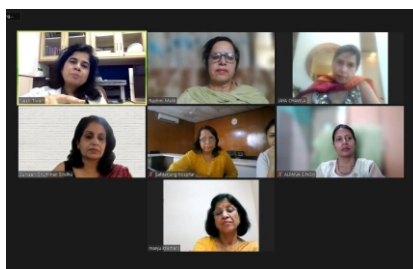
- 10th Workshop on Respectful Maternity Care was conducted jointly with directorate of family welfare, Delhi Govt and AOGD on 09.06.2023 in East district of Delhi which was attended by more than 50 HCPs from various hospitals. It included doctors nurses and ANMs.



- Cervical cancer vaccine camp was organised on 9th June, 2023 by Spread A Smile India, The Jagruti and Dr Meenakshi Sabharwal under aegis of adolescent sub committee of AOGD.



- AOGD and Delhi PG Forum organized a case discussion on "Vulval Malignancy" on 19.6.23 by Post Graduates of Maulana Azad Medical College, Delhi.
Coordinator Delhi PG Forum: Dr. Sunita Malik, Dr Shivani Agarwal
- A webinar on "Tackling Uterine factors in infertility" was conducted by the Department of Obstetrics and Gynaecology, VMMC and Safdarjung Hospital, Delhi under the aegis of AOGD Infertility committee on 22 June 2023.
Convener: Dr Bindu Bajaj
Co conveners: Dr Garima Kapoor, Dr Divya Pandey



- AOGD Oncology Subcommittee in collaboration with Delhi Medical Association organized a webinar on HPV vaccination on 24th June, 2023.
Organizing chairperson: Dr Sweta Balani

PROCEEDINGS OF THE AOGD MONTHLY CLINICAL MEETING
AOGD monthly clinical meeting
held at Indraprastha Apollo Hospital, New Delhi on 30th June, 2023

A rare case of vulval tumor (granular cell tumor)

Sushma Sinha, D Anusha

Sr Consultant, Obstetrics and Gynaecology

Introduction:- Granular cell tumor (GCT) is a rare mesenchymal neoplasm of neurogenic origin and was first described on tongue by Abrikossoff in 1926. Although GCT arises mostly from the head and neck region, particularly the tongue, it is not usual in the vulva where 5–15% of all GCTs occur. Only 130 cases of GCT of vulva have been reported so far worldwide. GCTs occur in patients of any age but are most common in fourth to sixth decades of life. GCTs are encountered in females two times more common than men. They generally occur as small, slow growing, and skin-colour nodule. The differential diagnosis includes vulval leiomyoma, Bartholin cyst, melanoma and hidradenoma. Diagnosis is mainly by histopathology complemented by immunohistochemistry. Treatment is by surgical excision. Majority of GCTs are benign, although approximately 1% to 2% of cases may be malignant, which has a high rate of metastases as well as a short survival. Here we present a rare case of 38 year old with histologically verified GCT encountered in our institute.

Case report: Mrs. X, 38 year old female came from North East to OPD of Indraprastha Apollo Hospital with complaints of Bartholin's cyst on the left side of vagina for 1 month. It was not very painful but had mild discomfort. She had consulted a gynecologist in Arunachal Pradesh who diagnosed the lump as Bartholin's cyst. There was no history of discharge, fever, or weight loss. Her family history was unremarkable. Examination showed bulky uterus. A large mass, firm to hard in consistency, irregular, lying on the left side in vulvovaginal area measuring approximately 4 x 4 cm. Decision

for excision of vulvovaginal mass was taken. On excision grossly round, hard in consistency, calcified mass was noted which looked just like leiomyoma. Histopathology of excised growth showed a tumor composed of cells arranged in nests and cords. The tumor cells were round to polygonal with abundant granular cytoplasm with round nuclei. No evidence of necrosis, atypia or increased mitosis was present and was reported as cellular neoplasm with eosinophilic granular cytoplasm. On immunohistochemistry the cells showed diffuse, cytoplasmic expression of S-100 and patchy expression of CD68 and were negative for Desmin. Ki67 proliferation index was 1 to 2%. Final conclusion based on histological features and immunohistochemistry profile was of a Granular cell tumor.

Discussion: The tumor is poorly circumscribed with irregular margins and is yellow-gray and fleshy on cross section. Diagnostic delay is another vital issue which, to some extent, could neglect malignant GCT of the vulva. Because many patients reported in the literature, plenty of time delay between the onset of the nodule and the final histological diagnosis of GCT of the vulva, has been noted. On microscopy the cells are round to polyhedral with indistinct margins and granular cytoplasm. They occur in ribbons or clumps separated by hyalinised stroma and collagen fibers. Nuclei are uniform, small and dark staining. The granular appearance is due to the accumulation of lysosomes. In about half the cases the squamous epithelium overlying the tumor shows pseudoepitheliomatous hyperplasia which may be mistaken for squamous carcinoma. The cells are immunoreactive for S-100 protein, are periodic acid Schiff positive, diastase resistant. Some histological features are associated with increased risk of metastasis. These features are necrosis, increased mitotic activity (>2

mitosis/10 HPF), spindling, vesicular nuclei with prominent nucleoli, high nucleocytoplasmic ratio, and pleomorphism. Tumors with three or more of these are considered malignant those with 1 or 2 features atypical, absence of above are considered benign. In addition, Ki-67 immunostain values greater than 10% can help to classify malignant cases histologically. Treatment is by surgical excision. Because the tumors often have irregular margins and because groups of tumor cells often extend beyond the macroscopic limits of growth wide excision is necessary. In contrast to 20% recurrence rates with positive margins, the clear margins are 2% to 8%. Typically, the metastases within 2 years are reported in the majority of malignant cases, and the rate of mortality is approximately close to 60% within 3 years.

