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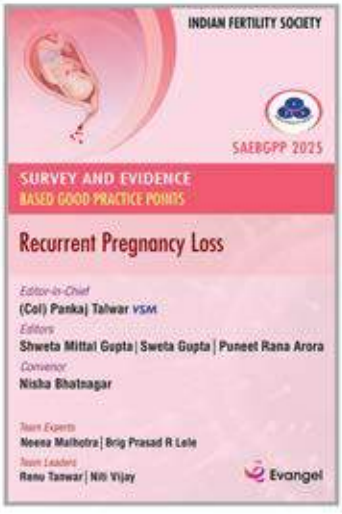
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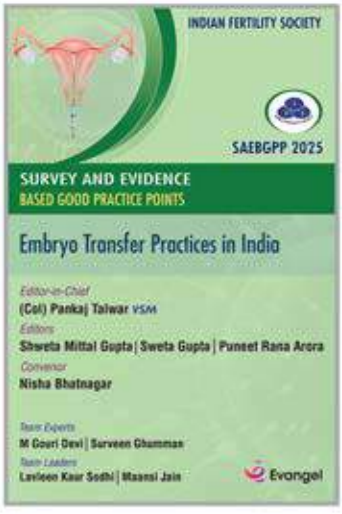
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SAEBGPP 2025

Survey and Evidence Based Good Practice Points

Congenital Uterine Malformations

Independent Ethical Committee: F.1/IEC/IFS/2025/No.21

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SAEBGPP 2025

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Dedicated to

All gynecologists of India—those who continue to serve with compassion, courage, and commitment; those who balance science with empathy; those who stand by their patients through hope, uncertainty, and healing; and those who strive every day to raise the standards of women's health and reproductive care in our country.

Your tireless efforts inspire this entire initiative.

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Preface

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The SAEB (Survey and Evidence-Based) Good Practice Points initiative was conceived with the vision of bringing together clinicians, embryologists, researchers, and educators across India to create practical, implementable, and ethically sound guidelines that address real-world challenges in reproductive medicine. Each chapter in this compendium represents months of dedicated teamwork, data collection, expert deliberation, and collaborative refinement.

An important driving force behind this initiative has been the vision of the IFS President, who recognized the prevailing lacunae and knowledge gaps arising from the absence of India-specific recommendations. This endeavour reflects the commitment to develop guidance that is rooted in our own population data, clinical realities, and diversity of practice settings.

The strength of this work lies in its collective wisdom. By combining survey-driven insights with a rigorous evidence-based approach, we have attempted to bridge the gap between everyday clinical practice and evolving scientific knowledge. These GPP documents are not meant to replace existing guidelines; rather, they aim to complement them by offering context-specific recommendations tailored to the Indian ART landscape.

It is our hope that this consolidated effort will support clinicians in making informed decisions, encourage uniformity of care, and ultimately contribute to improved patient outcomes. We extend our gratitude to everyone who contributed to this initiative and made this work possible.

Acknowledgments

We extend our heartfelt appreciation to all the experts, clinicians, embryologists, and young team members who worked tirelessly on each of the eleven SAEB GPP projects. Your commitment to scientific rigor, your enthusiasm for learning, and your willingness to collaborate have been the foundation of this initiative.

We gratefully acknowledge the unwavering support of the team leaders and national coordinators who guided each group with clarity, patience, and vision. The completion of the surveys, the collection of adequate sample sizes, the detailed discussions, drafting, redrafting, and finalization of recommendations would not have been possible without your leadership.

We thank the reviewers, statisticians, and mentors who provided constructive feedback at every stage, ensuring that each chapter meets the highest academic and practical standards. Special appreciation is extended to the editorial and organizational teams whose behind-the-scenes efforts—coordination, communication, formatting, plagiarism checks, and preparation of final deliverables—were indispensable.

To every participant who contributed time, expertise, and passion: this work stands as a testament to your dedication to improving ART practice in India.

We are extremely thankful to Meyer Organics Pvt Ltd for providing academic support for this project.

