PUNE OB-GYN SOCIETY
ESTD. 1953

Womb & Wellness

POGS FOR HER
स्त्रिया: हिताय प्रवतमाल:
Striving For The Betterment Of Woman

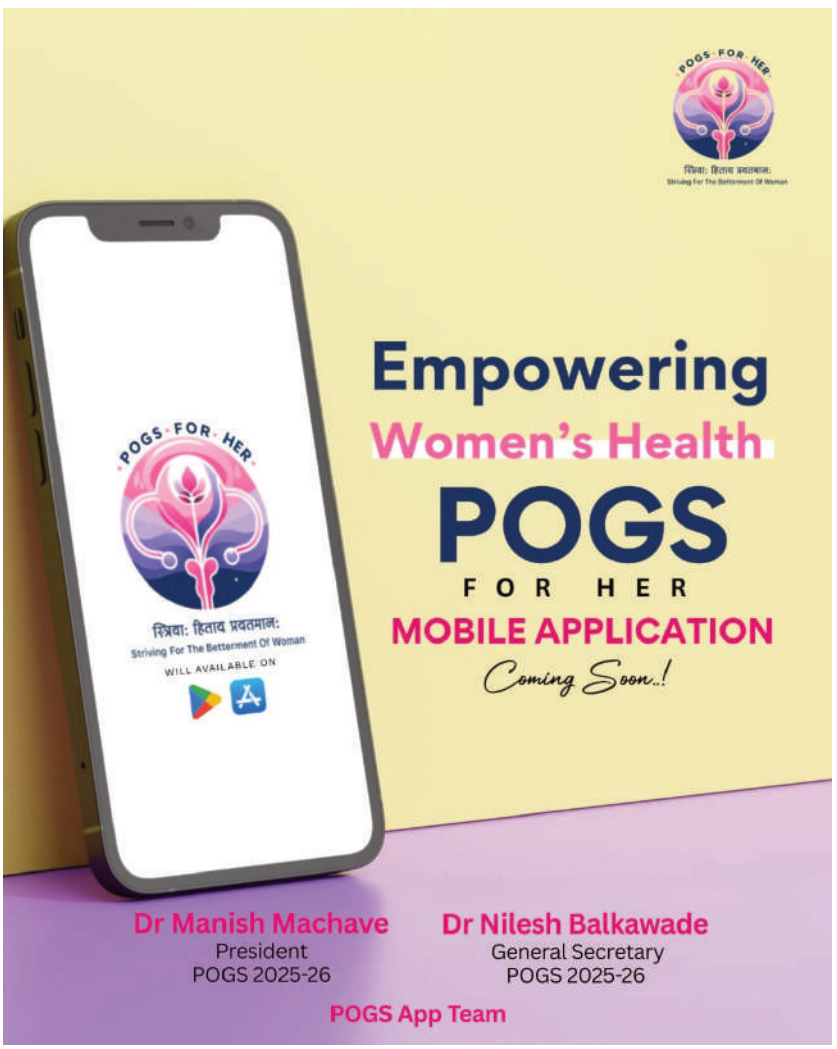
The POGS Chronicle ♦ Issue 4, July 2025

POGS App

On the auspicious occasion of Gudi Padwa, we are thrilled to announce the launch of the brand-new POGS App, set to debut at our 40th POGS Installation CME!
For the very first time, POGS is bringing you a state-of-the-art mobile application available on both Android and iOS. This app is designed to centralize all POGS-related information, making it easier than ever to stay connected and engaged.
Overview:
• Seamless New Member Registration: Join our community with just a few taps.
• Easy Conference Registration: Book your spots for upcoming events right at your fingertips.
• Monthly Quiz: Test your knowledge and win exciting prizes!
• Digital Library: Access monthly newsletters, a video library, and recordings of past conference lectures

Get ready to experience the convenience and innovation of the POGS App. Stay tuned and be prepared to take your POGS experience to the next level!

Dr Manish Machave
President POGS 2025-26
Dr Nilesh Balkawade
General Secretary
POGS 2025-26
POGS App Team
Dr Mahima Lalwani
Dr Mrinmayee Dharmadhikari



Office Address: No. 302-303, Dr. Nitu Mandke IMA House, 992, Shukrawar Peth, Tilak Road, Pune - 411 002. Maharashtra.
Contact: 020 2449 1000 / 020 2951 0120, 87665 09985.
E-mail: pogsoffice@gmail.com
Website: www.pogs.in
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Presidential Address

Dr Manish Machave
President, POGS

Dear esteemed member of POGS,
Greetings from the team,

This is our 4th POGS chronicle on Urogynaecology.
I begin with enriching words, "The only thing we have to fear is fear itself" (Franklin D. Roosevelt).
And these words fit in when we contemplate treating someone with a Urogynaecological issue.
Urogynaecology is a specialized field of medicine focusing on the diagnosis and treatment of pelvic floor disorders in women, including urinary incontinence and pelvic organ prolapse. It combines expertise in both gynaecology and urology to address these conditions, which can significantly impact a woman's quality of life.
I am sure this issue will help clear all doubts and pave an evidence-based and experienced path for us to ease our concerns in this evolving field of OB/GYN.
Do take out time and post us a feedback.
Happy reading.
Looking forward to see you all soon.
Till Then,
au revoir, NAMASKAR!

Dr Manish Machave
President, POGS

Dr Nilesh Balkawade
Secretary, POGS

Secretary's Address

"The rains are not just a seasonal shift—they are a soulful pause that soothes the mind, body, and spirit."

Dear Esteemed Members,

As the monsoon arrives with its refreshing showers, it brings along a renewed sense of energy and healing—something we deeply resonate with as caregivers. This month, POGS continues its unwavering journey of academic excellence, community connection, and professional unity.
June was a month of academic vigour:
On 6th June, the Fungal Disorders Masterclass under the FOGSI Young Talent Promotion Committee, convened by Dr. Kalyani Ingale, saw an overwhelming online attendance of 2000 participants. Eminent faculty including Dr. Manish Machave, Dr. Kiran Kurtkoti, Dr. Vaishali Korde Nayak, Dr. Shirish Yande, Dr. Vaishali Chavan, and urologist Dr. Shirish Yande made it a truly enriching program.
Let us continue to stand together — to learn, to serve, and to lead with compassion and courage.
On 12th June, POGS collaborated with Orissa societies for a cutting-edge national webinar, graced by Dr. P.C. Mahapatra as Chief Guest and attended by renowned Orissa faculty. Dr. Vaishali Chavan shared that it was one of the most successful academic events of the season.
Tree Plantation Drive at Durga Tekdi on 13th June, spearheaded by Dr. Tanuja Joshi, saw participation from 12–15 dedicated gynecologists. Dr. Samidha Dalvi, Dr. Sonal Bondre, and others from PCMC also joined in, expressing interest in replicating such eco-conscious efforts.
Our Outreach CME on Satara Road, organized by Dr. Sandhya Meshram and Dr. Charuta Joglekar, featured insightful talks by Dr. Milind Dugad, Dr. Vaishali Chavan, and Dr. Manjiri Valsangkar, ensuring clinical knowledge reached the grassroots.
On 21st June, Yoga Day was celebrated jointly with IMA, coordinated by Dr. Arati Nimkar. Alongside her, Dr. Meenakshi Deshpande, Dr. Radha Sangamnerkar, Dr. Alka Gaikwad, and myself contributed to a morning of collective well-being and inner peace.
A heartfelt and impactful Sneh-dindi on 22nd June stood out as a social awareness initiative to bridge the doctor-patient relationship. Members walked with placards promoting health messages. The event was applauded by citizens, Warkaris, and even the media.
As we step into July, our calendar is brimming with promise:
The FOGSI Yatra flame was proudly carried forward from Vadodara by Dr. Vaishali Chavan, with Dr. Charulata Bapaye as program convenor—symbolizing unity across societies.
Don't miss the POGS-MIMER Endoscopy Masterclass on 10th–11th July, with FOGSI collaboration, guided by Dr. Vaishali Korde. A great opportunity to involve our postgraduates!
The much-awaited PG Conference "Sand Ki Aankh" is scheduled for 26–27 July, focusing on exam strategies, practical learning, and case-based discussion. With pre-recorded content and accessible online format, it ensures we reach maximum PGs. It is Dr. Manish Machave sir's brainchild. He stressed on wide-scale promotion to ensure maximum benefit.
Looking ahead, we've the Infertility Committee Masterclass on 3rd August—a must for all practicing and aspiring fertility specialists.
BreastCon and Fertility Carnival Goa Workshops updates are underway. I assure you we are designing these programs with unique platforms for original research, innovation, and skill-building.
A special mention: POGS has constituted a committee under Dr. Shirish Patwardhan Sir, our Past President, to formulate a resolution on fat loss after pregnancy—a timely and much-needed initiative. Esteemed colleagues Dr. Vaishali Chavan, Dr. Vaishali Korde, Dr. Uma Wankhede, and Dr. Charulata Bapaye form this focused working group.
I warmly invite each one of you to be part of the upcoming POGS initiatives this July:
MIMER Endoscopy Masterclass on 10th–11th July
PG Conference "Sand Ki Aankh" on 26–27 JulyLet us continue to grow—together.

"Great things in organizations are never done by one person. They're done by a team of people with energy, vision, and the enthusiasm to make a difference."

Warm regards,
Dr. Nilesh Balkawade
Gen. Secretary, POGS

Editorial

Greetings from Pune Obstetrics & Gynaecological Society!

Dr Kalyani Ingale
Editor

Team POGS has designed this issue of the chronicle for you all based on the subject very close to our hearts, Pelvic Floor & Vaginal Surgeries.
The pelvic floor is a group of muscles & connective tissues that form a sling like structure at the base of the pelvis. These muscles are essential for maintaining continence, stability & overall pelvic health. The floor supports the pelvic organs & have a crucial role in the functions of these organs. Damage to the pelvic floor muscles compromises the functions of bladder, rectum, sexual organs leading to distressed life.
The newsletter brings to your different aspects of the surgical managements which will help us improvise our practices in terms of optimising the surgical results & outcomes that will impact the life of the women, in turn the couples. Eminent faculties have contributed their expertise & experiences. Let's get together to uplift her wellbeing!

Dr Kalyani Ingale,
Clinical Secretary,
POGS 2025 – 26

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President, POGS

Dr Nilesh Balkawade
Secretary, POGS

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Vice President
Dr Vaishali Chavan

Ex Vice President
Dr Vaishali Korde Nayak

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Dr Sandhya Meshram

Jt Clinical Secretary
Dr Meghana Argade

Jt Treasurer
Dr Anagha Pai Raiturkar

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Clinical Secretary
Dr Kalyani Ingale

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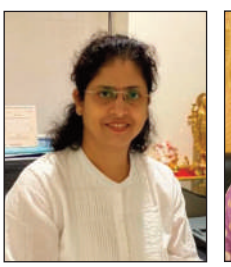
Dr Samidha Dalvi

Jt Secretary
Dr Sandhya Meshram



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Dr Meghana Argade

Jt Treasurer
Dr Anagha Pai Raiturkar

MANAGING COMMITTEE MEMBERS

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Dr Amey Chugh

Dr Akash Thube

Dr Amol Lunkad

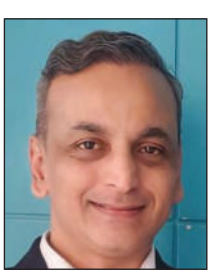
Dr Vaibhav Dangat

Dr Madhu Juneja

Dr Charuta Jogalekar

Dr Meenakshi Surve

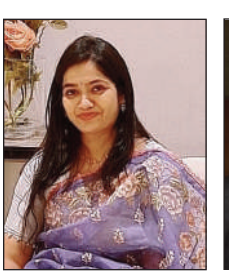
Dr Nitin Sangamnerkar



Dr Pankaj Sarode

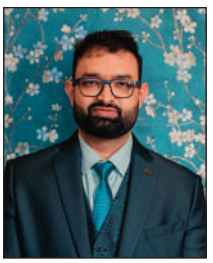
Dr Hemant Deshpande

Dr Manjiri Valsangkar



Dr Kanchan Durugkar

Dr Laxmikant Behele

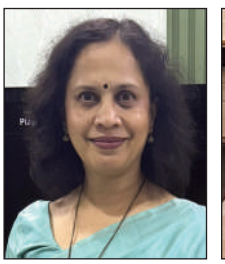


Dr Kunaal Shinde

Dr Satish Deshmukh

Dr Pandurang Burute

Dr Tanuja Joshi



Dr Vaishali Biniwale

Dr Sanjay Sharma

FOGSI-POGS celebrates "World Environment day": 5th June 2025: Dr. Tanuja Joshi

A group of Obgyn doctors from PCMC under the Go-green initiative of FOGSI gathered on 13th June Friday at 7:00 a.m. for a tree plantation to make a positive impact on the environment and reducing carbon footprint, thus promoting healthier environment for future generations.
The programme was attended by Dr. Tanuja Joshi, Dr. Samidha Dalvi, Dr. Sonal Bondre, Dr. Anjali Kale- Ratnakar, Dr. Arpita Gandhi, Dr. Darshana Sonawane, Dr. Swapnali, Dr. Sujata and representatives from Indoco Pharma. As many as 50 saplings were planted.
The FOGSI and POGS's this initiative will serve as an inspiration to others and make small step in promoting environmental health.

Dr. Kalyani Ingale

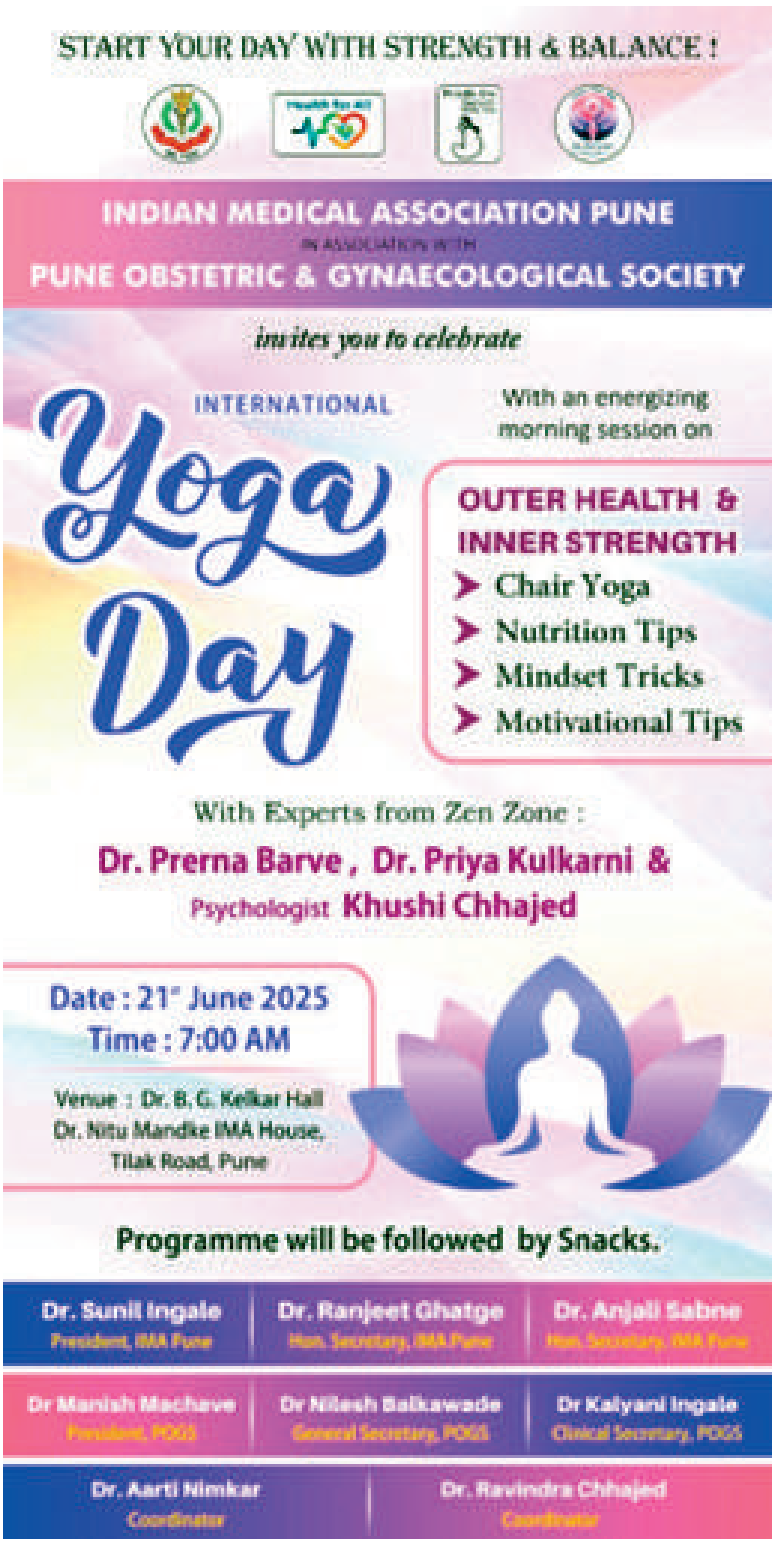
Fungal Masterclass

Fungal Masterclass, a hybrid CME on VVC was conducted in Pune on 6th June 2025. This masterclass was conducted by the Young Talent Promotion Committee of FOGSI under the able guidance of FOGSI President DR Sunita Tandulwadkar, Secretary General, FOGSI Dr Suvarna Khadilkar, Jt Secretary, Dr Ashwini Kale & Chairperson YTP Committee FOGSI, Dr Rohan Palshetkar. This masterclass covered the detailed aspects of vulvo – vaginal – perianal infections & addressed the treatments available for the recurring causes of the infection. The faculties threw a light on the intricacies of the subject by having a fruitful discussion & there was a nice question & answer session with the online attendees as well as the delegates in the hall. Dr Kiran Kurtkoti, AMOGS President deliberated a talk on the topic "Overview of effective management strategies: Vulvar & Perianal infections". Dr Manish Machave, President POGS moderated the panel discussion with the eminent panellists, Dr Vaishali Chavan, Vice president POGS, Dr Vaishali Korde Nayak, Executive Vice President, POGS & Dr Shirish Yande, Urologist on the VVC. The delegates, Online & offline, both were participating in the discussions with an enthusiasm making it a grand success in terms of spread of good scientific information.

POGS Outreach CME Satara Road: Dr. Charuta Jogalekar

The first Outreach CME of POGS team 2025-26 was held on 20th June 2025 , from 8 to 10 pm at Hotel Utsav Deluxe, Marketyard. The event started with Presidential address given by President POGS, Dr Manish Machave where he gave overview of all the upcoming events of POGS. He also urged everyone to use the POGS app as this year , all events will be intimated to the members through app. It was followed by traditional lamp lighting ceremony. The scientific session had 3 talks with eminent speakers like Dr Milind Dugad , Dr Manjiri Valsangkar and Dr Vaishali Chavan. There was a good interaction amongst the speakers , audience and chairpersons and everyone gave their valuable inputs on the topics. The scientific programme was followed by release of POGS monthly newsletter, Womb and Wellness on the theme' Endoscopy' . The event was appreciated by everyone. Dr Sandhya Meshram was the Convenor and Dr Charuta Joglekar was the MOC.