Conclusion: Vulvar Granular Cell Tumor is of very rare occurrence and as there is a slight chance of 1 to 2% of these tumors being malignant and the tumor being poorly circumscribed in most of the cases, a proper excision with wide margins is of paramount importance to ensure complete cure.

Genetics tool kit for Obstetrics and Gynaecology

Divya Aggarwal

Consultant, Obstetrics and Gynaecology

Background:-Genetics can truly claim to be central basic science of this century. Genetic concepts and testings are increasingly becoming common in obstetric and gynaecological consultations, particularly in relation to reproductive issues and, to aspects of gynaecological oncology.

Discussion:- In the presentation, we have used case examples which were appropriately referred for genetic consultations and illustrate how genetics influences clinical practice of Obstetrics and Gynaecology. The illustrations provide an overview of commonly used and newly developed laboratory genetic techniques that support investigation and diagnosis. Relevant aspects of genetic counselling are also discussed. Common Gynae & obstetric clinic

conditions discussed are recurrent pregnancy loss, role of genetic testing in common gynaecologic cancers including breast cancer, foetal prenatal microarray and exome test for definite cause and prognosis in a case of foetal malformation, prevention of genetic disease by foetal preimplantation genetic test in a case of family history of suspected genetic disorder. We aim to give an overview of the strengths, utility as well as limitations of various genetic investigations as a basic understanding of these is imperative for clinical practice in this era where all medicine is moving towards genetic based personalized choices and treatments.

Case report of abnormal uterine bleeding caused due to isthmocele- hysteroscopic picture and laparotomy management

Geeta Chadha, Nilima

Consultant, Obstetrics and Gynaecology

Background:- Isthmocele is a pouch-like defect on the anterior wall of the uterus at the isthmus. It appears as a fluid-filled pouch in the anterior uterine wall at the site of a previous cesarean section scar. The blood flow during menstruation through the cervical region may be hampered by the presence of isthmocele. This can also cause pelvic pain in the suprapubic area, infertility and abnormal post menstrual bleeding. The global incidence is somewhere between 6.2% and 36%, with an average rate of 21.1%.

Case scenario:- We are presenting a case of 33 years old P1L1 with history of LSCS done in March 2022 with complaints of continuous bleeding per vaginum for 5-6 months, not responding to medical management. She gives history of pain lower abdomen on and off and had intermittent spotting and bleeding continuously since LSCS. General and systemic examination was normal. Per speculum and per vaginal examination showed normal findings. A transvaginal ultrasonography was done which was suggestive of a normal sized uterus with a diverticulum in the anterior wall of the uterine isthmus, at the site of her previous cesarean scar tissue- a cesarean scar defect of 20.0 × 15.6 mm was identified, with a residual myometrial

thickness over the defect of 2.6 mm. MRI (19/05/2022): Isthmocele - Hypointense content within the isthmocoele . After proper counselling patient was prepared for hysteroscopy followed by repair of isthmocele via laparotomy. Hysteroscopy revealed a crater just above the internal os with accumulated blood , fundus and ostia could not be visualised because of the irregularity. Resectoscope inserted and resection of raised edges of the isthmocele done followed by repair of isthmocoele via laparotomy. Postoperative period was uneventful, patient was discharged on 3rd day of surgery. With in 3 months of surgery, she has improved symptomatically with resumption of regular cycles.

Discussion:-Though isthmocele was first described in 1985 by Stewart et al , the increased reporting of isthmocele in recent times is attributed to the surge in caesarean section rates all over the world. Isthmocele is an iatrogenic pathology associated with obstetric and gynecological complications. Etiology could be poor tissue healing or surgical techniques favouring niche formation. It's imperative to address to its causes during caesarean section to prevent it.

AOGD Risk Management Support [ARMS] Group

One of the ways to ensure stress-free work environment and optimal patient care is mutual support among professional colleagues. An advisory group was set up last year so that they can be contacted if any of us is caught in a complex clinical dilemma / dealing with aggressive clients or is apprehensive about how to document or effectively troubleshoot a potential problem. The same group will continue to provide timely advice and is led by

Convener- Dr. Vijay Zutshi- 9818319110

Co convener- Dr. Aruna Nigam- 9868656051

We invite suggestions from all members regarding functioning of this cell which will guide us forming the SOPs. Pl mail to aogd.ucmsgtbh2023@gmail.com

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