Contents

Congenital Uterine Malformations

INTRODUCTION

Congenital uterine anomalies (CUAs), also referred to as Müllerian duct anomalies, encompass a heterogeneous spectrum of developmental abnormalities resulting from defective formation, fusion, or resorption of the paramesonephric ducts during embryogenesis. These anomalies arise due to genetic mutations, environmental factors, or developmental arrest during early organogenesis. Since the Müllerian ducts form the fallopian tubes, uterus, cervix, and upper vagina, any disturbance in this sequence may result in diverse malformations involving one or more of these structures.[1,2]

Although many CUAs remain asymptomatic and undiagnosed, they can have substantial implications for reproductive health. Clinical manifestations include primary amenorrhea, cyclic pelvic pain, infertility, recurrent miscarriage, preterm birth, and abnormal fetal presentations.[3,4] Importantly, up to 30% of women with uterine anomalies may also present with concomitant renal or urinary tract malformations, underscoring the need for multidisciplinary evaluation.[2]

The reported prevalence of CUAs varies widely depending on the population studied and the diagnostic criteria used. A recent meta-analysis indicates that anomalies occur in 4–7% of the general population, 8–10% among infertile women, and up to 15% in women with recurrent pregnancy loss (RPL) or adverse obstetric outcomes.[3,5] Improved imaging modalities such as three-dimensional (3D) transvaginal ultrasound (TVUS) and magnetic resonance imaging (MRI) have refined diagnostic accuracy, leading to better detection of subtle anomalies that were previously underdiagnosed.[6]

Over time, multiple classification systems have been developed to standardize the description and management of CUAs. The American Fertility Society (AFS) introduced the first structured classification in 1988, which was later revised as the ASRM Müllerian Anomalies Classification[7] to improve clinical relevance and incorporate new morphological insights.[8] The ESHRE/ESGE classification

(2013), developed through expert consensus, introduced objective morphometric criteria based on uterine wall thickness and internal indentation depth, facilitating reproducible diagnosis across imaging modalities.[9] The VCUAM classification (Vagina, Cervix, Uterus, Adnexa, and Associated Malformations) proposed by Oppelt et al., further enhanced the ability to document anomalies across the reproductive tract comprehensively.[10]

Despite these advances, significant challenges persist. Discrepancies between classification systems, variability in imaging interpretation, and lack of universally accepted diagnostic thresholds continue to limit comparability among studies. Moreover, while some anomalies (e.g., septate uterus) have evidence-based surgical management protocols, others (e.g., arcuate or bicornuate uteri) lack consensus on intervention indications or benefits.[11,12]

In reproductive medicine and assisted reproductive technology (ART), identifying and managing CUAs plays a pivotal role in improving outcomes by addressing potential structural causes of implantation failure and recurrent pregnancy loss. Recognizing this importance, a nationwide survey among Indian ART specialists and gynaecologists was conducted to assess patterns of diagnosis and management of congenital uterine malformations.

Human Ethics approval was obtained prior to initiating the study. Based on the sample size calculation for the estimated prevalence of congenital uterine malformations in India, a minimum sample of 380 participants was required. However, during the course of data collection, the number of eligible participants exceeded this target, resulting in a final sample size of n = 423. The larger sample size is expected to enhance the reliability and robustness of the study findings **(Fig. 1)**.