21st June 2025: YOGA Day



22nd June 2025: Snehdindi

स्नेहदिंडीस उत्स्फूर्त प्रतिसाद – डॉक्टर-रुग्ण नात्याच्या दृढीकरणासाठी समाजातून एकत्रित पाठिंबा
पुणे ऑब्स्टेट्रिक अॅण्ड गायनेकॉलॉजिकल सोसायटी (POGS) व अॅमोग्स (AMOGS) यांच्या संयुक्त विद्यमाने आयोजित स्नेहदिंडी या उपक्रमाला मोठा प्रतिसाद लाभला. पुण्यातील अनेक नामवंत डॉक्टर सदस्य या दिंडीत सहभागी झाले. वारीमध्ये सहभागी वारकरी बांधव, सामान्य नागरिक आणि माध्यमांनीही या उपक्रमाची नोंद घेतली.
या दिंडीद्वारे समाजात एक महत्त्वाचा संदेश देण्यात आला —
" डॉक्टर आणि रुग्ण यांचे नाते हे विश्वासावर आधारित असून, ते अधिक बळकट करणे ही काळाची गरज आहे ."
या सामाजिक आणि धार्मिक उपक्रमाद्वारे डॉक्टरांच्या भूमिकेचा सकारात्मक संदेश देण्यात आला. संवाद, सहकार्य आणि सुसंवाद यांची जाणीव सर्वांपर्यंत पोहोचवण्यात आली.

या दिंडीत डॉ. मीनाक्षी देशपांडे (POGS माजी सचिव), डॉ. संध्या मेश्राम, डॉ. मंगला वाणी, डॉ. मिलिंद दुगड, डॉ. राधा संगमनेरकर, डॉ. अरुणा ओझा हे देखील सहभागी झाले.
डॉ. अनुराधा जाधव यांनी सर्व सहभागींसाठी अत्यंत सुंदर व स्वादिष्ट नाश्त्याची उत्तम व्यवस्था केली.
या कार्यक्रमाचे समन्वयक म्हणून डॉ. निलेश बलकवडे आणि डॉ. आरती निमकर यांनी प्रमुख भूमिका बजावली.

सप्रेम,
डॉ. मनीष माचवे – अध्यक्ष, POGS
डॉ. निलेश बलकवडे – सरचिटणीस, POGS

डॉ. किरण कुर्टकोटी – अध्यक्ष, AMOGS
डॉ. बिपिन पंडित – सरचिटणीस, AMOGS
डॉ. रेवती राणे – अध्यक्ष, जनजागृती समिती, AMOGS

डॉ. आरती निमकर – माजी अध्यक्ष, POGS
डॉ. वैशाली बिनिवाले – अध्यक्ष, जनजागृती समिती, POGS






महाराज
महाराज

2nd July 2025: Swasth Nari Abhiyan:

Dr. Charulata Bapaye

Swasth Nari Abhiyan Yatra – Pune Chapter
Date- 2nd July, Wednesday
Venue- Hotel Crowne Plaza

As part of the ongoing Swastha Nari Abhiyaan Yatra - a nationwide Breast and Cervical Cancer Awareness CME journey from Kashmir to Kanyakumari—the flame of knowledge reached Pune after impactful sessions in Kashmir, Noida, Delhi, Jaipur, Indore and Baroda.
This FOGSI Presidential initiative was well received in Pune. The Pune CME brought together around 50 dedicated healthcare professionals, fostering meaningful dialogue and education around women's cancers.
Dr Sunita Tandulwadkar- President FOGSI has gone all out with her meaningful CMEs to spread latest updates to every nook and corner of the country.
The inauguration was at the hands of Dr Parag Biniwale, Chairman, ICOG FOGSI.

Dr Charulata Bapaye, Dr Girija Wagh, Dr Ashish Kale, Dr Uma Wankhede, Dr Sonali Sansare, Dr Aarti Nimkar, Dr Meenakshi Deshpande
were some of the esteemed Faculty.
The blessings of senior teachers Dr Ramesh Bhosale and Dr Khurd meant a lot to us.
The academic discussion revolved around Screening for Breast Cancer, Management of an Abnormal PAP smear and a panel discussion on Interesting cases related to Breast and Cervical health.
Dr Santosh from Bijapur Ob Gy Society received the Flame of Knowledge - as the Yatra proceeds to Bijapur.
There was a walk on Breast cancer awareness with placards and Posters of How to perform Breast Self examination were distributed to all delegates.
The program was well appreciated by all.
Thank you Dr Sunita Tandulwadkar madam - President FOGSI for the opportunity.


SWASTHA NARI ABHIYAAN YATRA
by
Dr. Sunita Tandulwadkar
President, FOGSI 2025
FOGSI
SWASTHA NARI
ABHIYAAN YATRA
स्वस्थ नारी अभियान यात्रा
Susten 6R
Inj Susten
Egolix
Trapic-MF
Cabgolin
SWASTHA NARI ABHIYAAN YATRA
by
Dr. Sunita Tandulwadkar
President, FOGSI 2025

Dr. Vaishali Korde-Nayak

Endoscopy Masterclass 2025

The Department of OBGY, MIMER Medical College, with POGS, is proud to host the much-awaited Annual "Endoscopy Masterclass 2025" on 10th and 11th July. This flagship event has been conducted by MIMER for the last 5 yrs in collaboration with the Indian Association of Gynaecological Endoscopy (IAGE), a renowned national body. We are committed to mentoring and training gynaecologists in endoscopic surgery—an area that often poses challenges for residents due to limited exposure and guidance.

Through this annual conference, our objective is to advance and promote minimally invasive surgical techniques in gynaecology while empowering budding gynaecologists with hands-on experience and updated knowledge about modern instruments and procedures in endoscopy.

This year, we are also having EAGLE (Every Aspiring Gynaecologist Learns Endoscopy) under the visionary leadership of President FOGSI Dr. Sunita Tandulwadkar.

Pune Obstetrics and Gynaecological Society (POGS), under the able leadership of President Dr Manish Machave, a renowned endoscopic surgeon, is also actively supporting this event.

Dr Vaishali Korde Nayak
Prof & HOD,
MIMER Medical College
Ex
Vice President POGS

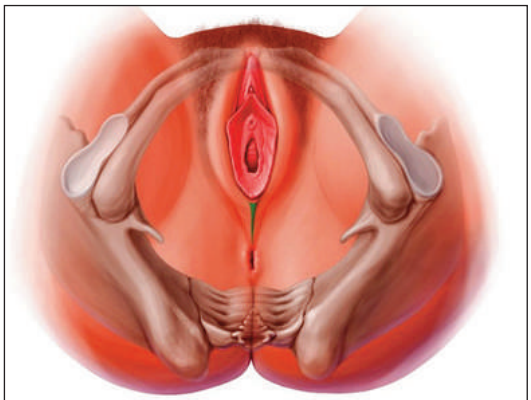
Pelvic Anatomy for Vaginal Surgeries

Dr. Pankaj Sarode
MD, FMAS
Director, Cradle Maternity and Women Care, Pune.
Chairman, Vaginal Surgery Committee AMOGS 2024-26

Dr. Varshali Mali
MBBS, DNB
Consultant, Dr. Varshali's Gynecology Clinic and
Surya Mother and Child Super-Speciality Hospital, Pune

Pelvic anatomy is crucial for understanding and performing vaginal surgeries. A deep understanding of the pelvic structures is essential for any surgeon for performing vaginal surgeries. Though the anatomy of the pelvis is the same, while performing vaginal surgeries, the perspective of anatomy is different. Thorough knowledge of pelvic anatomy helps surgeons to access the pelvic organs safely, avoid injury, and perform the surgery effectively. In this chapter, we are going to discuss the anatomy of the pelvis from the vaginal surgery aspect.

1. Vulva and erectile structures



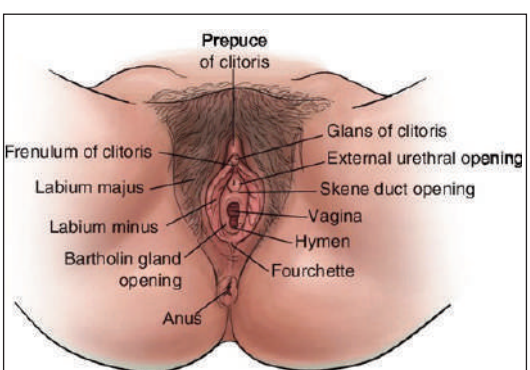
Perineum - Through Vaginal Surgeon's Eye

The bony outlet is bordered by the ischiopubic rami anteriorly and the coccyx and sacrotuberous ligament posteriorly. It can be divided into anterior and posterior triangles, which share a common base along a line between the ischial tuberosities:

- The anterior triangle is a urogenital triangle.
- The posterior triangle is an Anal triangle

Layers of the anterior triangle (UROGENITAL):
In the urogenital triangle, there is skin and an adipose layer (vulva) overlying a fascial layer (perineal membrane) that lies superficial to a muscular layer (levator ani muscles).
The layers are:
A. Skin
B. Subcutaneous tissue
○ Camper's fascia
○ Colles fascia
C. Superficial space
○ Clitoris and its crura
○ Ischiocavernosus muscle
○ Vestibular bulb
○ Bulbocavernosus muscle
○ Greater vestibular gland
○ Superficial transverse perineal muscle
D. Deep space
○ Sphincter Urethrae
○ Perineal membrane
○ Compressor urethrae
○ Compressor urethrovaginalis
○ Deep transverse Perinei
○ The dorsal nerve of the clitoris
○ Dorsal artery of the clitoris

1.1. Subcutaneous tissues of the vulva
The vulva structures lie on the pubic bones and extend caudally under the pubic arch. They consist of the mons, labia, clitoris, vestibule and associated erectile structures and their muscles.

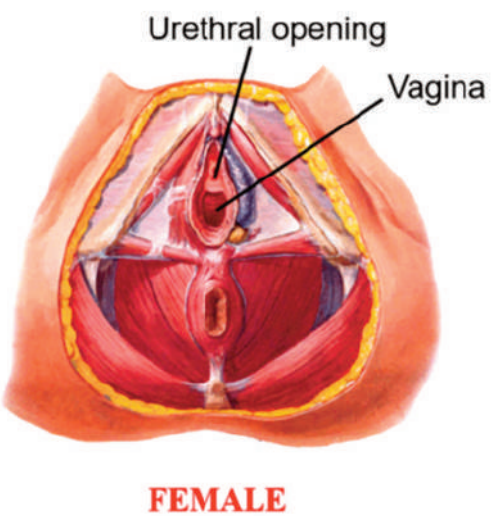


External genitalia

The parts of Vulva:
1. Mons pubis: It consists of hair-bearing skin over a cushion of adipose tissue on the pubic bones.
2. Labia majora: These are two 7×2×1 cm fibro-fatty skin folds on each side. They are composed of hair-bearing skin and adipose tissue. They fuse over the mons pubis anteriorly and extend to merge into the perineum posteriorly, joining medially to form the posterior commissure. The outer aspects of the labia are pig-

mented and covered with hair, while the inner surface is smooth and contains many sebaceous glands. Labia Majora contains the termination of the round ligament of the uterus and the obliterated processus vaginalis (Canal of Nuck). The labia minora, vestibule and glans clitoris can be seen between the two labia majora.
3. Labia Minora: The labia minora are hairless skin folds, each of which splits anteriorly to run over and under the glans of the clitoris. Inferiorly, they fuse in the midline, forming the fourchette. The area between the fourchette and vaginal Orifice is called Fossa Navicularis. They contain connective tissues and erectile muscle fibres and are richly supplied with Sebaceous glands, blood vessels, and nerves.

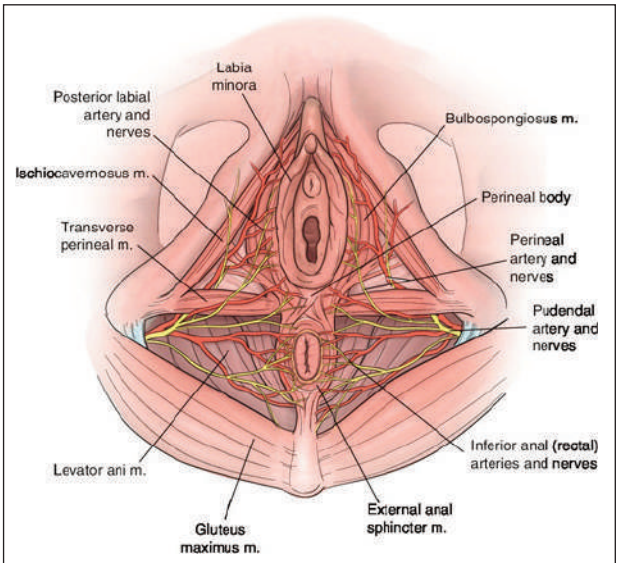
1.2. Superficial Compartment
This is the space between the subcutaneous tissues and perineal membranes, which contains the clitoris, crura, vestibular bulbs, ischiocavernosus, and bulbospongiosus muscles. It is called the superficial compartment of the Perineum.



Superficial Perineal Compartment

1. Clitoris: it is the main female erectile structure located in the vulva, homologous to the penis in Male. It is 2 cm in length. It comprises a midline shaft (body) capped with highly sensitive glans. The shaft lies on, and it's suspended from the pubic bones by subcutaneous suspensory ligament. The paired crura of the clitoris is firmly attached to the pubic bones, continuing dorsally to lie on the inferior aspect of the pubic rami.
2. Vestibule: It is a triangular area enclosed by labia minora laterally and extends from the clitoris to the fourchette. There are four openings in the vestibule. They are urethra, vagina, and two ducts of Bartholin's glands.
3. Vestibular bulbs: The paired vestibular bulbs lie immediately under the vestibular skin and are composed of erectile tissue. They are covered by bulbospongiosus muscle.
4. External urethral orifice: It is a midline anterior, posterior slit in the vestibule about 1.5 cm below the pubic arch and in front of the vaginal orifice.
5. Bartholin's greater vestibular gland: These are two pea-sized oval secretary glands situated at 4 o'clock and 8 o'clock positions posterior to vestibular bulbs. The gland lies on the perineal membrane and beneath the bulbospongiosus muscle. Their ducts are 2 cm long, and the pen is in the groove between the Hymen and Labia minora on the sides of the vestibule. They secreted alkaline mucus for lubrication during sexual excitation.
The perineal membrane and perineal body are important to the support of the pelvic organs. They are discussed in the section on the pelvic floor.

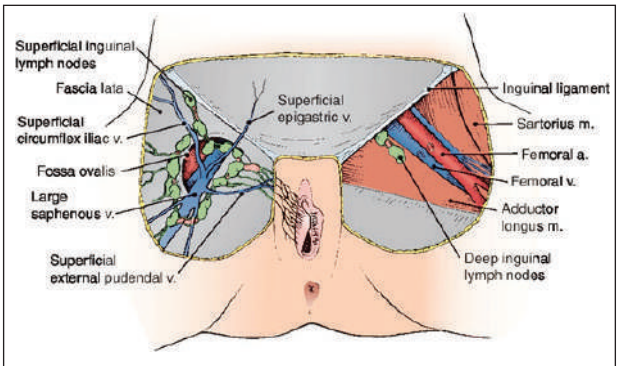
1.3. Pudendal Nerve and Vessels
The Pudendal nerve is the sensory and motor nerve of the perineum. The Pudendal nerve arises from the sacral plexus (S2, S3, S4), and the vessels originate from the anterior division of the Internal Iliac Artery. They leave the pelvis through the greater sciatic foramen by hooking around the ischial spine and sacrospinous ligament to enter the pudendal (Alcock) Canal through the lesser sciatic foramen.



Pudendal nerve and vessels

The nerve and vessels have three branches: The clitoral, perineal, and inferior rectal.
- **The clitoral :** This branch lies on the perineal membrane along its path to supply the clitoris.
- **The perineal branch :** Supplies the bulbocavernosus, ischiocavernosus, and transverse perineal muscles. It also supplies the skin of the inner portion of the labia majora, labia minora and vestibule.
- **The inferior rectal branch:** Goes to the external anal sphincter and perineal skin.

1.4. Lymphatic Drainage



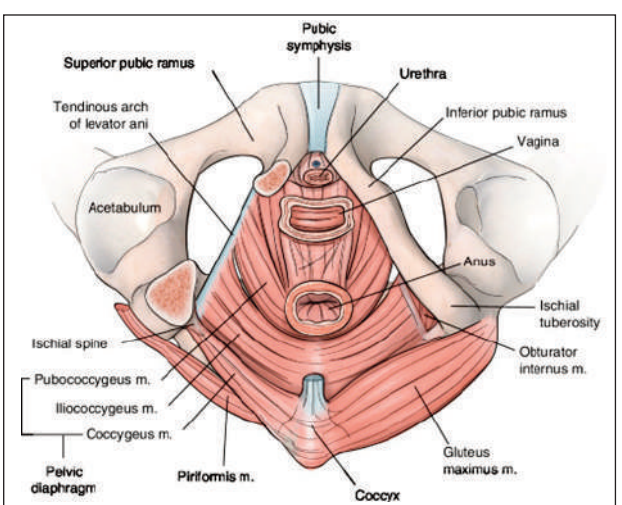
Lymphatic drainage

1. Superficial Lymphatic Drainage:
The superficial lymphatic vessels primarily drain the external genitalia, including the vulva, clitoris, labia majora, and labia minora. These lymphatic vessels are generally divided into two groups:
- **Anterior (or superficial) drainage:** This primarily involves the labia majora and mons pubis, with the lymphatics draining toward the inguinal lymph nodes. The lymphatic vessels of the anterior vulva and mons pubis tend to drain into the superficial inguinal lymph nodes located in the groin area.
- **Posterior (or superficial) drainage:** This involves the labia minora, vulvar vestibule, and perineum, which drain toward the superficial inguinal lymph nodes and the deep inguinal lymph nodes in some cases. The posterior part of the vulva, including the perineal area, may also have some drainage toward the ischiorectal fossa and deeper nodes.

2. Deep Lymphatic Drainage:
While the superficial lymphatics handle most of the vulvar lymphatic drainage, deeper lymphatic vessels also exist and are of clinical importance:
- **Deep inguinal lymph nodes:** The deeper tissues of the vulva, including the vaginal canal and cervix, may drain into the deep inguinal lymph nodes. These nodes are deeper and located more medially within the groin region.
- **Pelvic (iliac) nodes:** The lymphatic drainage can extend to the pelvic lymph nodes for more extensive or advanced diseases, mainly when vulvar cancers or infections spread further into deeper tissues.

3. Key Lymph Node Groups
- **Superficial inguinal lymph nodes:** Located just below the inguinal ligament in the groin area. These are the primary lymph nodes for draining most of the vulva.
- **Deep inguinal lymph nodes:** Located deeper in the groin, these nodes handle lymphatic drainage from deeper structures.
- **Pelvic (internal iliac) lymph nodes:** These are the most distal nodes that receive lymph from the lower genital tract, including deeper vulvar structures or adjacent areas.