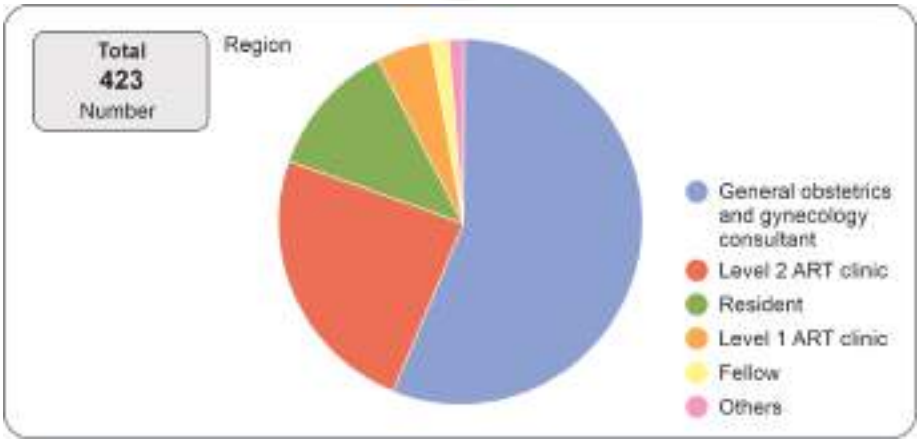


Fig. 1: Pie chart showing the distribution of 423 healthcare practitioners including general obstetrics and gynecology consultants, ART clinic physicians, fellows, and residents who participated in the assessment of current practices for diagnosing and managing genital anomalies in India.

Evaluation of current practices of diagnosing and managing genital anomalies amongst healthcare practitioners in India. Distribution of the sample size is depicted in pie chart.
My suggestion: Pie chart showing the distribution of 423 healthcare practitioners including general obstetrics and gynecology consultants, ART clinic physicians, fellows, and residents who participated in the assessment of current practices for diagnosing and managing genital anomalies in India.

The ensuing sections synthesize these findings with current international guidelines and recent evidence from ESHRE (2023) and ASRM (2024), structured through a series of PICO (Population–Intervention–Comparison–Outcome) questions to provide evidence-based national recommendations.

PICO 1: HOW OFTEN DO YOU ENCOUNTER CASES OF CONGENITAL UTERINE ANOMALIES IN YOUR PRACTICE?

Recommendation

Congenital uterine anomalies are relatively uncommon but clinically relevant findings in reproductive practice. Clinicians should maintain a high index of suspicion in women presenting with infertility, recurrent pregnancy loss, or abnormal uterine bleeding, even though the *overall prevalence is low*.

Summary of Evidence

A 2025 retrospective cohort study from Turkey[13] reported that 7.7% of women had CUAs by ASRM criteria and 4.7% by ESHRE/ESGE classification. CUAs were 5.7 times more common in women with PCOS compared with controls, according to the ASRM criteria, and 5.5 times higher in the PCOS group than the control group, according to the ESHRE/ESGE classification system (17.2% vs. 3%, $p < 0.0001$; 10.1% vs. 2%, $p = 0.003$, respectively). The partial septate uterus was most frequent in the PCOS group (9.1% vs. 1.5%, $p = 0.003$). According to the ASRM classification, the partial septate uterus was followed by the arcuate uterus. It was 4.7 times more common in the PCOS group (7.1% vs. 1.5%, $p = 0.01$).[9,13] Comparable prevalence data have been reported globally, reflecting the influence of classification criteria and diagnostic technology.

Research Gaps

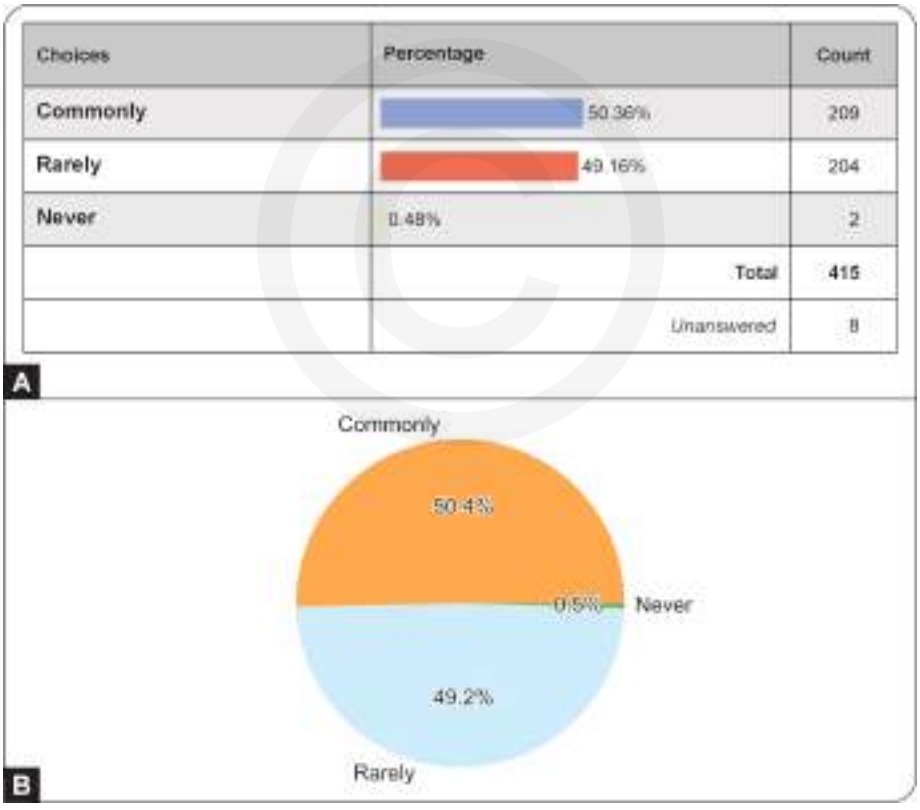
Lack of high-quality, multicentric studies quantifying true prevalence across ethnic groups.

Inconsistent use of classification systems leads to heterogeneity in reporting.

Limited Indian epidemiologic data on CUAs in ART populations.

Survey Results (India) (Figs. 2A and B)

- Rarely: 49.16% (n = 204)
- Commonly: 50.36% (n = 208)
- Never: 0.48% (n = 2)



Figs. 2A and B: Survey responses showing frequency of congenital uterine anomalies (CUAs) in everyday clinical practice. Panel A depicts the percentage distribution: Commonly (50.36%), Rarely (49.16%), Never (0.48%). Panel B shows the corresponding numbers of respondents.

Integration with Evidence

A similar percentage of Indian clinicians have encountered patients with congenital uterine anomalies, aligning with international data that these anomalies occur in 5–8% of women evaluated for infertility.[13,14] In contrast, the remaining 50% of respondents rarely encounter such patients, while 0.5% have never come across them. The findings highlight the need for systematic screening during fertility work-up, particularly in women with repeated implantation failure or miscarriage.[13]

PICO 2: WHICH IS THE MOST COMMON AGE GROUP OF PATIENTS DIAGNOSED WITH GENITAL ANOMALIES?

Recommendation

CUAs are most often detected in women of reproductive age (20–35 years) undergoing fertility evaluation or pregnancy care. Early recognition, especially in adolescents presenting with amenorrhea or dysmenorrhea, can prevent later complications.

Summary of Evidence

In a study of 912 Omani women, aged 19–48 years, 60.5% of diagnosed CUAs occurred in women aged ≥30 years. Most were identified during evaluation for secondary infertility.[15] Literature consistently reports that diagnosis peaks in women of reproductive age as imaging technologies are applied during fertility investigations.[12]

Research Gaps

Underdiagnosis in paediatric and adolescent populations due to non-specific symptoms.

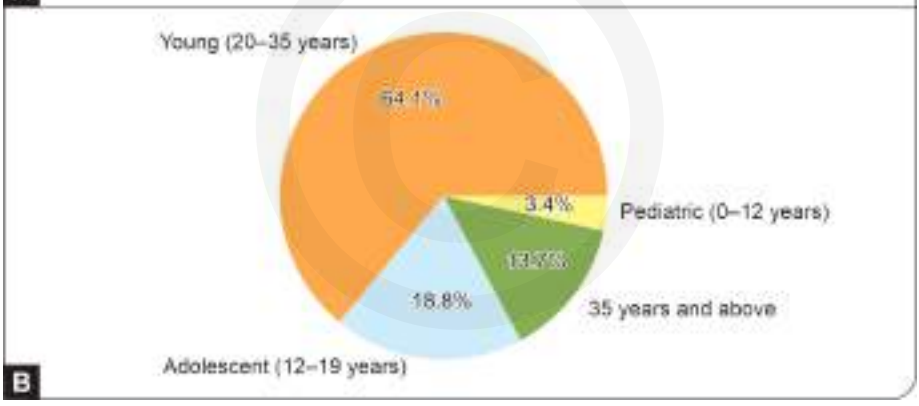
There is a need for longitudinal studies linking age at diagnosis with reproductive outcomes.