2. Pelvic Floor and Perineum
The pelvic floor provides support to the pelvic organs and withstands intra-abdominal pressure. It includes the levator ani muscles, perineal membrane, and perineal body, each playing distinct roles in structural stability.
2.1. Levator Ani Muscles

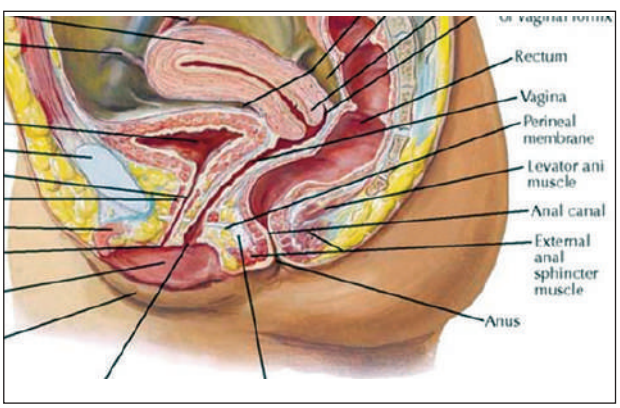


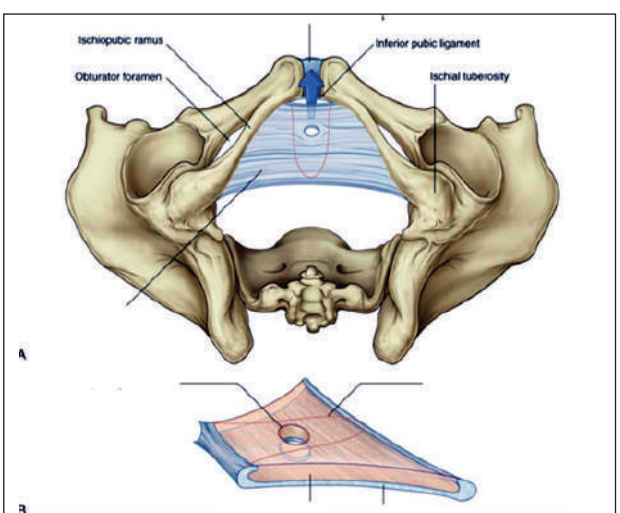
Levator Ani Muscles

- The levator ani, consisting of the pubococcygeus, puborectalis, and iliococcygeus, forms a supportive shelf for pelvic organs.
- The pubococcygeus muscle arises from this aponeurotic attachment to the inner surface of pubic bone and inserts into the distal lateral vagina, perineal body

and anus, and some fibres attach to the superior surface of the coccyx, hence the name pubococcygeus.
● The iliococcygeus muscle arises from the fibrous band overlying the obturator internus called Arcus tendineus Levator ani. Then, fibres pass behind the rectum and are inserted into the midline anococcygeal raphe and the coccyx.
● These muscles are critical for maintaining continence and pelvic stability.
● The puborectalis muscle is a U-shaped muscle that wraps around the junction between the rectum and the anus. It forms a sling or loop around the anorectal angle, which is the bend between the rectum and the anal canal.

2.2. Perineal Membrane
This triangular sheet of dense, fibromuscular tissue spans the pelvic outlet's anterior half. It separates the superficial and deep perineal compartments. It supports the urethra, vagina, and perineal body, reinforcing the pelvic floor against gravitational and intra-abdominal forces.





Perineal Membrane

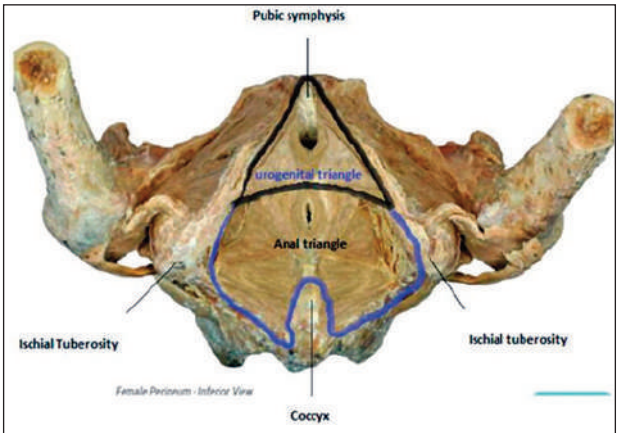
2.2.1. Structure and Location
● Shape and Composition: The perineal membrane is a triangular-shaped structure located in the urogenital triangle (the anterior part of the perineum). It is composed of dense connective tissue and acts as a rigid support for the structures above it.
● It lies between the deep perineal pouch (which contains muscles like the deep transverse perineal and sphincters) and the superficial perineal pouch (which contains structures like the bulbospongiosus and ischiocavernosus muscles).
● On either side, the inner aspects of the inferior ischiopubic rami anchor the membrane, and it attaches to the pubic symphysis anteriorly. Medial attachments of the perineal membranes are to the urethra, the walls of the vagina and the perineal body.

2.2.2. Functions of the perineal membrane
The primary function of the perineal membrane is related to its attachment to the vagina and perineal body. The perineal membrane supports the pelvic floor against the effect of an increase in intra-abdominal pressure and from the impact of gravity.

2.3. Perineal Body
● The perineal body is a mass of connective tissue bounded by the lower vagina, perineal skin, and anus.
● It is again termed the 'Central Tendon of Perineum' as it acts as an anchor point for several muscles and contributes to the overall integrity and function of the pelvic region.
● Attachments: It is attached to the inferior pubic rami and ischial tuberosity through the perineal membrane and superficial transverse perineal muscles. Anteriorly, it receives insertion from the bulbospongiosus muscles. On its lateral margins, the upper portion of the perineal body is connected with some fibres of the pelvic diaphragm. Posteriorly, indirectly it is attached to the coccyx by the external anal sphincter that is embedded in the perineal body and is attached at the lower end to the coccyx.

2.4. Anal Sphincters
● The external anal sphincter lies in the posterior triangle of the perineum.
● The external anal sphincter, comprising subcutaneous, superficial, and deep parts, integrates with the puborectalis.
The internal anal sphincter, derived from smooth muscle, lies adjacent and contributes to continence.

2.5. Posterior (Anal) Triangle: Ischioanal fossa
The ischioanal fossa is situated in the anal triangle of the perineum, just below the pelvic diaphragm.



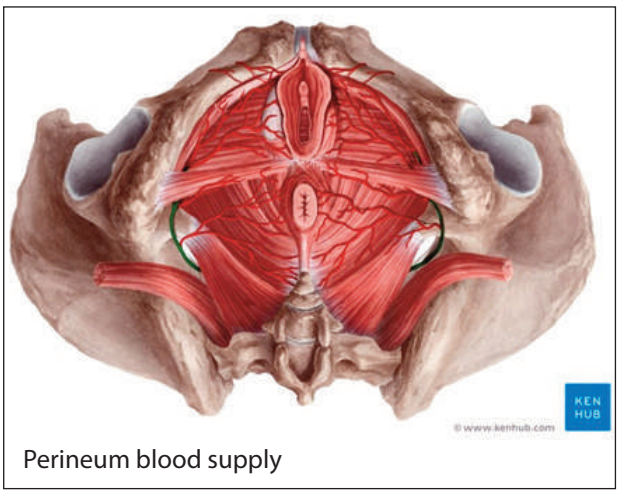
Ischioanal (Anal) Triangle

Borders:
● Medial border: The anal canal and external anal sphincter (muscles responsible for controlling bowel movements).
● Lateral border: The ischium (the bony part of the pelvis) and the obturator internus muscle lie on the fossa's outer side.
● Superior border: The levator ani muscles (which make up the pelvic floor).
● Inferior border: The skin of the perineum

Function:
● Provides space for the anal canal to expand during defecation
● The fossa contains the inferior rectal vessels and nerves, which provide the necessary blood supply and nerve sensation to the anal canal and external anal sphincter.

Clinical Significance:
● Site for Perianal abscess formation
● Ischioanal fistula: A fistula may develop from an abscess that connects the anal canal with the skin of the perineum.
● Knowledge of the ischioanal fossa's anatomy is critical to avoid damaging the inferior rectal vessels or nerves during surgeries in the perineal region (e.g., for anorectal cancer, haemorrhoids, or abscess drainage)

2.6. Perineum Blood supply
The internal pudendal artery is the primary source of blood supply to the perineum. It is a branch of the anterior division of the internal iliac artery.



Perineum blood supply

1. The internal pudendal artery gives rise to several branches that supply the external genitalia, perineal muscles and anal region. These branches are:
A. Inferior rectal artery: Supplies the anal canal, external anal sphincter, and the perianal skin.
B. Deep artery of the clitoris: Supplies to the clitoris
C. Perineal artery: Supplies the superficial perineal muscles (e.g., bulbospongiosus, ischiocavernosus, and superficial transverse perineal muscle) and the external genitalia (in both males and females).
2. The obturator and uterine artery branches of the Internal iliac arteries and the Femoral artery branch of the External iliac artery have a minor contribution to the blood supply of the perineum.

2.7. Neurovascular Supply of the Perineum
The pudendal nerve (S2-S4) is the primary sensory and motor nerve of the perineum, branching into:
● Dorsal Nerve of the Clitoris: Supplies sensory innervation to the clitoris.
● Perineal Nerve: Innervates the labia, vestibule, and superficial perineal muscles.
● Inferior Anal Nerve: Provides motor control to the external anal sphincter and sensation to the perianal skin.
Accompanying vessels, including the internal pudendal artery, supply blood to these regions, highlighting the importance of preserving vascular integrity during surgeries.

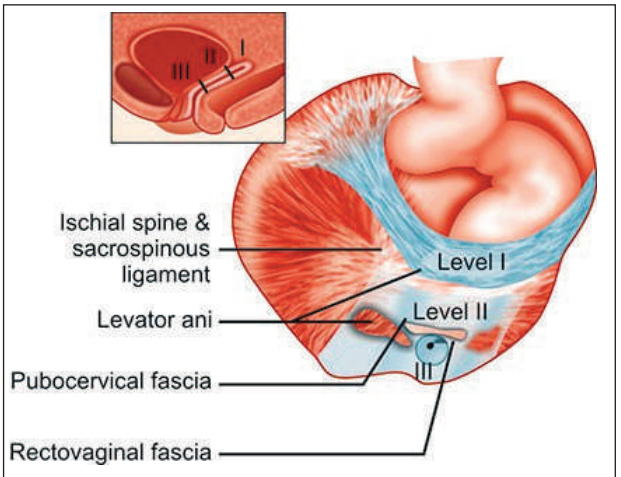
3. Connective tissue and supports of the genital tract
The connective tissue surrounding the uterus and cervix is called Parametrium.
3.1. The Paracervical Ligaments are:

1. Pubocervical ligament (Bladder Pillar)
Origin: Posterior and inferior surface of superior pubic ramus and white line
Insertion: Anterior and lateral aspect of Supravaginal cervix
2. Cardinal Ligament (Mackenrodt's ligament or Transverse cervical ligament)
Origin: Lateral supravaginal cervix and upper part of the lateral vaginal wall.
Insertion: Posterolateral pelvic wall near the origin of the internal iliac artery.
The uterine vessels traverse them, and the ureter passes through them under the uterine artery. (The water under the bridge). They have tensile strength and provide primary support to the uterus, cervix and upper vagina.
3. Uterosacral ligament
Origin: Posterolateral surface of the cervix at the level of internal os.
Insertion: Periosteum S2, S3, S4 vertebrae of sacrum, or onto the pelvic side wall or coccygeus - sacrospinous ligament. They form the lateral boundaries of the Pouch of Douglas.

3.2. Uterine Supports
The uterus supports are a combination of ligaments, fascia, muscles, and connective tissue that help maintain the uterus in its proper anatomical position within the pelvic cavity.
The primary support of the uterus and the cervix is provided by the interaction between the levator ani muscle and the connective tissue attaching the cervix to the pelvic walls through parametrium and parapodium.
The Cardinal ligament, uterosacral ligament, and Levator ani muscle are the main supports of the uterus. Vagina also supports the uterus.
These support structures are essential for preventing uterine prolapse (the descent of the uterus into the vaginal canal or outside the body) and ensuring the proper functioning of the uterus during processes like menstruation and pregnancy.

3.3. Cervical Canal and upper vaginal support
De Lancey (1992), from his experience on cadaveric dissections, has described three levels of vaginal connective tissue supports.
De Lancey's Support System refers to the anatomical structures in the female pelvis that helps to support the pelvic organs, particularly the bladder, uterus, vagina, and rectum. These supports are critical for maintaining the position and function of these organs and preventing pelvic organ prolapse (POP). When pelvic organs descend into or outside the vaginal canal due to weak or damaged support structures.

3.3.1. De Lancey supports



De Lancey Support

1. Cervical and upper vaginal wall support
The ligaments of the parametrium and paracolpium provide the cervical and upper vaginal support.
They are mainly Cardinal (Mackenrodt's) and Uterosacral ligaments. Level 1 support is also called the suspensory axis; the fibres are vertically oriented in a standing position.
Damage to Level I support causes cervical prolapse, post-hysterectomy vaginal vault prolapse and enterocele formation.
2. Midvaginal support (level II support)
Attachment of visceral connective tissue endopelvic fascia from the lateral vaginal walls to Arcus tendineus fascia pelvis (ATFP) (condensation of fascia over obturator internus) and to the medial aspect of levator ani muscles. The attachment of the anterior vaginal wall to the levator ani muscles is responsible for bladder neck elevation observed during coughing (Valsalva Maneuver).
Damage to level II support causes anterior and posterior vaginal wall prolapse and stress urinary incontinence.
3. Distal vaginal support Level III support
The Distal third of the vagina is attached directly to its surrounding structures. It is attached and fused anteriorly to the urethra, laterally to pubovaginal muscle and perineal membrane, and posteriorly to the perineal body. They are the most substantial support of the

vaginal support system.
Damage of level III support causes distal rectocele, perineal descent, and anal incontinence.

3.3.2. Round Ligaments
The round ligaments are a pair of cord-like structures attached to the lateral aspect of the cornua of the uterus just below and anterior to the fallopian tubes. They extend laterally to the pelvic sidewall behind the anterior leaf of the round ligament to enter the inguinal canal through the internal inguinal ring. They come out of the inguinal canal through the external inguinal ring to merge with the subcutaneous tissue of the labia majora. They are 10 cm long.
Function: The round ligaments provide anterior support to the uterus and help to keep the uterus tilted forward (anteverted). During pregnancy, these ligaments stretch to accommodate the growing uterus.
Blood Supply:
Sampson artery is a small branch from the uterine or ovarian artery.
Lymphatic Drainage: Lymphatics from the uterine corpus pass along round ligaments to drain superficial inguinal lymph nodes.
Clinical Relevance:
● Round ligament pain is common during pregnancy, causing sharp, cramp-like pain in the lower abdomen due to the stretching of these ligaments.
● They are important landmarks to the gynaecological surgeon during sterilization operations through minilaparotomy incisions as the Fallopian tubes lie posterior to them.
● Division of the Round ligament is also the first step in Abdominal and Laparoscopic Hysterectomy. It opens the broad ligament for further surgery and identifies the uterine artery and ureter for safe surgery.

3.3.3. Ovarian Ligaments
Ovarian ligaments are 2.5 cm long pairs of fibromuscular cords. They run from the cornue of the uterus behind the fallopian tubes to the medial border of the ovary through the posterior leaf of the broad ligament. Together with the round ligament, they are homologous to the gubernaculum testis in males.
3.3.4. Broad Ligaments
It comprises double layers of peritoneum extending from the lateral walls of the uterus to the pelvic walls. They are paired with one on each side, with anterior and posterior layers continuous at the upper free border containing the Fallopian tube, Ovarian and Round ligaments.
The lower portion, the base of the broad ligaments, contains cardinal and uterosacral ligaments.
The anterior fold of the peritoneum is reflected as a uterovesical pouch at the level of the internal os.
The posterior fold is more extended, covering the upper third of the posterior vaginal wall before reflecting to form the pouch of douglas.
Parts of Broad ligament:
A. Mesovarium: It is the mesentery of the ovary made by a fold of peritoneum, which connects the ovary to the posterior layer of the broad ligament. Ovarian vessels, lymphatics, and nerves are carried to the ovary through it.
B. Mesosalpinx: It is a mesentery of the fallopian tube, part of a broad ligament between the Fallopian tube and the ovary.
Utero ovarian anastomotic vessels and embryonic remnants are contained in it.
C. Mesometrium: The longest part of a broad ligament lies below the mesosalpinx and lateral to the uterus.
Contents of Broad Ligaments:
1. Fallopian tubes
2. Uterine vessels
3. Nerves and Lymphatics from the ovary, Fallopian tubes and uterus
4. Ovarian ligament
5. The proximal part of the round ligament
6. Parametrium
7. Embryonic remnants in the mesosalpinx
a. Gartner's Duct: It is the remnant of the Wolffian duct and runs parallel to the fallopian tube up to the upper uterus and downwards alongside the uterus. Cysts can be formed in it.
b. Epoophoron: They are remnants of proximal tubules of the mesonephros, which are 8-12 vertical tubules with their blind ends towards the ovarian hilum while the other ends open into the Gartner's duct. Broad ligament cysts can be formed in them.
c. Paroophoron: These are a few scattered blind tubules lying between the epoophoron and uterus and are remnants of distal tubules of mesonephros. They can give rise to broad ligament cysts.
Clinical correlation:
1. Maintain the uterus in its position.
2. The broad ligament has to be opened while doing a hysterectomy operation.

3.3.5. Infundibulopelvic ligament (suspensory ligaments of the ovary)
The ovary and infundibulum of the fallopian tube are attached to the lateral pelvic wall by infundibulopelvic

ligament. It extends the broad ligament from the ovary to the lateral pelvic wall. It carries ovarian vessels, lymphatics, and nerves to and from the ovary, Fallopian tube and uterus. This ligament is clamped, cut and transfixed during an oophorectomy operation.

3.3.6. Uterosacral Ligaments
The uterosacral ligaments are two thick, fibrous structures running from the uterus's posterior aspect (around the cervix) to the sacrum (the lower portion of the spine).
Function: These ligaments provide posterior support to the uterus and help anchor the uterus to the sacrum, preventing posterior displacement.
Clinical Relevance: These ligaments are involved in uterine prolapse and can sometimes be involved in pelvic pain syndromes or endometriosis when affected.

3.3.7. Cardinal (or Lateral Cervical) Ligaments
The cardinal ligaments (also known as lateral cervical ligaments) are fibromuscular structures that run from the lateral cervix (near the vagina) to the pelvic sidewalls.
Function: They provide lateral support to the uterus, holding the cervix in place. These ligaments are essential for preventing uterine prolapse by supporting the uterus and cervix.
Clinical Relevance: The cardinal ligaments are often affected in uterine prolapse and can be surgically reinforced in cases of pelvic organ prolapse.

3.4. Pelvic Floor Muscles and Connective Tissue: blue colour
The pelvic floor muscles and the pelvic diaphragm (including the levator ani muscles) contribute to support the uterus. These muscles create a strong foundation for the pelvic organs.

3.4.1. Levator Ani Muscles
The levator ani muscles (including the pubococcygeus, iliococcygeus, and puborectalis) form the pelvic diaphragm and support the uterus through their contraction and tone.
Function: These muscles support the uterus, bladder, and rectum and play a key role in continence and pelvic stability. The puborectalis muscle, in particular, helps maintain the anorectal angle for continence, and a well-toned pelvic diaphragm helps prevent uterine prolapse.
Clinical Relevance: Weakness or damage to the pelvic floor muscles (due to childbirth, age, or chronic pressure) can lead to uterine prolapse and urinary incontinence.

3.4.2. Perineal Body
The perineal body is a fibromuscular mass located between the vagina and anus, and it is connected to the pelvic floor muscles. It contributes to the stability of the pelvic floor.
Function: The perineal body serves as an anchor for several muscles, including the bulbospongiosus, external anal sphincter, and the transversus perinei.
Clinical Relevance: During vaginal childbirth, the perineal body can be injured (e.g. in perineal tears), leading to pelvic floor dysfunction and contributing to conditions like uterine prolapse and vaginal prolapse.

3.5. Fascia
Fascia refers to the connective tissue layers that help provide structure and support to the organs within the pelvis. Some important fascial structures that help support the uterus include:

3.5.1. Pubocervical Fascia
The pubocervical fascia is the connective tissue layer that provides anterior support to the uterus and vagina, helping to prevent cystocele (bladder prolapse) and uterine prolapse.
Clinical Relevance: Weakness or damage to the pubocervical fascia (due to childbirth or age) can lead to pelvic organ prolapse, including cystocele or uterine prolapse.

3.5.2. Rectovaginal Fascia
The rectovaginal fascia provides posterior support to the vagina and rectum, and it helps prevent rectocele (prolapse of the rectum into the vaginal canal).
Clinical Relevance: Damage to the rectovaginal fascia during childbirth or pelvic surgery can lead to rectocele, contributing to the overall pelvic organ prolapse syndrome.

3.5.3. Endopelvic Fascia
The endopelvic fascia is a connective tissue structure that lines the pelvic cavity and provides support to the pelvic organs, including the uterus.
This fascia is particularly important in the stability of the uterus and its relationship with the vagina, bladder, and rectum.
Clinical Relevance: Weakness or stretching of the endopelvic fascia can contribute to pelvic organ prolapse.