Survey Results (India) (Figs. 3A and B)

- Pediatric (0–12 years): 3.37% (n = 14)
- Adolescent (12–19 years): 18.80% (n = 78)
- Young (20–35 years): 64.10% (n = 266)
- ≥ 35 years: 13.73% (n = 57)

Choices	Percentage	Count
Young (20–35 years)	64.10%	266
Adolescent (12–19 years)	18.80%	78
35 years and above	13.73%	57
Pediatric (0–12 years)	3.37%	14
	Total	415
	Unanswered	8

A



B

Figs. 3A and B: Most common age group of patients diagnosed with genital anomalies

Integration with Evidence

The majority of clinicians reported that patients with congenital uterine anomalies most commonly belonged to the reproductive age group (20–35 years), accounting for 64.10%. This was followed by adolescents, while cases in paediatric and

women older than 35 years were relatively rare (13.73%).[16] These observations are consistent with previous reports, wherein retrospective analyses have shown that approximately 64% of patients with congenital uterine anomalies were above 30 years of age.

PICO 3: WHAT IS THE MOST COMMON REASON FOR GENITAL ANOMALIES CONSULTATION IN YOUR PRACTICE?

Recommendation

Clinicians should evaluate for CUAs in women presenting with recurrent miscarriage, infertility, or unexplained menstrual irregularities, as these are the predominant clinical presentations associated with structural uterine anomalies.

Summary of Evidence

Multiple studies, including Mikos et al., 2013, Grimbizis et al., 2020, and Chan et al., 2011, confirm that reproductive failure, aka infertility, is the most common presentation, followed by menstrual and obstetric complications. Many women with these anomalies may present with recurrent pregnancy loss, abnormal uterine bleeding, or menstrual irregularities.[3,9,17] Others may remain asymptomatic, with the malformations being incidentally detected during imaging or pregnancy.

Research Gaps

Limited prospective data linking specific anomaly subtypes with pregnancy outcomes.

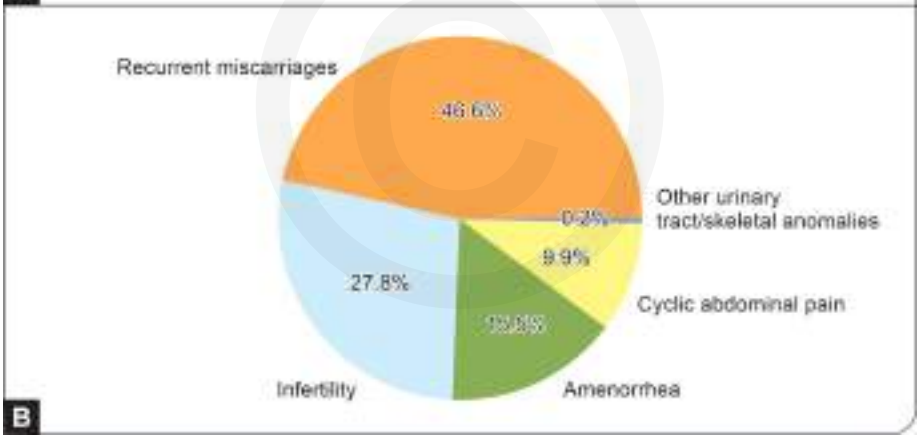
Need for standardized diagnostic algorithms in infertility work-up.

Survey Results (India) (Figs. 4A and B)

- Infertility 27.78% n = 115
- Amenorrhea 15.46% n = 64
- Recurrent miscarriages 46.62% n = 193
- Cyclic abdominal pain 9.90% n = 41
- Other urinary tract/skeletal anomalies 0.24%, n = 1

Choices	Percentage	Count
Recurrent miscarriages	46.62%	193
Infertility	27.78%	115
Amenorrhea	15.46%	64
Cyclic abdominal pain	9.90%	41
Other urinary tract/skeletal anomalies	0.24%	1
	Total	414
	Unanswered	9

A



B

Figs. 4A and B: Most common reason for genital anomalies consultation

Integration with Evidence

Recurrent miscarriage emerged as the most common presentation in Indian practice, amounting to a ~46.62% similar to ESHRE and ASRM data, highlighting miscarriage and infertility as the principal clinical consequences of CUAs in India. Abortions followed by Infertility are one of the commonest presentations, as evidenced by the literature.[11]

PICO 4: WHAT IS THE MOST COMMON PRESENTATION FOR GENITAL ANOMALIES CONSULTATIONS AMONG PREGNANT WOMEN AT YOUR PRACTICE?

Recommendation

In pregnant women, CUAs should be suspected in cases of second-trimester loss, preterm labor, or malpresentation. Early diagnosis enables individualized obstetric surveillance to reduce adverse outcomes.

Summary of Evidence

Women with uterine anomalies have a significantly increased risk of miscarriage and preterm birth. The risk of spontaneous abortion in the first trimester ranges from 28–45%, and 5% in the second trimester.[18] Septate and bicornuate uteri carry the highest miscarriage rates.

Research Gaps

Inadequate prospective data quantifying perinatal morbidity by anomaly subtype.

Need for standardized obstetric management protocols across CUA categories.

Survey Results (India) (Figs. 5A and B)

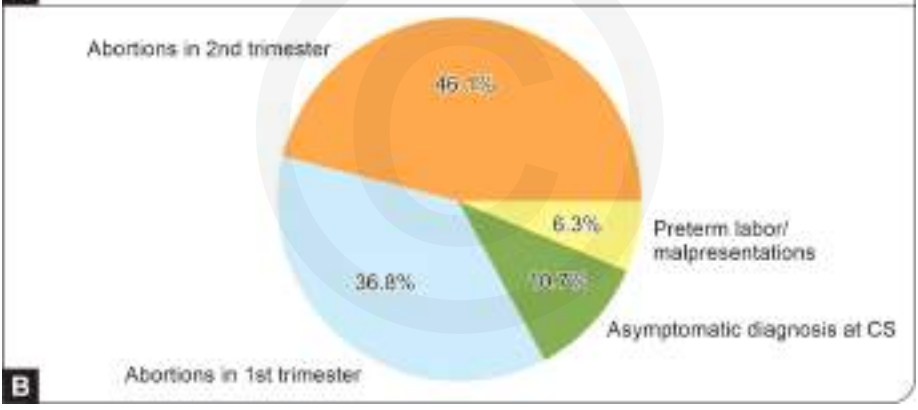
- Abortions (2nd trimester): 46.10% (n = 189)
- Abortions (1st trimester): 36.83% (n = 151)
- Asymptomatic at CS: 10.73% (n = 44)
- Preterm labor/malpresentation: 6.34% (n = 26)

Integration with Evidence

Consistent with published literature, second-trimester pregnancy loss is the predominant presentation (~46%) among Indian clinicians.[11] This is followed by 36.83% of clinicians encountering first-trimester abortions as a common presentation in their practice. Similarly, ESHRE 2023 in the European IVF Monitoring Consortium (EIM) reported a similar incidence, with up to 45% of patients presenting with first-trimester abortions. These findings reinforce the importance of pre-pregnancy diagnosis and counselling in women with suspected anomalies.

Choices	Percentage	Count
Abortions in 2nd trimester	46.10%	189
Abortions in 1st trimester	36.83%	151
Asymptomatic diagnosis at CS	10.73%	44
Preterm labor/malpresentations	6.34%	26
	Total	410
	Unanswered	13

A



B

Figs. 5A and B: Most common presentation for genital anomalies consultations among pregnant women

PICO 5: WHAT IS THE FIRST-LINE MODALITY FOR ACCURATE DIAGNOSIS IN A SUSPECTED CASE OF GENITAL ANOMALIES?

Recommendation

Three-dimensional (3D) transvaginal ultrasonography (TVUS), with or without saline infusion, is recommended as the first-line non-invasive diagnostic tool for uterine anomaly assessment. MRI is reserved for complex or inconclusive cases.