4. Retroperitoneal and Extraperitoneal Spaces
Surgical navigation within pelvic spaces requires knowledge of:
● The prevesical Space: The prevesical space of Retzius (Retropubic Space). Allows access to the bladder and urethra.
● Vesicovaginal and Vesicocervical space: Separates the bladder and anterior vaginal wall.
● Rectovaginal Space: Lies between the rectum and posterior vaginal wall.
● Presacral and Retroperitoneal Spaces: Contain lymphatic vessels and major neurovascular structures, often accessed during lymphadenectomy.

5. Conclusion
The intricate anatomy of the female pelvis requires precise knowledge and surgical expertise. A clear understanding of the relationships between pelvic structures, their neurovascular supply, and their support mechanisms is essential for successful gynecologic and pelvic surgeries. This anatomy's mastery enhances surgical efficacy and minimizes complications, ensuring better patient outcomes. Advanced imaging techniques and cadaveric studies continue to refine our understanding of pelvic anatomy, further improving surgical approaches and patient care.
Hence, revisiting and revising the surgical anatomy of the pelvis and perineum is an important component of surgical discipline.

6. References
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Dr Ishan Padore
MBBS MS (Gold medallist) DNB OBGY Ex senior resident BJ medical college and
Sassoon Hospital Pune

Pelvic Floor Disorders and Vaginal Repair Surgeries- An Overview

INTRODUCTION

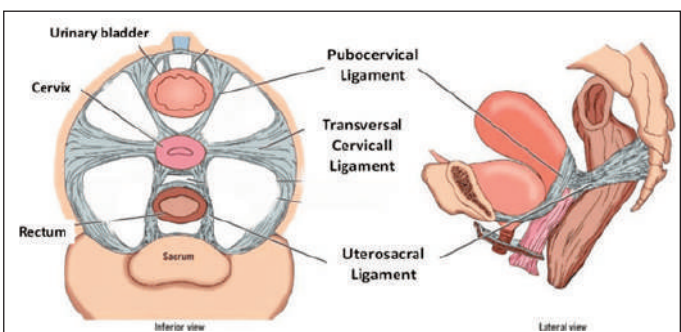
Pelvic organ prolapse is defined as the "descent of one or more of the anterior vaginal wall, the posterior vaginal wall, the uterus and cervix, or the apex of the vagina (vaginal vault or cuff scar after hysterectomy)," correlated with symptoms assisted by relevant imaging [1]. Pelvic floor disorders, although non-life threatening, can impose a significant burden of social and physical restrictions of activities, impact psychosexual wellbeing and overall quality of life. The prevalence of pelvic floor disorders in women was found to be around 23.7% which more than doubled in women 80 years or older, with 11 % requiring surgery [2]. The paucity of reported cases amongst those who seek help may result from a number of causes including embarrassment and misperceptions of available treatment options. With an ageing population, healthcare utilization for pelvic floor disorders including prolapse is predicted to grow posing significant challenges.

ETIOLOGY

In a vast majority of women who will develop pelvic organ prolapse, the process begins with their first vaginal birth and each subsequent vaginal delivery will contribute to the likelihood of a clinically symptomatic prolapse. Other factors work over time and contribute to the damage caused during childbirth. Prolapse is common with increasing age [2]. The atonicity and asthenia that follow menopause along with hypoestrogenic state and atrophic changes cause a generalized weakening of the pelvic tissue. Neuropathy of the pudendal nerve and myopathy of the levator ani muscles are significant factors. Other risk factors include- congenital weakness of pelvic floor muscles, obesity, smoking, constipation, chronic cough, history of hysterectomy and history of previous prolapse surgeries. [3]

PATHOPHYSIOLOGY AND SURGICAL ANATOMY

The human evolutionary transition from quadrupled ambulation to modern bipedal posture has brought about significant changes in the human pelvis and has resulted in the birth canal which was straight and horizontal in early mammals to become curved in humans [4]. The interactions between the pelvic floor, the pelvic floor muscles, fibromuscular connective tissue and intact innervation are key to maintaining support of the pelvic organs in their normal locations.



Supports of uterus ref- DC Dutta's textbook of Gynaecology

Delancey's biomechanical analysis of uterovaginal support (5) is as follows-

LEVEL I PROXIMAL SUSPENSION

Proximal or apical support is attributed to suspension by ligaments of the paracolpium primarily uterosacral ligaments. Damage to this level results in

- uterovaginal prolapse
-post hysterectomy vaginal vault prolapse
-Enterocoele (herniation of peritoneum and small bowel and is the only true hernia)

LEVEL II LATERAL ATTACHMENT

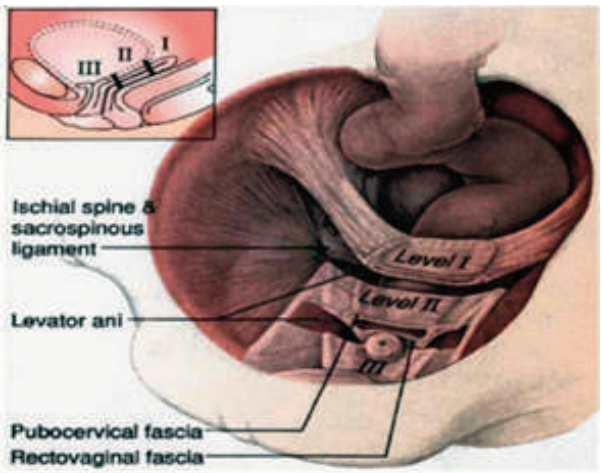
Midvaginal support is due to lateral attachment of fascial septa (arcus tendineus fascia pelvis and arcus tendineus fascia rectovaginalis) to pelvic sidewalls. Damage to this level results in

-pararectal and paravaginal defects

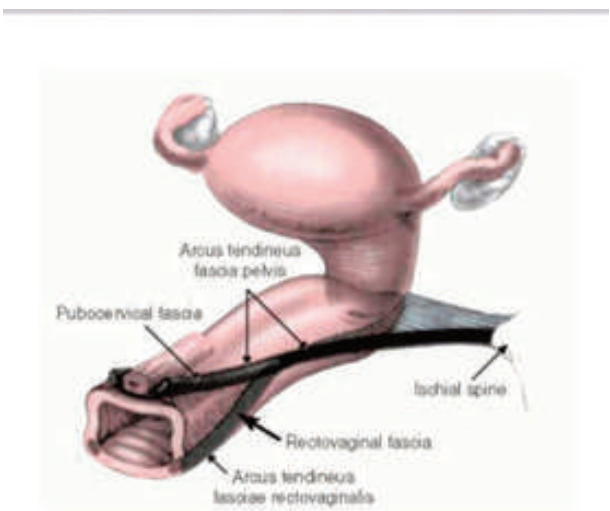
LEVEL III DISTAL FUSION

Distal support is attributed to fusion of deep endopelvic connective tissue to urogenital diaphragm anteriorly and proximal perineum pos-

teriorly. Damage to this level results in
- Urinary incontinence anteriorly
- Perineal body deficits and defecatory dysfunction



Ref- TeLinde's operative Gynecology



posteriorly

Cystocele (descent of urinary bladder) and rectocele(protrusion of rectum) were believed to be central defects in pubocervical and rectovaginal septa respectively but are now believed to be due to displacements of these septa originating at the margins of these structures.
Another concept is the suspensory axis of the uterovaginal axis. The posterior suspensory axis includes perineal body, rectovaginal septum, posterior peri cervical ring, uterosacral ligaments, and presacral periosteum. The posterior axis is the primary loadbearing structure of the uterovaginal complex. The anterior axis extends from the urogenital diaphragm, pubocervical septum, cervix and peri cervical ring merging with the posterior suspensory axis at the level of the ischial spines. The concepts of support and suspension help define the goals for reconstructive surgery.

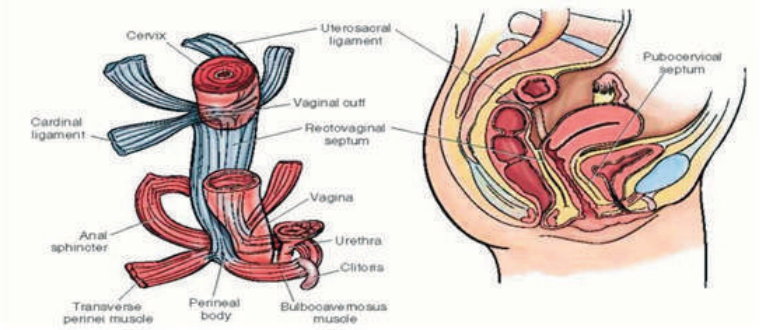
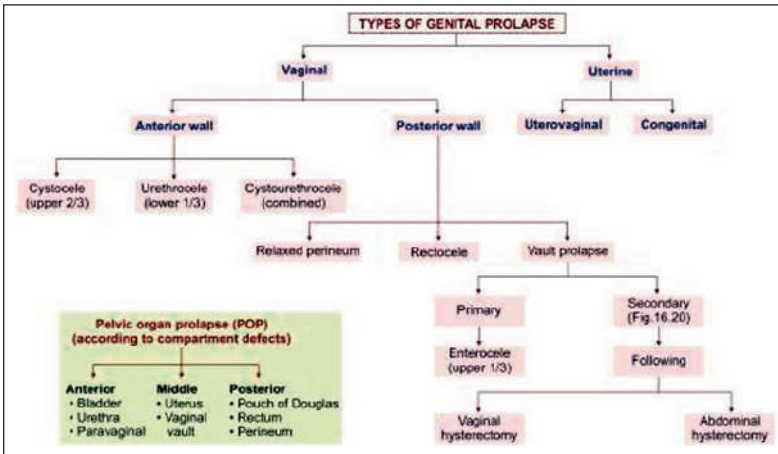


FIGURE 36.9 Suspensory axis of the uterovaginal complex.

Ref- TeLinde's operative Gynecology

Types of prolapse according to the compartment involved –



Ref- Dutta's textbook of gynecology

SYMPTOMS

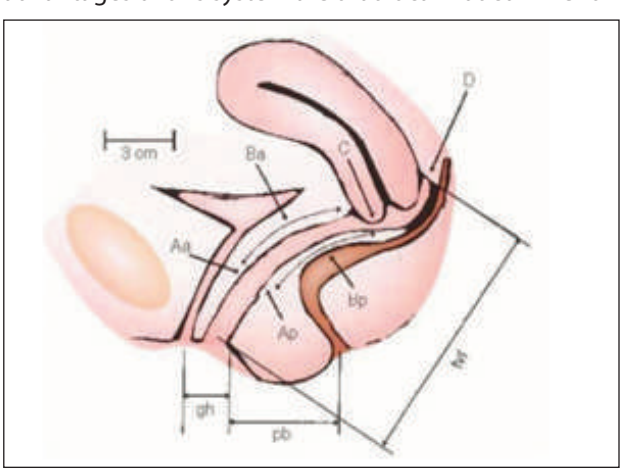
The progressive herniation of pelvic organs through the urogenital diaphragm leads to pelvic bulge symptoms. There can be pelvic pain, back pain, overall pelvic discomfort and dyspareunia. It is often accompanied by symptoms of voiding dysfunction including urinary incontinence, obstructive voiding symptoms, urinary urgency and frequency and at extreme, urinary retention and upper renal compromise with resultant pain

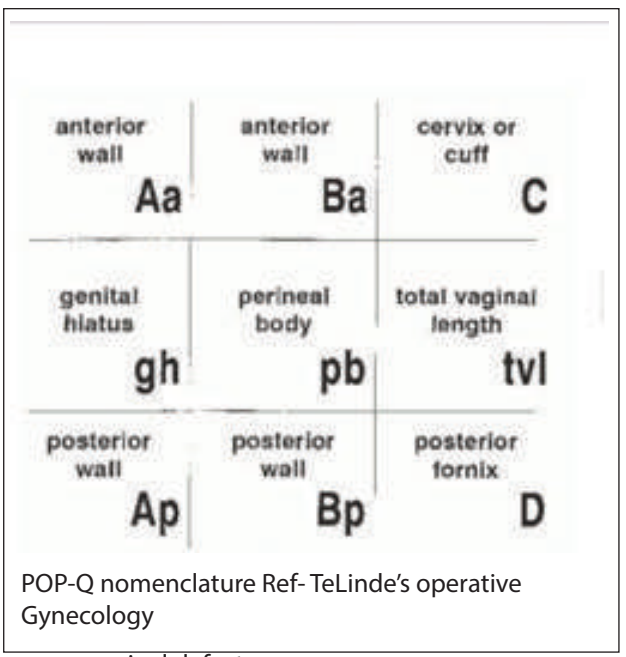
or anuria. Other symptoms include defecatory problems like constipation, diarrhea, tenesmus, fecal incontinence. In most cases there can be some degree of vaginal discharge. A decubitus ulcer can cause discharge and bleeding. Coital difficulties with third degree uterine prolapse and procidentia as it prevents penetration and orgasm due to a lax outlet.

CLINICAL EVALUATION

We must undertake a thorough history and physical examination in patients of pelvic floor disorders. A careful micturition, defecation and sexual history is invaluable in deciding the treatment plan.

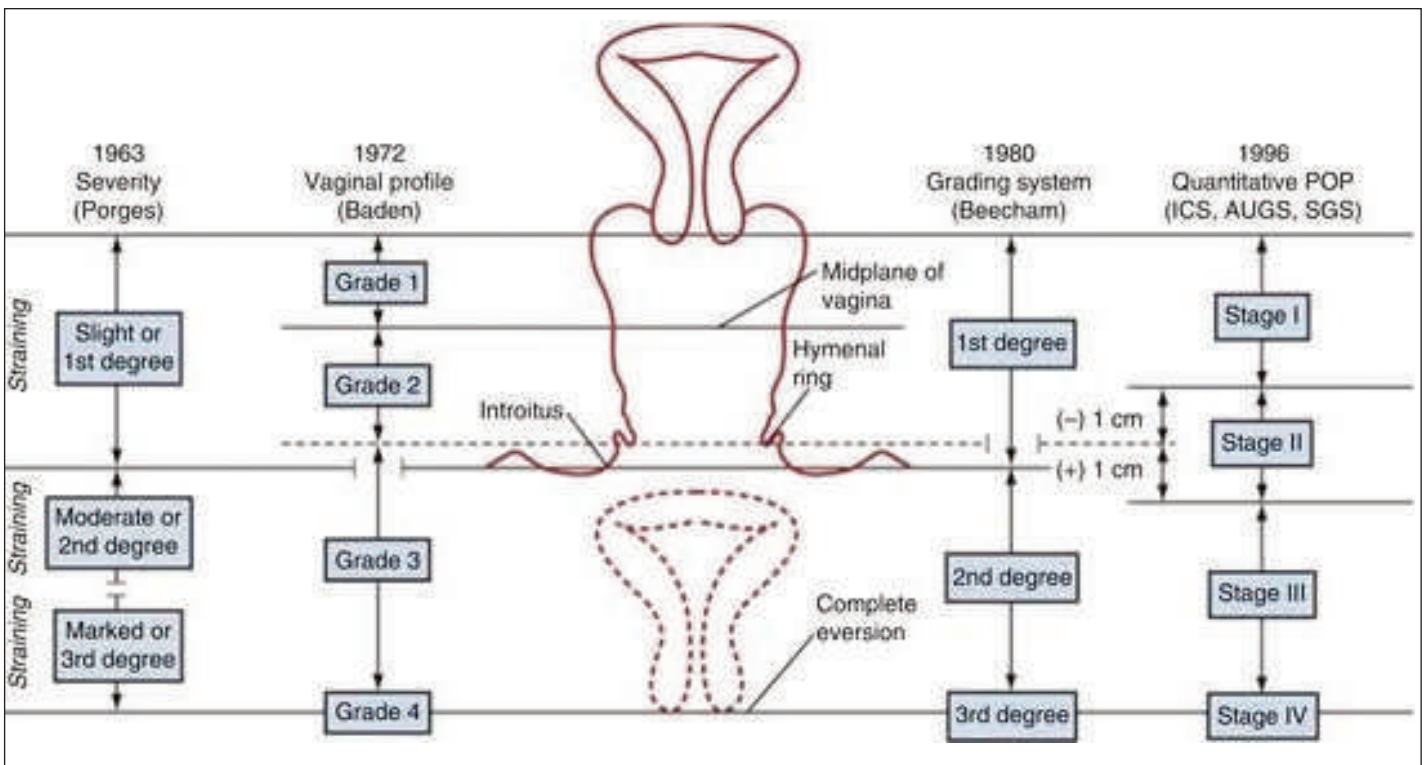
It is particularly useful to divide the pelvis into compartments during pelvic examination. Patient is encouraged to perform Valsalva so full extent of prolapse can be ascertained. Various systems are available for the staging prolapse like Shaw's, Baden Walker Halfway and Jeffcoat's. The system approved by the International Continence Society is the Pelvic Organ Prolapse Quantification system or POP-Q [6]. The classification uses six points along the vagina (two points on anterior, middle and posterior compartments) measured in relation to the hymen. The anatomic position of the six defined points should be measured in centimeters proximal to the hymen (negative number) or distal to the hymen (positive number) with the plane of hymen representing zero. The genital hiatus (gh) is measured from the middle of the external urethral meatus to posterior midline hymen. The perineal body (pb)is measured from the posterior margin of the genital hiatus to mid anal opening. The total vaginal length(tvl) is the greatest depth in the vagina in centimeters when the vaginal apex is reduced to its full normal position. All measurements except the (tvl) are measured during maximal straining. The advantage of this system is that it allows the use of a standardized technique with quantitative measurements at straining relative to a constant reference point-hymen and tits ability to assess the prolapse at multiple sites. The disadvantages of this system are that it cannot comment on paravaginal defects.





POP-Q nomenclature Ref- TeLinde's operative Gynecology

The pelvic muscle function should be assessed by bimanual examination in the lithotomy position and assessing the puborectalis and pubococcygeus muscles along the pelvic side walls at 4'o and 8'o clock positions [7]. A rectovaginal examination should be performed to assess the basal and contraction muscle tone of the anal sphincter complex. A rectal examination and transillumination test will also help to differentiate between a rectocele and enterocoele. Objective information about the bladder and urethral function as a part of office cystometrics like clean catch urine, post void residual volume and assessment of bladder sensation can be performed. Q tip test for urethral hypermobility- Goniometer is used to measure the baseline urethral angle and maximum strain angle of urethra with a cotton tip. [8] Local examination of the vulva and vaginal mucosa to look for any keratinization, pigmentation or ulceration should be done. Cervical cytology should be obtained. decubitus ulcer (due to venous stasis and congestion) must be differentiated from cancer of the cervix. neurological evaluation – sacral wink test, bulbocavernosus reflex and anal wink test completes the examination. Diagnostic imaging of the pelvis for POP is not routinely performed but trans perineal and vaginal ultrasounds can reveal defects in levator ani muscles and lateral supports whereas transrectal ultrasound can confirm enterocele. Defecography for suspected cases of rectal mucosal prolapse and IVP for ureteric obstruction.



DIFFERENTIAL DIAGNOSIS [9]

- Vulval cyst and Gartner cyst . the cyst of the anterior vaginal wall is usually tense with well defined margins and cannot be reduced on pressure
- Urethral diverticulum are rare , always small and are situated low down in the anterior vaginal wall . diagnosed with urethroscopy
- Congenital elongation of the cervix has deep fornices with no accompanying prolapse and elongated vaginal portion of cervix.
- Cervical fibroid polyps cervix is high up in normal position
- Chronic inversion . uterine sound will confirm diagnosis. Ultrasound and laparoscopy will identify fundal depression
- Rectal prolapse

PREVENTIVE STRATERGIES [9]

The list of contributing causes to pelvic organ prolapse is varied and prevention should begin early in a woman's life and is to be continued into the later years.

- Antenatal physiotherapy, relaxation exercises and attention to weight gain as well as correction of anemia
- Proper supervision and management of second stage of labor
- A perineal tear must be immediately and accurately sutured
- Post natal exercises and physiotherapy
- Early postnatal ambulation
- Provision of adequate rest for first 6 months after delivery. Avoid heavy work
- A reasonable interval between pregnancies allowing recovery of pelvic musculature

TREATMENT

Approximately 10-20% of symptomatic women seek help with both conservative and surgical interventions showing improved quality of life [10]. Choice of treatment depends upon the severity of symptoms, the degree of prolapse, the patient's general health and the level of activity.

NON SURGICAL THERAPY

A non-surgical treatment approach is usually considered in women with mild to moderate prolapse, those who desire preservation of future childbearing, those in whom surgery may not be an option or those who do not desire surgical intervention. The goals of conservative therapy approach are as follows [11]

- Prevent worsening prolapse
- Decrease the severity of symptoms
- Increase the strength, endurance and support of pel-

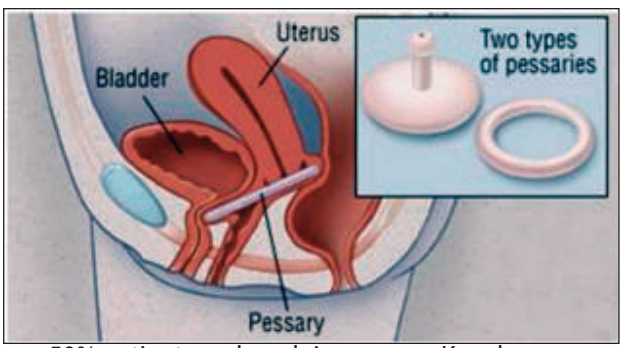
vic floor musculature
• Avoid or delay surgical intervention

1. PELVIC FLOOR MUSCLE TRAINING

Pelvic floor muscles are straited muscles and thus can be trained. Popularized as Kegel's exercises these are home based, self-done which involve contracting and relaxing the pelvic floor. Kegels exercise HAS TO BE TAUGHT NOT TOLD to patient. exercise can be done in the sitting, standing or lying down position. PFMT may limit the progression of mild prolapse and related symptoms , however a lower response rate has been noted when prolapse extends beyond the vaginal introitus .[12]

Mistakes to be corrected

- Concentrate and tighten only pelvic floor muscles
- Do not tighten leg muscles , thighs, buttocks or abdomen
- Do not hold your breath .



- 50% patients end up doing reverse Kegels

Benefits of Kegels

- Improved bladder control
- Increased pelvic organ support
- Enhanced sexual function
- Beneficial during and after pregnancy

NICE recommends at least 16 weeks of PFMT for stage 1 and 2 of prolapse and 3 months for stress urinary incontinence. Personalized guidance under a pelvic physiotherapist provides sustained and longer lasting results by ensuring compliance.
Other modalities to aid in identification of pelvic floor active involvement of patient include
• electric stimulation of pelvic floor
• Vaginal cones and
• biofeedback therapy for some patients with rectocele and impaired defecation [13]

2. MECHANICAL DEVICES

The pessaries provide pelvic organ support within the vaginal vault. Two categories of pessary exist -support and space filling. Traditionally the ring and other support pessaries are used for stage I and stage II prolapse, whereas the space filling are used for stage III and stage IV. [14] The patient should be examined in the lithotomy position after emptying the bladder. When fitted the patient is asked to stand, perform Valsalva, and cough to ensure pessary is retained. The patient should be instructed to clean the device every 2-3 days. After fitting, the patient should return in a week, then at 4-6 weeks depending on her proficiency in placement and removal and her cognitive and mental abilities. On follow up visit, proper placement of the pessary, support of prolapse and continence efficacy should be ensured.

VAGINAL REPAIR SURGERIES

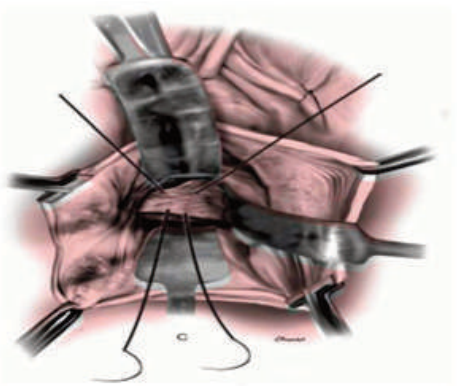
About 11-19% of patients will undergo surgery for prolapse by age of 80 about 30% will require an additional surgery. [2] The primary aim of surgery is to relieve

symptoms, which may be caused by prolapse and in most cases, to restore the vaginal anatomy so that sexual function may be maintained or improved without significant adverse effects or complications. In general, surgery should be offered to patients who have tried conservative management and were not satisfied with the result or who do not desire conservative therapy. The goal of defect specific pelvic reconstruction surgeon is the restitution of the anatomical corrections of the peri cervical ring within the interspinous diameter. Approaches to surgery include vaginal, abdominal and laparoscopic routes or a combination of approaches. Concomitant surgery may be planned for urinary or fecal incontinence. The surgical route is chosen based on type and severity of prolapse, the surgeon's expertise, the patient's preference and the expected or desired surgical outcome Procedures for prolapse can be broadly categorized into three groups
(1) reconstructive which use the patients endogenous support structures (native tissue repair)
(2) compensatory (augmentation) which attempt to replace deficient support with permanent graft material
(3) obliterative which close or partially close the vagina

VAGINAL PROCEDURES
THE APICAL COMPARTMENT
Apical support is key to a successful prolapse repair. Multiple studies demonstrate that the apex descends with the anterior compartment and that the correction of the anterior wall without the apex increases the risk of recurrent prolapse. Transvaginal repairs include extraperitoneal procedures like sacrospinous suspensions, iliococcygeal suspensions and high paravaginal suspensions of the apical vaginal fornices to the arcus tendinous at the level of the ischial spine or the endopelvic fascia and intraperitoneal suspensions like the uterosacral suspensions and McCall culdoplasty.
The number of women favoring uterine preserving is increasing. About 36-60% would decline a hysterectomy and opt for uterus preserving options.

Manchester Operation
Manchester operation is a uterus conserving vaginal procedure for uterovaginal prolapse first described in 1888. It includes cervical amputation and anterior colporrhaphy and was later modified to include plication of cardinal ligament and attachment to amputated cervix [15].Shirodkar modification includes plication and advancement of uterosacral ligaments without cervical amputation.

Sacrospinous ligament fixation
The fixation of the vaginal apex to the sacrospinous ligament , the tendinous component of the coccygeus muscle was described in 1958 and subsequently modified. Access is traditionally extraperitoneal via the rectovaginal space with penetration of the pararectal at the level of the ischial spines to expose the muscles

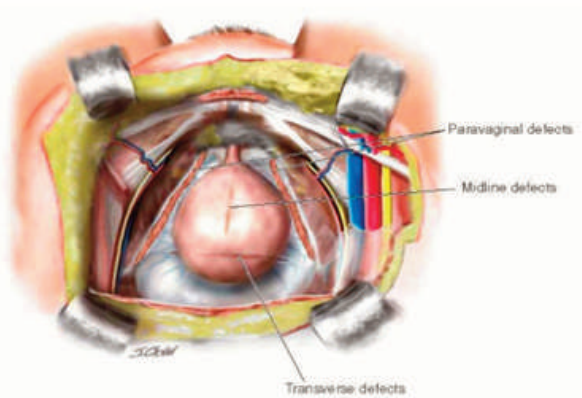


sacrospinous ligament fixation ref -telinde's operative gynecology

and ligaments.
Iliococcygeal Vaginal suspension
Iliococcygeal vaginal suspension involves the attachment usually bilateral of the vaginal apex to the iliococcygeal muscle and fascia
Uterosacral ligament suspension
A therapeutic procedure in which the vaginal apex is suspended to the uterosacral ligaments above the level of the ischial spine. Due to high chances of ureteral kinking (11%), intraoperative cystoscopy is a must.

THE ANTERIOR COMPARTMENT
The international continence society defines anterior wall defects as the descent of the anterior vagina so that the urethovesical junction or any other point on the anterior vaginal wall is less than 3cm from the hymenal ring.(16)
Site-specific defects — Four anatomic sites of anterior vaginal support abnormalities were originally described by Richardson in 1976.[17]
Midline – Midline defects (also referred to as central) arise from vertical defects in the endopelvic fascia (Musculo connective tissue) extending anteriorly to posteriorly. They often interrupt support of the urethrovesical junction, contributing to urethral hypermobility and stress urinary incontinence.
Paravaginal – Paravaginal defects (also referred to as

lateral) result from detachment of the lateral vaginal wall from the arcus tendineus fascia pelvis.
Transverse – Transverse defects occur when the pubocervical fascia separates from its insertion into the ring of connective tissue around the cervix and uterosacral ligaments, creating a transverse support defect and loss of the anterior fornix of the cervix.
Distal – Distal defects are the least common forms of anterior vaginal wall defects. They are due to a break in the fibromuscular support of the anterior vaginal wall,

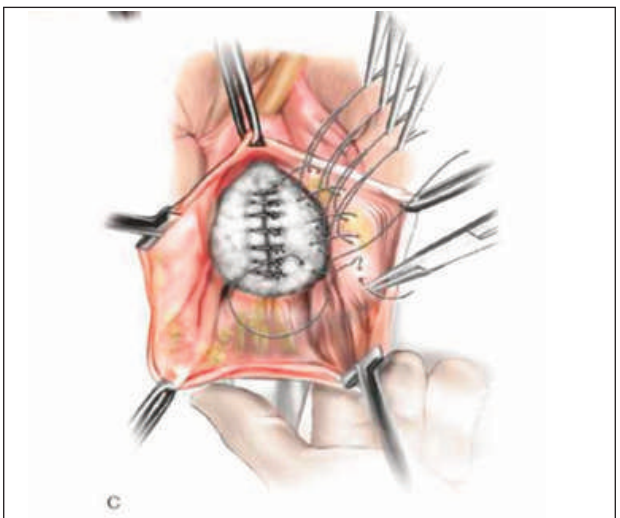


The anterior compartment defects ref -telinde's operative gynecology

just before the insertion into the pubic symphysis.

Anterior vaginal colporrhaphy

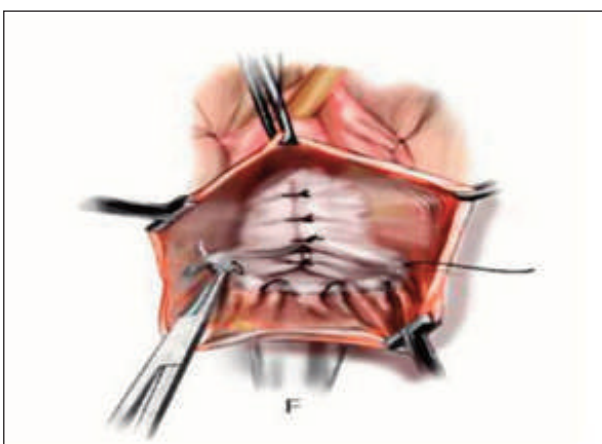
Following dissection of the vesicovaginal spaces, Excision of the weak vaginal wall and an imbricating closure of the defect may be performed . if the patient has significant stress urinary incontinence an appropriate incontinence procedure may be performed simultaneously.
Paravaginal or lateral defect repair involves reattachment of the anterior lateral vaginal sulcus to the obturator internus fascia and in some cases to the muscle at

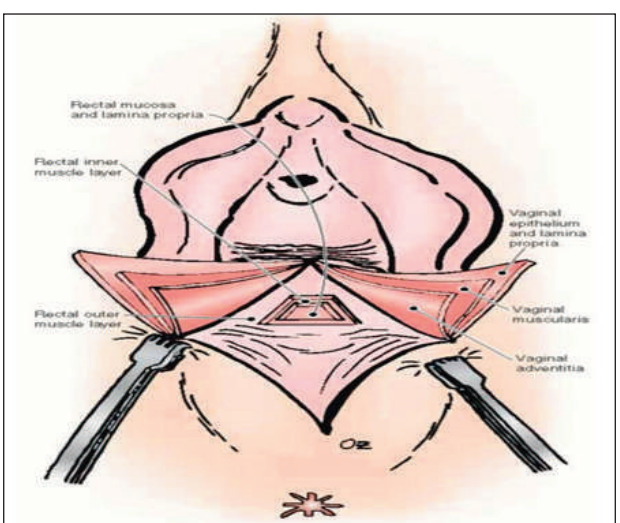

paravaginal repair

the level of the arcus tendineus pelvis/ White line.

THE POSTERIOR COMPARTMENT

Traditional posterior colporrhaphy
It involves plication of the pubococcygeus muscle and reconstruction of the perineal body. The Denon Villiers fascia is mobilized from the vaginal epithelium, defects in the rectal muscularis are repaired and fascia is plicated with sutures. The superficial muscles of the perineum and bulbocavernous fascia are plicated and skin closed in an episiotomy repair. De novo dyspareunia is reported in 8-26% of sexually active patients who have


anterior vaginal colporrhaphy Paravaginal repair



The posterior compartment ref – TeLinde's operative gynecology

traditional posterior colporrhaphy.[18]

Defect specific posterior repair

These are restorative procedures where the objective is to establish an intact plane of connective tissue that positions the rectum against the pelvic floor and obliterate any potential space in between.

Trans anal posterior repair

Performed by colorectal surgeons only for defecatory dysfunction to remove or plicate redundant rectal mucosa, to decrease the size of the rectal vault or to plicate the rectal muscularis.

Transvaginal mesh procedures

The use of bridging material to reinforce native structures(19). An ideal graft material should be non-antigenic, exhibit a low infection rate, decrease or negate recurrence of anatomic defects, cause no harm with respect to bowel or renal function and be relatively inexpensive. Graft materials include autologous tissue, cadaveric allografts and fascia, dermis and other connective tissue, xenografts from animal sources and various synthetic materials. Autografts, allografts and xenografts depend on adequate tissue growth from the subject and may have higher failure rates as compared to synthetic whereas synthetic ones are more exposed to erosions and exposure leading to discharge, pain , bothersome sexual dysfunction with vaginal scarring. Only monofilament and type 1 synthetic mesh are available for POP use in united states.

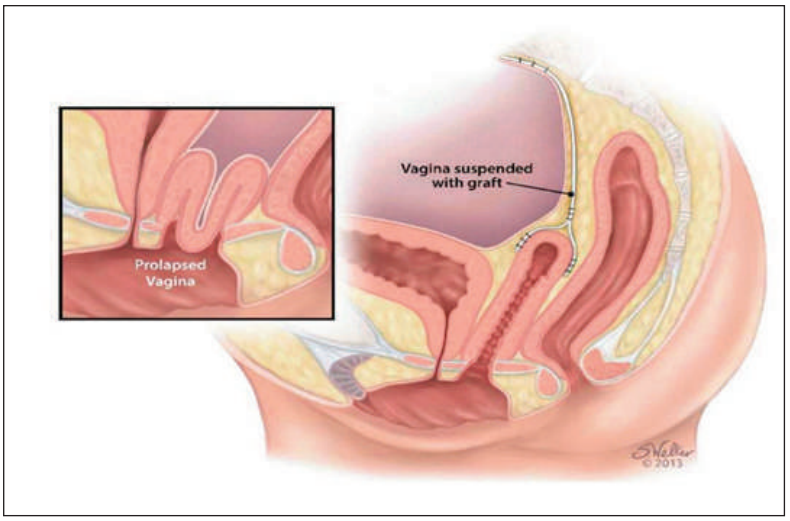
ABDOMINAL PROCEDURES.

Abdominal uterosacral suspension

It has been used prophylactically after hysterectomy and therapeutically for apical prolapse with cardinal/ uterosacral defect in which a suture is placed cephalad and the same level posterior as the ischial spines. Cystoscopy is performed after the procedure to document ureteral patency.

Abdominal sacrocolpopopexy

These procedures use graft material attached to the prolapsed region of the anterior and posterior vaginal walls at or encompassing the vaginal apex and suspended to the anterior longitudinal ligament. Potential advantages of this approach over transvaginal procedures include less paravaginal scaring and denervation and fixation of of the entire vaginal apical area to a stable structure which may be more durable. Complications include erosions, hemorrhage, postop ileus, small bowel obstruction , intra-abdominal adhesions and wound complications.



Laparoscopic and robotic techniques

Robotic and laparoscopic routes has the potential to offer patients of less post operative discomfort, faster recovery, and potentially lower risks of adhesions and ileus .

Abdominal sling surgeries for nulliparous prolapse – Indian Contributions[20]

In India , 1.5-2% of prolapse occur in nulliparous women and 5-8% are seen in women with low parity. The etiology is the weakness of pelvic support system and not obstetric injury. Typically ,there is no supravaginal cervical elongation. Indian gynecologists have

Virkud classification of sling operations

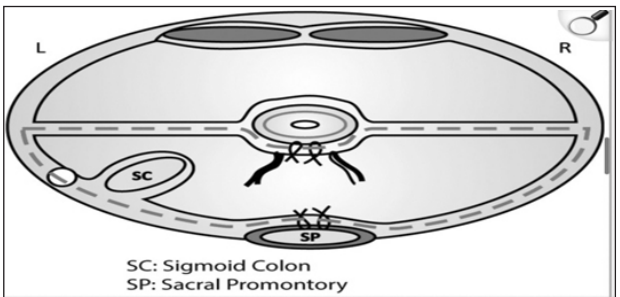
Shirodkar's sling	Static, closed loop, posterior sling operation
Purandare's cervicopexy	Dynamic, closed loop, anterior sling operation
Khanna's sling	Static, open, neutral sling operation
Virkud's composite sling	Static + dynamic, open, anterior + posterior sling operation
Sonawala's sling	Static, open and unilateral posterior sling
Joshi's sling	Static, closed loop, anterior sling operation

Ref- Virkud A. Conservative operations in genital prolapse.J Obstet Gynaecol india 2016 ;66(3):144-148

developed have developed many simple and effective sling surgeries for these cases.

Shirodkar sling- 1958

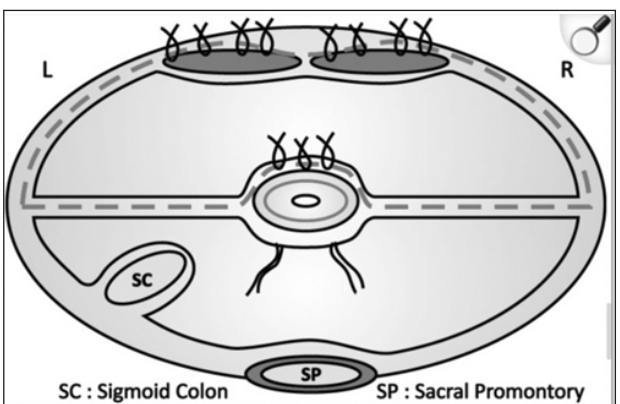
One end of mersilene tape is attached to anterior longitudinal ligament and then passed sub peritoneally along right pelvic wall between two leaves of the broad ligament and transfixed to isthmus posteriorly. It passes posteriorly through the left broad ligament



Purandare cervicopexy -1965

then through a psoas loop, through the sigmoid mesentery back to sacral promontory where it is fixed.

Dr B.N Purandare used rectus sheath strips as sling material which was modified by dr VN Purandare and DR



Khanna sling 1972

Pravin Mhatre who used mersilene tape to isthmus posteriorly instead of anteriorly.