Summary of Evidence

Two-dimensional ultrasound provides good sensitivity for detecting uterine anomalies with screening accuracy (~90–92%) but limited cavity contour delineation. It can be used in order to identify cases of uterine agenesis and cavity duplication, specifically, provided that well-defined imaging criteria are followed to reduce interobserver variability.[19] Both three-dimensional ultrasound and magnetic resonance imaging (MRI) enable volumetric acquisitions and image reconstruction in any plane, facilitating detailed assessment of the uterine cavity and external contour irrespective of uterine position within the pelvis. MRI is considered the gold standard for diagnosing Müllerian anomalies, as it offers greater operator independence and superior capability to identify associated anomalies. MRI also allows precise characterization of the uterine contour, tubal ostia, and cervical canal, thereby enabling an accurate and comprehensive diagnosis. Other methods, including 2D US, and hysteroscopy, may be useful but are less accurate.[20]

The ASRM Practice Committee (2021) and ESHRE/ESGE (2013) both recommend 3D TVUS as the initial imaging modality, with MRI as the confirmatory tool in ambiguous cases.

Research Gaps

Need for cost-effectiveness data comparing 3D ultrasound vs. MRI in low-resource settings.

Lack of standardized diagnostic reporting templates in routine practice.

Survey Results (India) (Figs. 6A and B)

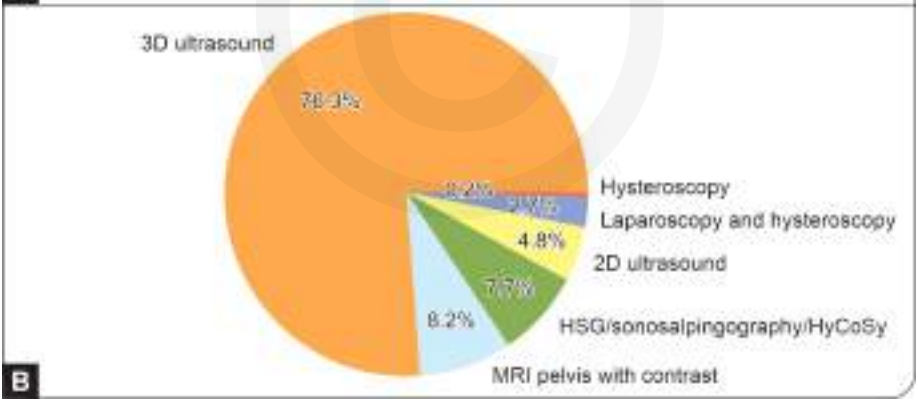
- 3D ultrasound: 76.3% (n = 316)
- MRI pelvis: 8.21% (n = 34)
- HSG/hyCoSy: 7.73% (n = 32)
- 2D ultrasound: 4.83% (n = 20)
- Hysteroscopy: 0.24% (n = 1)
- Combined laparoscopy + hysteroscopy: 2.66% (n = 11)

Integration with Evidence

ASRM Practice Committee.[7] Emphasizes the role of 3D ultrasound and MRI as diagnostic tools, with hysterosalpingography being less favored due to limitations. This is in concurrence with the current Indian statistics of 76.3% favouring 3D ultrasound as the first-line modality.

Choices	Percentage	Count
3D ultrasound	76.33%	316
MRI pelvis with contrast	8.21%	34
HSG/sonosalpingography/ hyCoSy	7.73%	32
2D ultrasound	4.83%	20
Laparoscopy and hysteroscopy	2.66%	11
Hysteroscopy	0.24%	1
	Total	414
	Unanswered	9

A



Figs. 6A and B: First-line modality for accurate diagnosis in suspected case of genital anomalies

PICO 6: WHAT ARE THE DIAGNOSTIC CRITERIA FOR A SEPTATE UTERUS ON ULTRASOUND?