Ends of tape are attached to anterior superior iliac spines

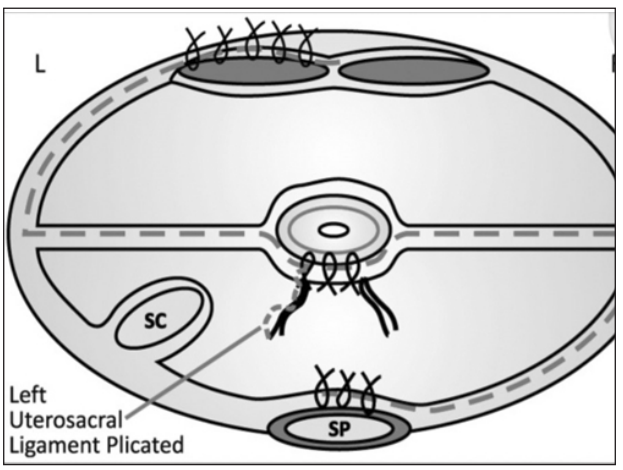
Soonawala sling

Dr. RP Soonawala advises only a right sided posterior sling as in Shirodkar's sling to avoid the risks of passing sling on left side

Joshi sling 1993 a technique described by dr Vivek Joshi from Pune where uterus is suspended from the pectineal ligaments on either side

Virkud sling 1999

The tape is fixed to anterior longitudinal ligament passed sub peritoneally along right side and fixed to the isthmus posteriorly at level of uterosacral ligaments. The tape is then passed between the two leaves of the broad ligaments piercing the transversalis fascia at the internal inguinal ringand passed medially



between the anterior rectus sheath and rectus muscle where it is fixed to rectus compartment.

Repair of cystocele and rectocele can be combined with sling operations but the repair must be done before the sling surgery . sling operations can be performed endoscopically .[20]

VAGINAL OBITERATIVE PROCEDURES

Colpocleisis or vaginal narrowing procedures may be appropriate choices for the debilitated patients who do not desire vaginal function , because complete vaginal reconstructive procedures are longer and are associated with potentially higher blood loss and increasing mortality . many variations exist from partial colpocleisis (where some portion of the vaginal epithelium is left to provide drainage tracts for cervical or upper genital discharge) to total colpectomy(where all of the vaginal epithelium is removed from the hymen posteriorly to within 0.5 to 2cm of external urethral meatus anteriorly).

Older less healthy individuals who are more likely to have surgical and medical complications and cannot or will not tolerate a e pessary would derive greater benefit from transvaginal approaches and as indicated obliterative approaches and relatively healthy, sexually active women with relatively short vagina and apical prolapse would derive greater benefit from sacrocolpopexy.

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Redefining the Art of Non-Descent Vaginal Hysterectomy

Dr Madhu Juneja
Director OBGY & IVF,
MOMStory, Pune

Dr Sarita Kakatkar
Senior Consultant,
Pune

Hysterectomy remains one of the most common major surgical procedures for women, with the choice of surgical route profoundly impacting patient outcomes. Non-Descent Vaginal Hysterectomy (NDVH) has long been recognized for its minimally invasive benefits. However, its adoption has been paradoxically limited in the modern era, often superseded by abdominal and laparoscopic approaches
The integrity of the pelvic floor has to be maintained for any art or skill a surgeon performs while doing an NDVH and/or TLH. If not, post-op problems like bladder dysfunction or prolapse will be apparent. One can do it mechanically or design it with optimal use of technique and available resources, as illustrated in the article. This is a study of 20 cases (with fibroids and/or adenomyosis) adenomyosis performed in perimenopausal women over 36 months, and each case was different in itself. The analysis after 36 months demonstrates that NDVH consistently offers superior perioperative outcomes like shorter operative times, less blood loss, lower complication rates, and shorter hospital stays. The postoperative secondary vault prolapse or dyspareunia common after vaginal surgery is not seen in the current study conducted
We deconstruct the technical barriers traditionally associated with NDVH, such as large uterine size due to fibroid or adenomyoma and/or limited visualization, and present a compendium of advanced surgical techniques, including uterine morcellation, modified lithotomy, and modern energy sources, that effectively neutralize these challenges. Furthermore, we advocate for a paradigm shift towards objective patient selection using the SLOPE score to maximize success and minimize conversion rate into laparotomy or abdominal surgery.

INTRODUCTION: THE RESURGENCE OF THE ORIGINAL NATURAL ORIFICE SURGERY

The evolution of vaginal hysterectomy is a testament to the relentless pursuit of reduced surgical morbidity. NDVH is the essential natural orifice surgery, a scarless procedure leveraging the vagina as a natural surgical corridor. This article posits that the "art" of NDVH is not a static relic of a pre-laparoscopic era but a dynamic and evolving discipline. The cumulative evidence from numerous comparative studies and meta-analyses paints a clear picture of NDVH's advantages in perioperative outcomes, patient recovery, and cost-effectiveness. This makes NDVH an especially remarkable advantage for patients who are obese, elderly, or medically debilitated1.
The procedure is almost extraperitoneal, with minimal opening of the peritoneum and significantly less handling of the intestines. [2] This contributes to lower postoperative pain scores, reduced blood loss, and a more rapid return of normal bowel function. [2] Complications such as haemorrhage, hematoma, and injury to the bladder, ureter, and bowel are encountered less frequently 3 Furthermore, NDVH can often be performed safely and effectively under regional (spinal) anaesthesia, avoiding the risks associated with general anaesthesia. Finally, the advantages in cosmesis and cost are unequivocal

AIM:
Redesigning steps of NDVH for safe, uncomplicated surgery with optimal time and minimal blood loss.

INDICATIONS:
All the women in proposed study had fibroids or adenomyosis in the perimenopausal age group, bothering their quality of life. The study was done on 20 subjects over 36 months.
Once hysterectomy was decided, all the patients were subjected to evaluation on the basis of the SLOPE score.

- S – Size
- L – location of fibroid
- O—Obliteration of pelvic fascia
- P – Parity of woman

• E – Evaluation of cervix

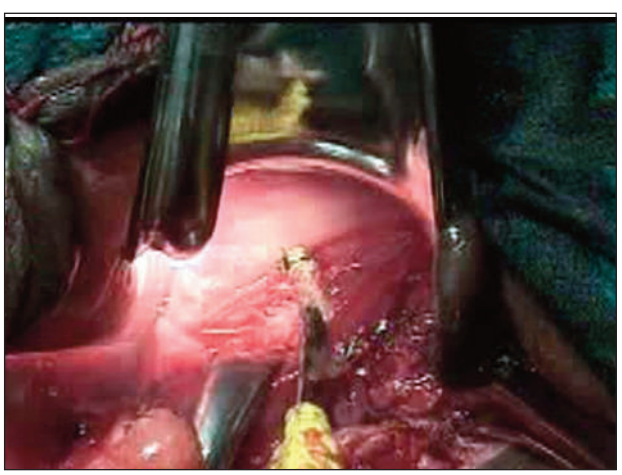
A score less than 4 usually is an easy operation; a score of 4-8 needs skilled art; and a score more than 8 is TRIAL NDVH or open surgery as decided on the table. We use SLOPE for grading all our non-descent hysterectomies. Here, out of 20, six had scores less than 4, 12 had scores between 4 and 8, and two had scores more than 8. The two with scores more than 8 were converted to open surgery. The first case had a 16-week uterus with previous caesareans and extensive adenomyosis, and the second one had a 12-week uterus and an 8 cm central cervical fibroid.

METHODOLOGY

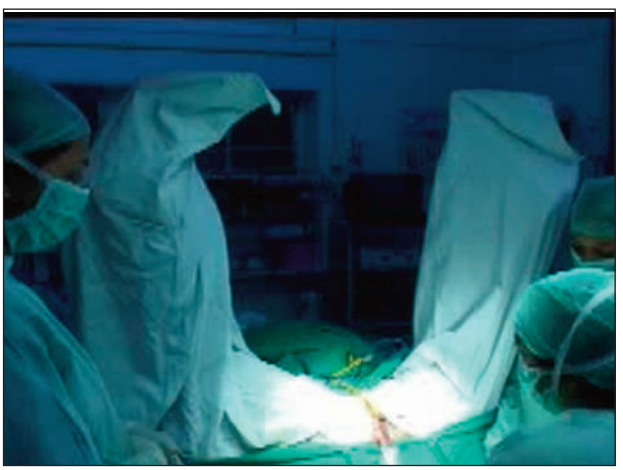
Our method of NDVH considered the different modifications, which are discussed in detail. The standard protocol, like lithotomy, circumferential incision, opening pouches, serial clamping, cutting, and transfixion, has to be altered because of the enlarged uterus and narrow vagina.

The fear that the vagina is a blind pouch or the uterine volume is more than the orifice creates a problem for removing the specimen. At times, high ligation is a problem due to space constraints. We have hereby considered a few modifications that have confidently made us perform surgeries quite successfully. Different accepted methodologies are explained here in detail

- The cold light source can be attached to a Sims speculum or bladder retractor, which improves the vision, especially above the ischial spine, which is otherwise a dark field to work in. More or less, it gives a comparative feel of laparoscopic fibre optic cable illumination. (Fig. 1)



Starting with tailored modified lithotomy, all the patients are given flexion and adduction at the hip and extension at the knee. This not only gives better illumination of the operative site, but it also makes good participation of the assistant by better visualization.

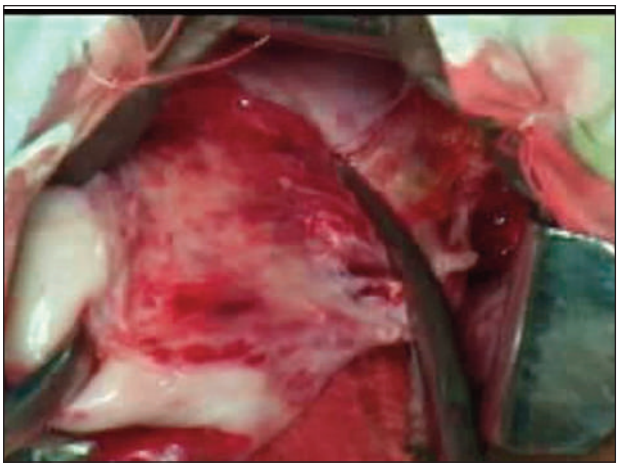


Careful padding and attention to nerve protection are paramount. (fig. 2).

We know that normally the cervix is at the level of the ischial spine when there is no descent. If we can operate at a lower level, it becomes easier for us, for this technique involves holding the two lips of the cervix, followed by massaging from the right fornix to the left through the posterior fornix. It will increase the descent of the cervix by 1 cm, which gives the technical advantage. Now the circumferential incision is taken. separate bladder anteriorly and rectal mucosa posteriorly. If possible, both; if not, at least one pouch should be opened. While opening the anterior pouch, the concept of the lateral window was applied.

- The regular usage of Sims to retract the posterior vaginal wall is replaced in our cases by giving a head low and packing with sponge. This not only replaces space-occupying metal, it also reduces the electric trauma to the post wall. The usage of sponges and lateral retractors simplifies the task. For good haemostasis during the surgery, the usage of suction evacuation has been of great help.

Cutting and transfixation in NDVH are altered. Clamps are used for transfixation. Monopolar current was used for cutting and separation in all our cases. This cooks up the vessels & minimizes the blood loss. We have used monopolar current over bipolar. and the transfixation technique is suitably modified. knot was placed laterally as the blood supply went from lateral to medial.



All the clamps should be applied, cut, and transfixed under vision. To enable this, we have to reduce uterine volume. The procedure applied for this is bisection of the uterus.
Intra-myometrial coring was used in one case. This elegant technique transforms the geometry of a bulky, globular uterus. After securing the uterine vessels, the surgeon makes a circumferential incision into the myometrium, deep to the serosa. This effectively "cores out" the bulk of the uterine muscle, converting a wide, spherical structure into a more manageable, elongated, rod-shaped one. This change in shape greatly facilitates its delivery through the vaginal canal. 11 It should be performed preferably after securing uterine arteries
Because of space constraints, a small curved needle of 31 mm Vicryl is used. The method of conventional transfixation is suitably modified.
Usually, the vaginal closure is done transversely; in our study, we closed it antero-posteriorly to restore the vaginal length. The vaginal packing is done for all our cases and removed on the second day; however, we have kept the vagina partially open in 2 cases, because of anticipated bleeding, by underrunning the vaginal wall. Primary healing starts at 24 hours, and there is no collection in the dependent area.
The catheter is removed after urine routine to look for RBC after 48 hours

RATIONALE AND PARAMETERS:
In the patients who underwent NDVH, key parameters that influence surgical difficulty were reconsidered. These include uterine mobility, vaginal accessibility (width at the apex), uterine size, presence and severity of endometriosis, the need for adnexal surgery (adnexectomy), a history of previous lower-segment Caesarean sections (LSCS), and the presence of adhesions indicated by puckering of the Pouch of Douglas.

DISCUSSION
Vaginal hysterectomy appears difficult because of space constraints. An enlarged irregular uterus is more problematic. Preoperative SLOPE score application helps evaluate all these points in better surgical planning. In the current study, 2 cases were expected to have difficulty, so the preparations were done accordingly. This helps in optimizing surgical duration, blood loss, and less anaesthesia duration too.
During surgery, modified lithotomy makes surgical manipulation easy and makes the assistant more participative since the visualization is better. Subtle differences in the application of uterosacral and uterine clamping avoid accidental slipping of clamps and subsequent bleeding. The transfixation is also modified depending on the right and left of the patient. Instead of conventional transfixation, selective transfixation is done on the lateral side to occlude the blood supply completely. In cases with adenomyosis, the pedicle becomes too thick, and clamp application is difficult, but when debulking in the centre is done, clamps can be applied easily.
Despite If there is unexplained ooze (not a bleeder) from the pedicles clamped, simply take running sutures starting from the upper broad ligament to the uterosacral. There is further modification at the broad ligament clamping, while suturing the broad pedicle is tied as a whole and not divided into two parts.
Care is taken to avoid the accidental slipping of the round ligament or the tubes.
This in turn improves surgical outcome.
Not to forget, lithotomy plays a crucial role in surgical ease.
Improving descent of the cervix helps further during surgery.
Proper illumination with a fibre optic source attached to the retractor is helpful to detect bleeders.
There is use of monopolar cautery throughout, which minimizes blood loss and is used in place of a scalpel or scissors.
But the most important step is bisection. Morcellation is an accepted concept in minimally invasive surgery, but in the present study, we are doing it through or around the uterine cavity, for which bisection is done. It is the simplest surgical step with maximum advantages. A few precautions are mandatory. It is done with monopolar current to minimize blood loss.
Open the anterior pouch while bisecting the anterior

wall and posterior wall for posterior wall bisection, preferably after uterine ligation. Bisection basically improves the visibility of pedicles. A bulky uterus interferes with surgical manipulations. The volume can be reduced by myomectomy or morcellation through the bisected uterus. Volume reduction reduces trauma to the pelvic floor and its blood and nerve supply. This will reduce postoperative bladder dysfunction and any kind of prolapse. In the current study, none of the patients had this problem.
It does not need any sophisticated instrument or advanced training. If monopolar cautery is not available, it can be done even with a scalpel or scissors. Under vision transfixation minimizes blood loss. If you antici

pate more oozing, the vagina may not be totally closed. Partial closure allows the blood to drain out Suturing the vaginal mucosa from posterior to anterior helps in the restoration of vaginal length, and in turn there is no postoperative dyspareunia.

CONCLUSION

NDVH is naturally orifice-safe surgery.
SLOPE score assessment and simple variation in conventional vaginal hysterectomy steps can improve the surgical outcome of NDVH.
To emphasize here, bisection of uterus has been a lifesaver while making the total surgical comfort all the more. The bisection is done after opening at least one pouch. It is done with monopolar current. Bisection can be of only the anterior or only the posterior or of both the walls. This helps in manipulation to improve the visibility, and it also helps for myomectomy or coring. While doing bisection, care must be taken not to bisect the uterus completely to maintain the anatomy.
To conclude, it's not the comeback; it's redefining the art of NDVH for a semi-skilled artist.

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Sacrospinous Ligament Fixation

Prof Dr Sameer Darawade
Professor, SKN Medical College

Dr. Sharvari Pote
MS, Obgy, Resident

Dr. Nikita Medankar
MS, Obgy, Resident

Introduction

Sacrospinous ligament fixation (SSLF), introduced in the 1950s and refined by Nichols and Randall, is now widely regarded as a standard surgical method to re-establish apical vaginal support in women experiencing pelvic organ prolapse, especially vaginal vault prolapse. The procedure involves anchoring the vaginal apex (or uterus, if retained) to the sacrospinous ligament—a strong fibrous structure in the pelvis. Typically, it is performed vaginally using native tissue techniques and avoids synthetic mesh. Most procedures are unilateral and often use the right sacrospinous ligament.

Surgical Approaches

Approach selection depends on the nature and location of the prolapse:

1. Anterior Approach:

Used for anterior defects; involves making an anterior vaginal incision and entering the paravesical and pararectal spaces.

2. Posterior Approach:

Ideal for posterior compartment defects with apical descent; begins with a posterior vaginal wall incision extending into the pararectal space.

3. Via Vaginal Cuff:

Used when apical prolapse predominates, particularly in vault prolapse cases.

Most procedures are extraperitoneal, though intraperitoneal access may be encountered in cases involving enteroceles.

Indications

- Vault prolapse post-hysterectomy
- Uterine prolapse (when uterus is preserved)
- Combined anterior/posterior wall defects
- Preventive support during vaginal hysterectomy

Anatomy and Relations

The sacrospinous ligament is a true pelvic ligament extending from the ischial spine to the sacrum. It is covered by the coccygeus muscle, forming what is sometimes called the coccygeus-sacrospinous ligament (CSSL) complex.

Important neurovascular structures surround this area:

- Posterior to ischial spine: Pudendal nerve and vessels
- Superior to ligament: Inferior gluteal vessels, sciatic nerve, hypogastric venous plexus
- Anterior surface: Nerves to coccygeus and levator ani muscles from the sacral plexus

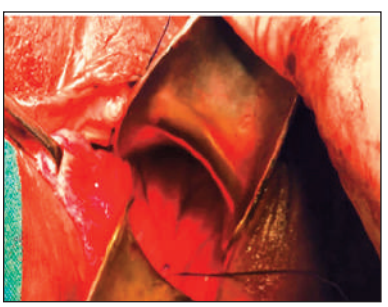
To avoid complications, sutures should be placed in the middle third of the ligament—steering clear of the medial part (S4 root) and the lateral edge (pudendal neurovascular bundle).

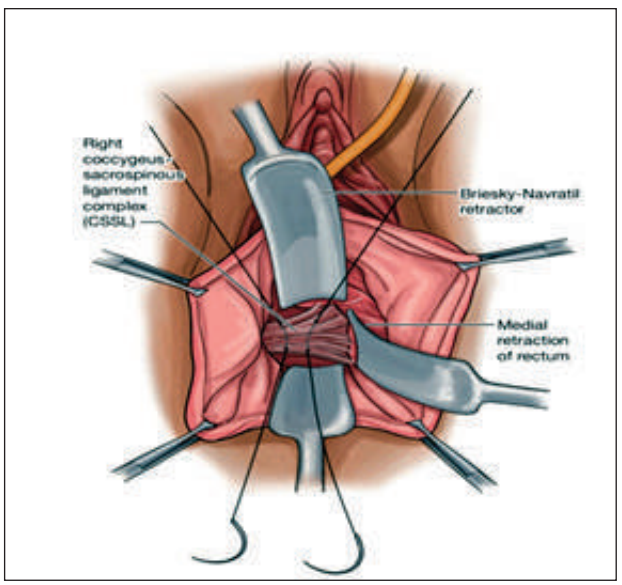
Surgical Technique

Under spinal anesthesia, with the patient in lithotomy position:

- Vaginal hysterectomy is first performed (if indicated), followed by any necessary anterior repair.
- A longitudinal posterior vaginal incision is made extending to the apex.
- Dissection is carried out to reach the left pararectal space using finger dissection to identify the ischial spine.
- The sacrospinous ligament, a glistening white band medial to the spine, is identified.
- Two Sims retractors aid in visualization.
- A suture (No. 1 Prolene on RB needle) is placed approximately 2 cm medial to the ischial spine to avoid neurovascular injury.
- The single loop suture is split to create two anchoring points.
- After enterocele repair and cuff closure, the sutures are tied, approximating the apex to the ligament.

Healing results in fibrous fusion between the ligament and the vaginal apex.





Complications

• Buttock pain: Usually self-limited; resolves within 6 weeks
• Severe neuropathic pain: Requires urgent evaluation and possibly suture removal
• Hemorrhage: Can occur from the hypogastric plexus or pudendal/inferior gluteal vessels
• Rectal injury: Requires layered closure
• Hematoma: May need packing or drainage if infected

Outcomes and Success Rates

• Anatomic success: High; anterior wall recurrences (3.7%–28.5%) are more frequent than apical (0.6%–19%)
• Reoperation rate: Usually under 9%, but may reach 30–37% in some series
• Comparison: Comparable success (~80–85%) with ileococcygeus suspension
• New variants: Bilateral and high fixation techniques are emerging for recurrent prolapse.

Conclusion

Sacrospinous ligament fixation remains a reliable, mesh-free, vaginal approach to restoring apical support. Success depends on a thorough understanding of pelvic anatomy, precise dissection, and awareness of adjacent neurovascular structures.

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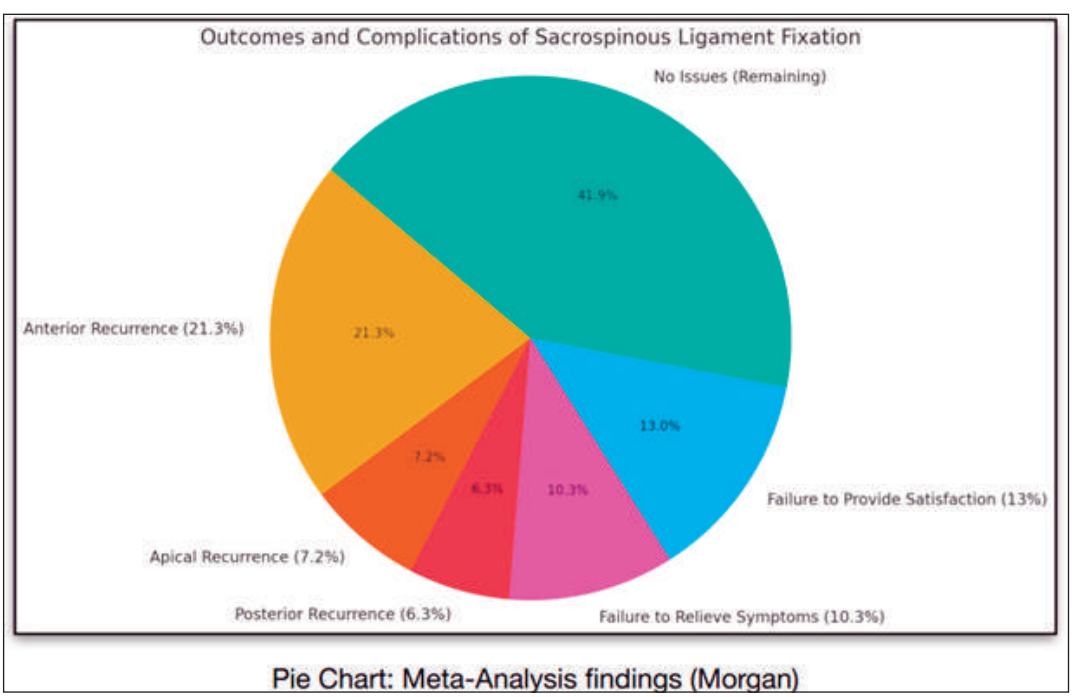

Pie Chart: Meta-Analysis findings (Morgan)

Dr Swetha Karlapudi
Consultant Obstetrician and gynecologist Sanjeevani Hospital Hadapsar Pune

PRP Therapy in Recurrent Vaginitis and Vaginal Atrophy

Platelet-Rich Plasma (PRP) therapy is one such cutting-edge, non-hormonal option used in the management of recurrent vaginitis and vaginal atrophy, especially in menopausal women or those who cannot take hormone therapy.
PRP involves injecting a concentration of a patient's own platelets to regenerate and rejuvenate the vaginal mucosa, reduce infections, and improve symptoms like dryness, itching, and burning.

Indications
- PRP is recommended in the following conditions:
- Recurrent fungal/bacterial vaginitis
- Genitourinary Syndrome of Menopause (GSM)
- Vaginal atrophy and dyspareunia

Mechanism of Action
PRP is rich in growth factors that promote tissue regeneration:

Growth Factor	Action
PDGF	Stimulates fibroblasts & collagen synthesis
VEGF	Increases blood supply (angiogenesis)
TGF-β	Reduces inflammation & supports remodeling
EGF	Enhances epithelial healing

These work synergistically to restore vaginal health, reduce recurrence, and improve local immunity.

Preparation of PRP
(As followed at Sanjeevani Hospital – Aseptic, Standardized Protocol)
1. Blood Draw: 10–20 ml of venous blood collected into citrate tubes.
2. Centrifugation:
First Spin (soft): 1500 rpm × 10 mins
Second Spin (hard): 3500 rpm × 10 mins
3. PRP Separation:
Supernatant PPP discarded
PRP layer (1.5–3 ml) extracted for injection

Injection Protocol at Sanjeevani
Position: Lithotomy
Sites: Vaginal walls, introitus, vestibule
Anesthesia: Topical lignocaine
Technique: 27G needle, or insulin syringe microinjections intramucosally
Frequency: 2–3 sessions at 4–6 week intervals

Clinical Outcomes
(Based on latest studies and our patient feedback at Sanjeevani)
- Outcome Percentage Improvement
- Relief from dryness/itching 82–88%
- Lubrication & comfort 75–85%
- Infection recurrence reduction 65–78%
- Patient satisfaction >90%
- Histological improvement Confirmed in biopsy studies.

Advantages of PRP at Sanjeevani Hospital
- Autologous – No allergy risk
- Safe for hormone-sensitive patients
- OPD-based, quick recovery
- Long-lasting results (6–12 months)
- Cost-effective vs. Laser treatments

Possible Side Effects
- Mild swelling or spotting (resolves in 24–48 hours)
- Extremely rare infection (due to sterile protocol)
- No systemic side effects

Comparison Table

Therapy	PRP	Estrogen Cream	Vaginal Laser
Hormone-free	✅	❌	✅
Suitable for CA breast	✅	❌	✅
Treats infections	✅	❌	❌
Duration of relief	6–12 months	Requires regular use	12–18 months
Used at Sanjeevani	✅	✅	On selected cases

Conclusion

PRP therapy represents a safe, natural, and effective solution for vaginal rejuvenation.
At Sanjeevani Hospital, we have seen significant improvement in women suffering from
chronic vaginitis and vaginal atrophy. This technique has not only helped avoid repeated
antibiotic use and hormone dependence, but also restored comfort, confidence, and quality of life in many women.

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Dr. Sandeep Bhat
MD, DNB OBGY
Director, Bhat Clinic,
Chinchwad, Pune

Perineal Tear

INTRODUCTION

Perineal Tear is vaginal injury that occurs during child birth when the tissue separating the vagina and anus tears. Superficial minor tears may require no treatment.

- Role of water birth and labouring in water has been suggested that they may soften the tear and/ or reduce the risk of tear. However its role is controversial.

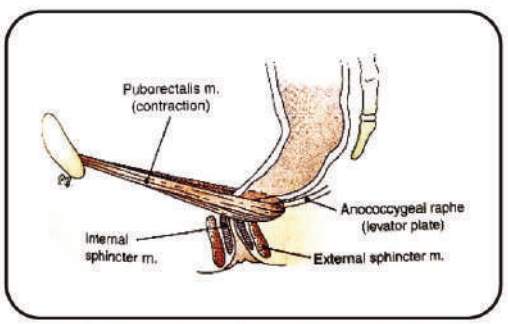


Fig. 1 : Tone of the puborectalis muscle pulls the anorectal junction anteriorly to create an approximately 90-degree angle between the rectum and anal canal

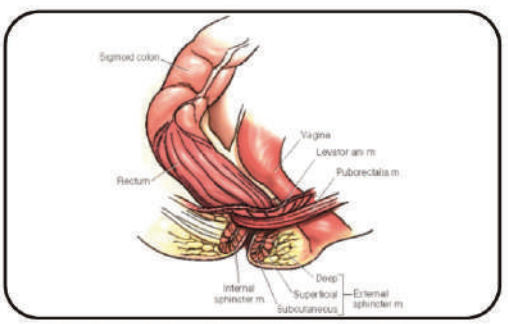


Fig. 2 : Relation of anal sphincter in relation to other structure of the female pelvic floor

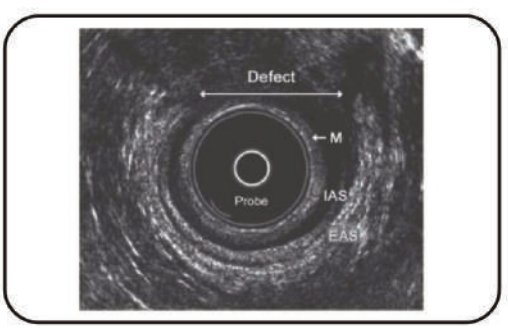


Fig. 3 : Trans Rectal sonography showing torn anal sphincter from 11 o'clock to 2 o'clock position

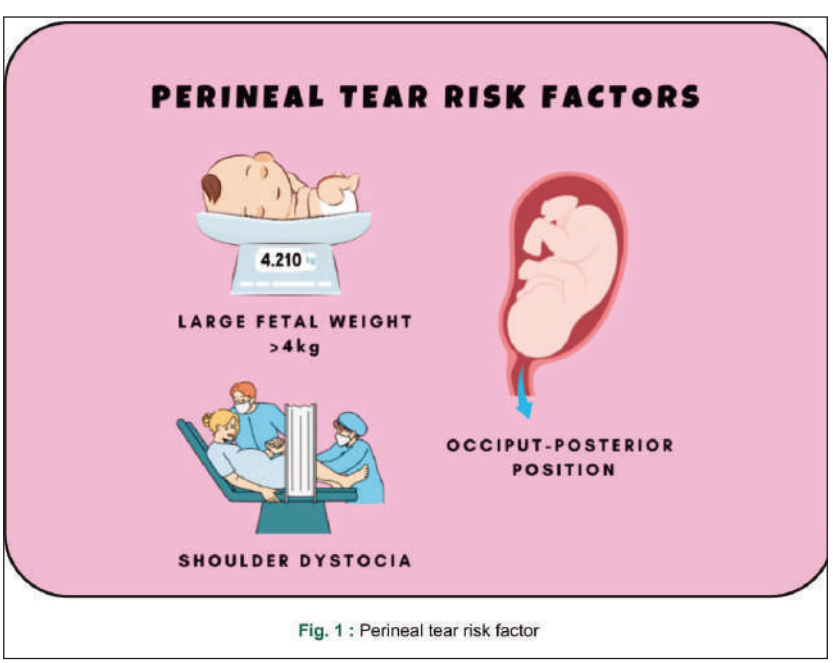


Fig. 1 : Perineal tear risk factor

PREDISPOSING FACTORS FOR PERINEAL TEAR

1) Nulliparity
2) Birth weight greater than 4 kg.
3) Shoulder dystocia.
4) Occipito - posterior position (Face to pubes delivery)
5) Prolonged second stage of labour.
6) Instrumental delivery
7) Rectal buttonhole can occur in bold deep episiotomy. If rectal bulb is anterior.
8) Precipitate delivery.

SULTAN'S CLASSIFICATION

1] First Degree Tear :-
- Injury to perineal skin & / or vaginal mucosa.

2| Second Degree Tear :-
- Injury to perineum involving perineal muscles but not involving the anal sphincter.

3] Third Degree Tear :-
- Injury to perineum involving the anal sphincter Complex :-

1) Grade 3a tear - EAS thickness torn.
2) Grade 3b tear - More than 50% of EAS thickness torn.
3) Grade 3c tear - Both EAS & internal anal sphincter IAS torn.

4] Fourth Degree Tear :-
Injury to perineum involving the anal sphincter complex (EAS & IAS) & anorectal mucosa 1" & IV" degree perineal tear are termed as OASIS (Obstetric Anal Sphincter Injuries)

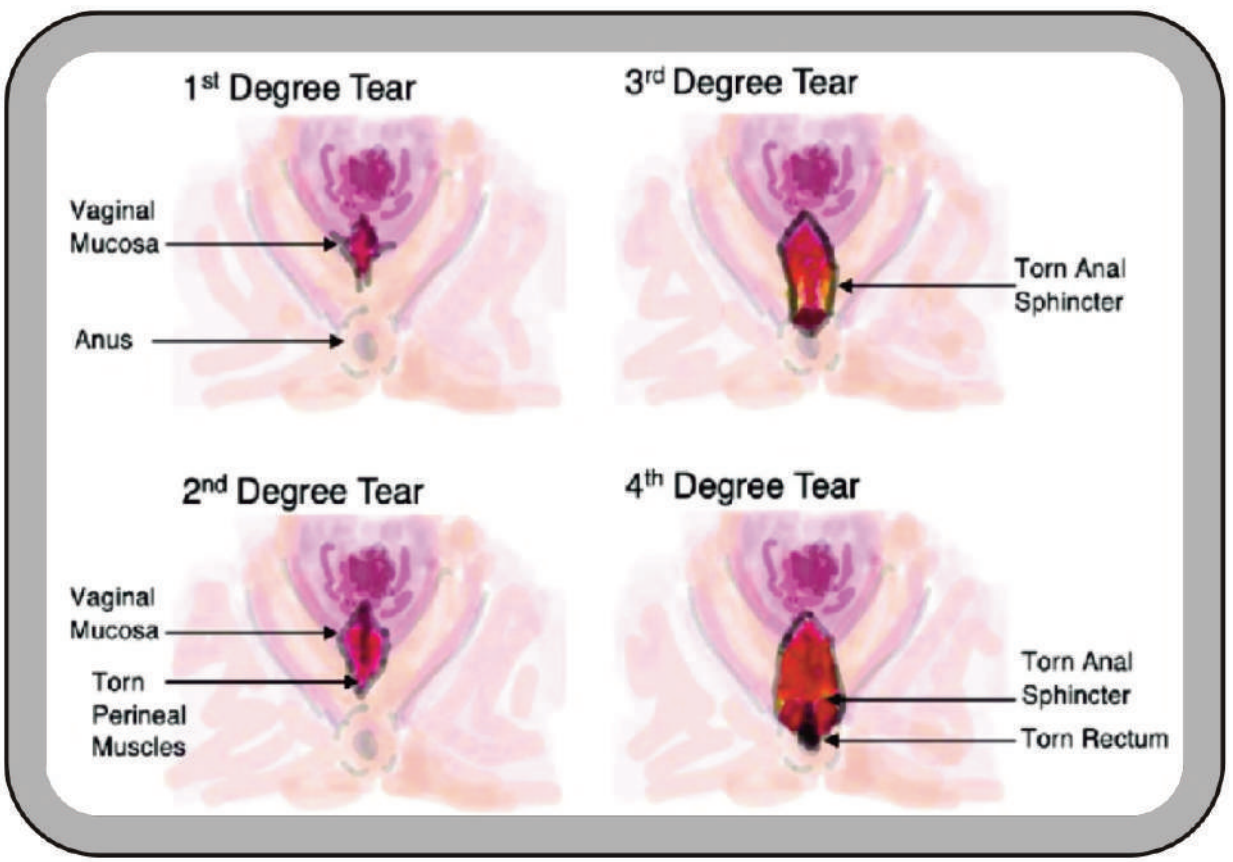


Fig. 1 : Sultan's Classification

RECTAL BUTTONHOLE TEAR

- If the tear involves the rectal mucosa but the anal sphincter is intact, it is by definition not a Fourth- degree tear .
- This has to be documented as a rectal buttonhole tear. If not recognized and repaired this type of tear may lead do a Recto-vaginal Fistula.

M PREVENTIVE MEASURES FOR PERINEAL TEAR

1) Mediolateral Episiotomy should be given at 60° at the time of crowning of head. So that after the delivery of baby it comes at 45°.
2) Warm Towel should be held near the posterior Fourchette at the time of delivery of head.
3) Ritgens' shoud be practised at the time of delivery of head to protect perineal injury.
4) Perineal massage antenataly decreases the incidence of perineal tear.
5) Historically Episiotomy used to reduce the perineal tear.

* A systematic digital Rectal examination should be done as a routine prior to episiotomy suturing to detect buttonhole injury at rectum.

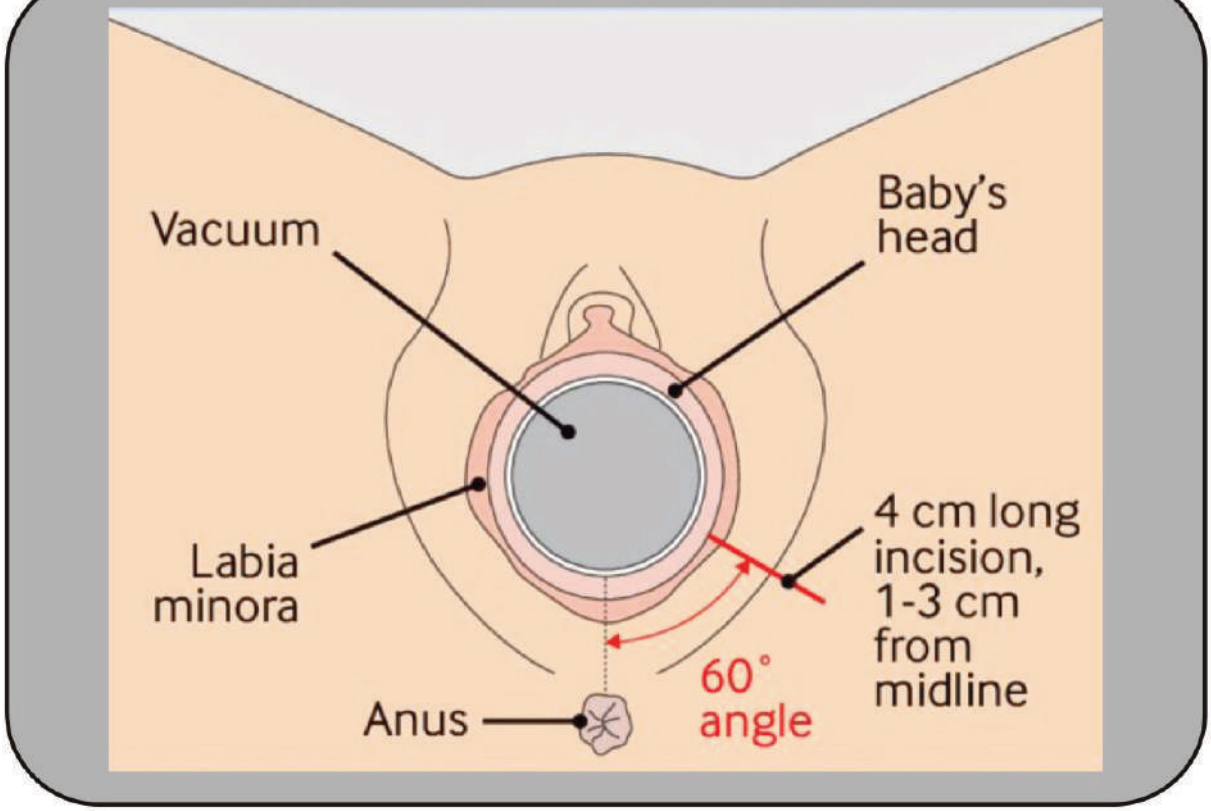


Fig. 1 : Mediolateral Episiotomy given at 60°

COMPLICATIONS

11" & IV" degree Perineal tear may cause
1) Faecal urgency
2) Faecal incontinence
3) Chronic perineal pain
4) Pain with sex (dysparenua) and
5) Fistula formation (RVF)

Recto-vaginal Fistula (RVF) can be repaired by using 'Martius Graft" In this procedure labial pad of fat is interposed between the repaired vaginal mucosa
and rectal mucosa and chances of failure of Recto-vaginal Fistula are minimized.

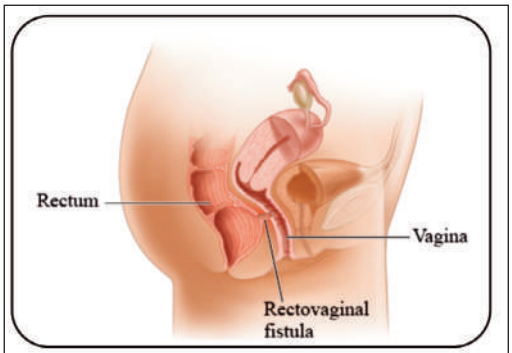


Fig. 1 : Recto-vaginal Fistula (RVF)

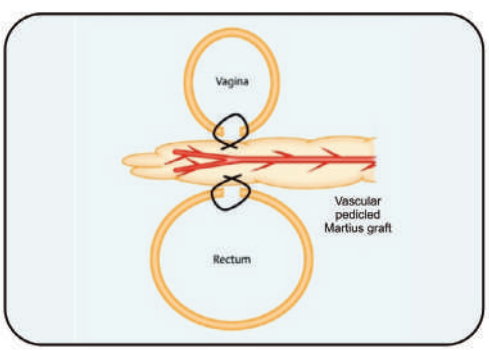


Fig. 2 : Recto-vaginal Fistula (RVF) can be repaired by using 'Martius Graft'

REPAIR OF PERINEAL TEAR

- I Degree perineal tear should be left alone if they are not bleeding . They tend
to heal spontancously. 1" degree tears are sutured only if they are bleeding
- 11 ™ Degree perineal tears are sutured like episiotomy and doesn't need
elaboration
- Repair of 111 "and IV " degree perineal tears are clubbed as OASIS
(Obstetric Anal) Sphincter injuries) proper training showed be imparted to
junior doctors to handle these injuries.

THE TWO COMMON OPERATIONS FOR OASIS

1) Warren Flap Technique with inverted 'V' incision.

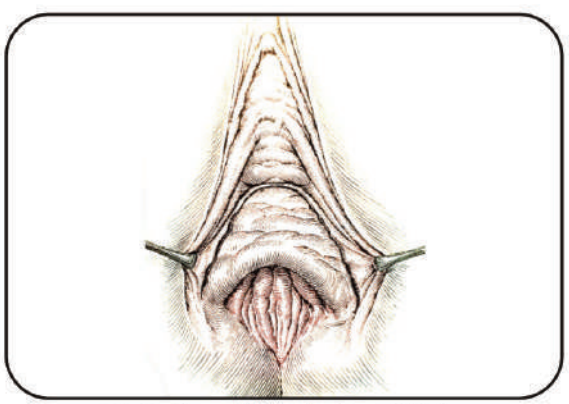


Fig. 1 : Warrens flap method inverted U flap

2) Noble's operation with butterfly incision' on perineum.

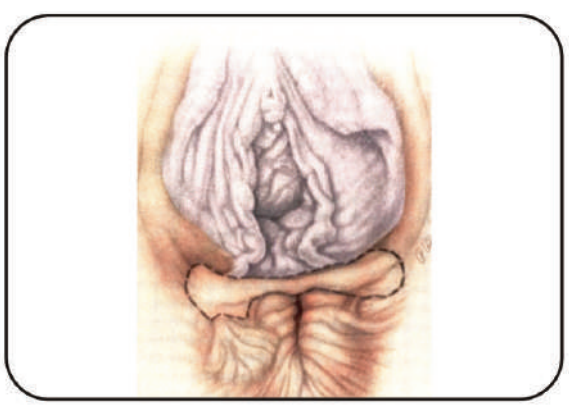


Fig. 2 : Nobel's butterfly incision for perineal repair

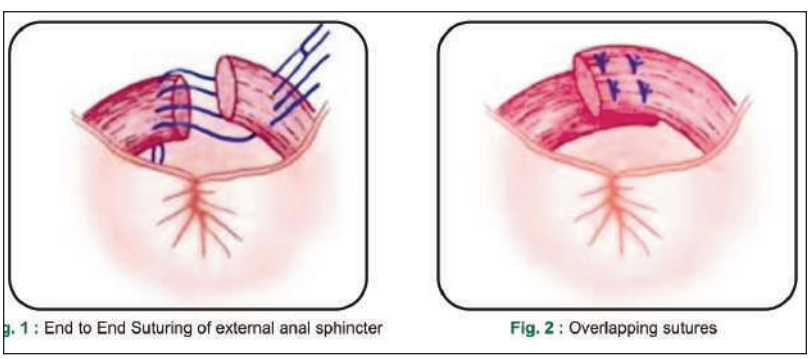
3) Tissue Transposition - Gracilis muscle, sartorius muscle and Gluteus muscle is swung around anal canal.

PRINCIPLES OF OASIS REPAIR ARE AS FOLLOWS

Rectal Mucosa is sutured with 3-0 or 4.0 vicryl with non locking sutures. If interrupted sutures taken the knot of stitch should not be in the lumen.
IAS (Internal Anal sphincter) is long and thin and maintains the tone of the rectum. It is identified by pulling the EAS (Externa Anal sphincter) medially IAS lies supero lateral to EAS. 1.7 cm of EAS overlaps IAS. IAS always be sutured end to end with 3-0 PDS or vieryl.

BEAS IS SUTURED BY 2 WAYS

1) End to end.
2) Overlapping sutures.
Rest of the sutured are like a routine episiotomy.



g. 1 : End to End Suturing of external anal sphincter

Fig. 2 : Overlapping sutures

POST OPERATIVE CARE

A) Foley's catheter is introduced for 24 hrs as these is retention due to severe pain.
B) Stool Softeners are given to avoid straining.
C) NSAID'S
D) Opoid Analgesics ,are avoided as they cause Constipation.
E) Sitz bath is given as it increases the blood supply to perineum and healing is faster.
F) Follow up is advised after 6 weeks ofd ischarge.
G) Patient is advised to do kegel's exercise to regain the tone of anal Sphincter.
Patient should be counselled for elective Caesarean section during next pregnancy.

MANAGEMENT OF BUTTONHOLE TEARS

Buttonhole tear is a type of RVF (Recto-vaginal fistula). It is a challenging complication with unsatisfactory successwith significant burden on the patient. Obstetric Trauma accounts for 85% of RVE. As the commonly say 'Bad obstetrics leads to good gynaecological practice'. However OASIS are unavailable in certain circumstances.

THE OTHER CAUSES OF RVF ARE POST SURGERY LIKE LAR SURGERY OF ENDOMETRIOSIS:

- Prolapse surgery
- Forceful intercourse.
- Foreign body in rectum
- Pelvic eradication.
- Infection of anal gland and Bartholin abscess.

I have personal experience of treating 28 cases of RVF with Martius Graft with good success rates.

STEPS

A) Transverse incision between posterior vaginal wall and rectum.

B) Labial pad of fact is harvested from above downwards from labia majora and is positioned between vagina and rectum. This vascular bridge between the repaired tissues promotes healing of the repaired defect.

BENEFITS OF MARTIUS GRAFT

1) Enhanced healing
2) Reinforcement
3) Low Morbidity
4) Surprisingly cosmetic incision becomes inconspicious.

STEPS OF MARTIUS OPERATION FOR RVF

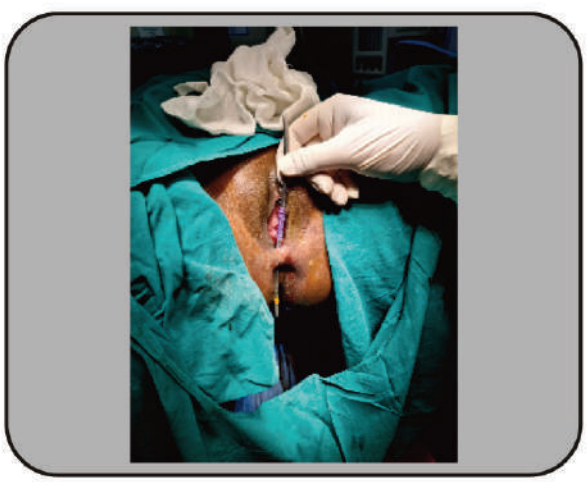


Fig. 1 : Steps of Martius Operation For RVF First Slide

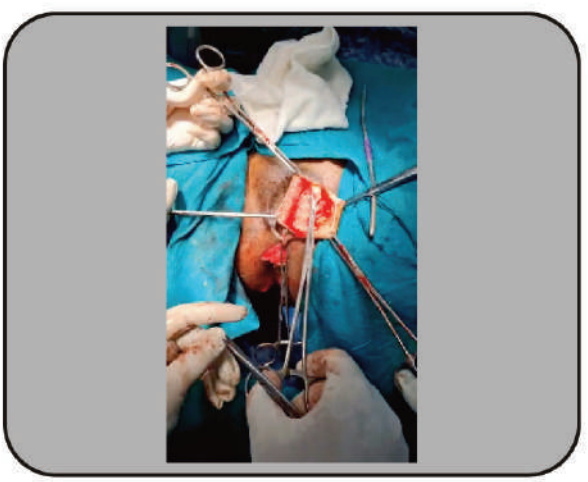


Fig. 2

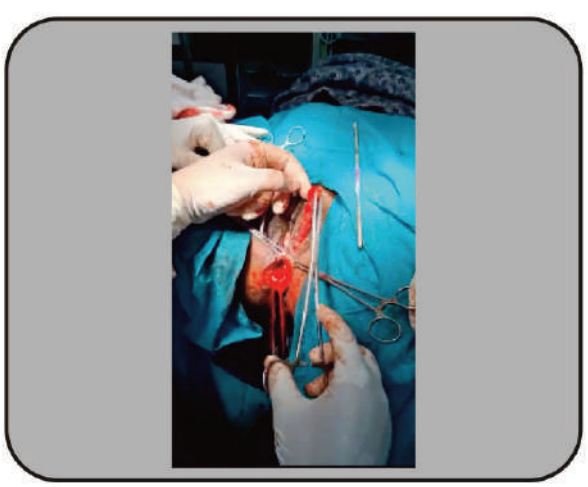


Fig. 3

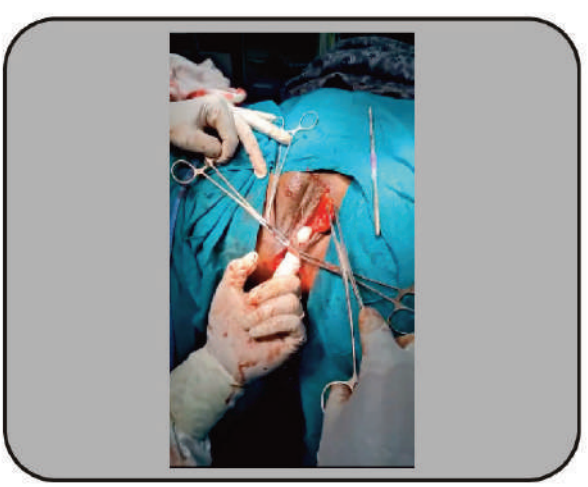


Fig. 4

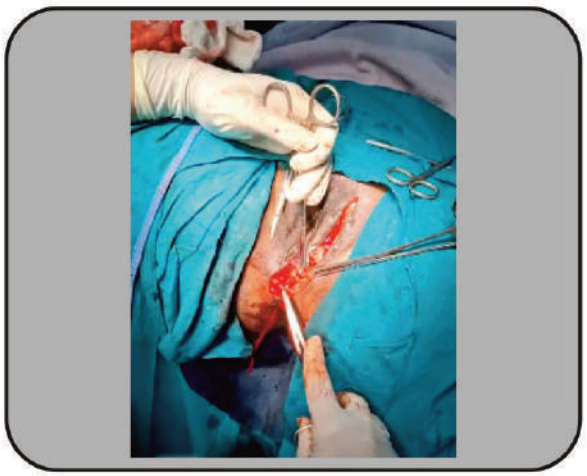


Fig. 5

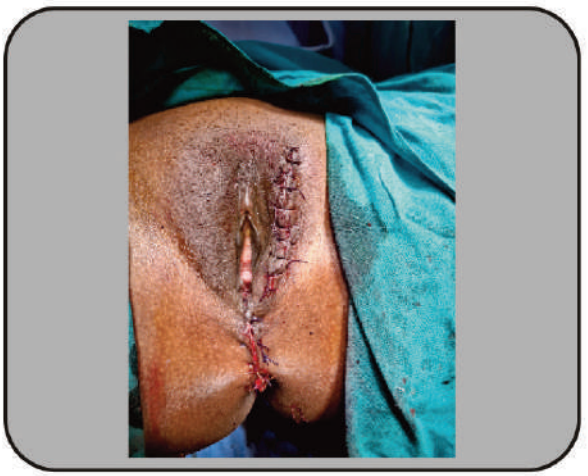


Fig. 6 : Final image of completed operation

Conslusion

Many women are embarrassed and ashamed about the problems they encounter and are not willing to bring concerns to their clinicians. Severe perineal trauma can have long term effects on a woman's sexuality. Overall well-being and relationship with her partner. These patients require compassionate care.

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Tam deeply indebted to Priya Bhondokar for her efforts that she took into designing this article.

Upcoming Events

"The Bull's Eye" (Saand Ki Aankh)

Dr. Meghana Argade

POGS is organising a National Online PG conference, "The Bull's Eye" (Saand Ki Aankh), on July 26th and 27th, 2025.

This conference is the brainchild of President POGS Dr Manish Machave & he has planned it online to reach to OBGY students at the national level.

An academician & Executive Vice President, POGS Dr Vaishali Korde-Nayak, along with the Medical Education Committee, POGS will be organising this one-of-a-kind online PG conference.

The main focus is to highlight uncommon yet significant topics which are important to learn & understand for the MS, DNB & CPS students. The invited faculty is mainly the well-known teachers who will make the topic simple with their teaching experience & explain to the students what the examiners want in the exam. On 26th July all obstetric topics and on 27th July, Gynec topics will be covered.

Sufficient time of 25-30 minutes is allotted to the speakers & students are expected to share their queries in the chat box, which will be taken by the respective teacher in the Q & A session.

The aim is to bridge the gap between postgraduate medical students and esteemed educators by creating an online platform that fosters mentorship, knowledge exchange and inspiration.

Thank You,

Dr. Manish Machave
President, POGS

Dr. Nilesh Balkawade
Gen Secretary, POGS

Applied for MMC points

OBSTETRICS

Saturday, 26th July 2025

TIME	TOPIC	FACULTY
9:00 – 9:25 Am	Management of GDM	Dr. Sangita Rai
9:30 – 9:55 Am	Cardiomyopathy in pregnancy	Dr. Manju Puri
10:00 – 10:25 Am	Rh isoimmunization – Management protocols	Dr. Vandana Bansal
10:30 – 10:55 Am	Hemoglobinopathies in pregnancy	Dr. Kshama Uplenchwar
11:00 – 11:30 Am	Inauguration	
11:30 – 11:55 Am	Fetal growth restriction and its management	Dr. Aparna Sharma
12:00 – 12:25 Pm	Viral infections in pregnancy	Col. Himadri Bal
12:30 – 12:55 Pm	Mechanism of labour	Dr. Vaishali Korde
1:00 – 1:25 Pm	Managing Abruptio placentae & DIC	Dr. Gadappa Shrinivas
1:30 – 1:55 Pm	DIC in obstetrics (excluding Abruptio placentae)	Dr. Meeta Gupta
2:00 – 2:25 Pm	Sudden maternal collapse	Dr. Purnima Satoskar
2:30 – 2:55 Pm	Blood products use in Obstetrics	Dr. Vidya Thobbi
3:00 – 3:25 Pm	Puerperal sepsis	Dr. Girija Wagh
3:30 – 3:55 Pm	Jaundice in pregnancy (including Viral hepatitis)	Dr. Meenal Patvekar
4:00 – 4:25 Pm	Obstetric Doppler (4 vessels)	Dr. Ajit Patil
4:30 – 5:00 Pm	Examiners expectation (Live Q & A)	Dr. Ashis Mukhopadhyay

GYNECOLOGY

Sunday, 27th July 2025

TIME	TOPIC	FACULTY
9:00 – 09:25 Am	Pelvic floor Anatomy	Dr. Savita Mehendale
9:30 – 09:55 Am	POP - Q & its practical application	Dr. J. P. Rath
10:00 – 10:25 Am	Disorders of Sex Development	Dr. Uma Wankhede
10:30 – 11:00 Am	Puberty & its disorders	Brig. Sushil Chawla
11:00 – 11:25 Am	Primary Amenorrhea & its Management	Dr. Chaitanya Shembekar
11:30 – 11:55 Am	Gestational Trophoblastic Neoplasia	Brig. Sanjay Singh
12:00 – 12:25 Pm	Management of PID (Ac & Chr. pelvic pain)	Dr. Pushpa Jhungare
12:30 – 12:55 Pm	DD of TO Masses and its management	Brig Kathpalia
1:00 – 1:25 Pm	Genital tuberculosis	Dr. Dattatray Gopalghare
1:30 – 1:55 Pm	Medical management of endometriosis	Dr. Neema Acharya
2:00 – 2:25 Pm	SUI management	Brig. Atul Seth
2:30 – 2:55 Pm	Genito - urinary Fistulae	Brig. Ajai Shrivastav
3:00 – 3:25 Pm	Management of menopause	Dr. Jyoti Unni
3:30 – 4:00 Pm	Management of CIN	Dr. Ramesh Bhosale
4:05 – 4:25 Pm	Investigations and management in Hirsuitism	Col. Sanjay Sharma
4:30 – 5:00 Pm	How to make the most of your PG years	Dr. Manish Machave

3rd Aug infertility Masterclass


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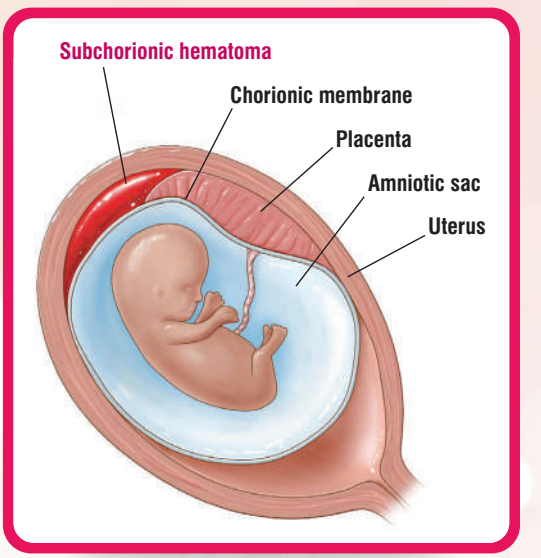
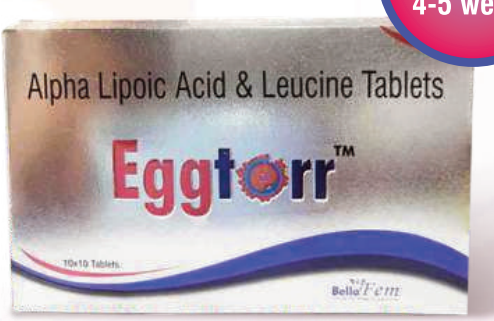
SCH- Accumulation of blood between the chorion and the uterine wall during early pregnancy.

Occurrence: 10-20 weeks. gestation

How Common? Incidence: ~30.5% of vaginal bleeds



1 Tablet BID for 4-5 weeks



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