Recommendation

A septate uterus should be diagnosed when the internal fundal indentation exceeds 1 cm from the interosseous line and forms an angle of less than 90°, with

a smooth external contour indentation less than 1 cm. The diagnosis should be established by 3D transvaginal ultrasound (TVUS) or MRI, which offer the most accurate cavity and fundal contour delineation.[7]

Summary of Evidence

According to the ASRM 2024 guideline on the diagnosis and treatment of uterine septum, a septate uterus or a partial septate uterus is characterized by a midline indentation depth >1 cm and a septum angle <90°, distinguishing it from arcuate or normal variants.[7] The ESHRE/ESGE 2013 criteria[9] similarly define a septate uterus as an internal indentation >50% of uterine wall thickness. Comparative studies suggest 3D ultrasound provides diagnostic accuracy equivalent to MRI with lower cost and greater accessibility.

Research Gaps

- Lack of consensus on morphometric thresholds across classification systems.
- Need for reproducible multicentric validation of 3D criteria against surgical findings.

Survey Results (India) (Figs. 7A and B)

- Depth of septum: 42.09% (n = 173)
- Vertical distance between interostial line and fundus: 40.88% (n = 168)
- Angle made by septum and fundus: 15.57% (n = 64)
- Intraoperative length: 1.49% (n = 6)

Integration with Evidence

The Indian data closely mirror ASRM definitions, with most clinicians using indentation depth and fundal angle as diagnostic criteria.[13] This convergence with global recommendations highlights increasing uniformity in clinical diagnosis.

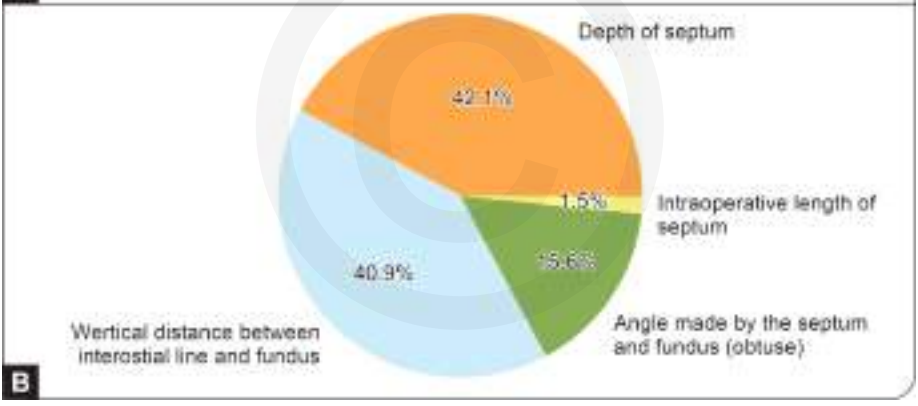
PICO 7: WHAT ARE THE CRITERIA FOR THE MANAGEMENT OF A SEPTATE UTERUS?

Recommendation

Hysteroscopic septum incision is recommended for women with a septate uterus and a history of recurrent miscarriage or adverse obstetric outcomes in a shared decision-making model. It is not routinely recommended in asymptomatic women or those without reproductive failure.

Choices	Percentage	Count
Depth of septum	42.09%	173
Vertical distance between the interostial line and fundus	40.88%	168
Angle made by the septum and fundus (obtuse)	15.57%	64
Intraoperative length of septum	1.46%	6
	Total	411
	Unanswered	12

A



B

Figs. 7A and B: Most important parameter for septum evaluation

Summary of Evidence

Evidence suggests that surgical correction of a uterine septum may reduce miscarriage rates in patients with a history of poor reproductive outcomes and improve obstetric outcomes such as fetal malpresentation and cesarean delivery, though its effect on live birth rate (LBR) remains uncertain.[9,21] The ASRM 2024 guideline and ESHRE/ESGE consensus (2023) both recommend offering hysteroscopic septum incision to women with recurrent pregnancy loss (RPL) or

adverse outcomes, but caution against its indiscriminate use due to limited RCT data[9,10] (Strength of Evidence: B; Strength of Recommendation: Moderate). It is also recommended to counsel patients regarding septum incision may decrease the risk of adverse obstetric outcomes such as malpresentation and caesarean section, but there are no high-quality data to recommend this practice.

(Strength of Evidence: B; Strength of Recommendation: Moderate)

Research Gaps

- Lack of large-scale randomized controlled trials linking septoplasty to improved LBR.
- Need for standardization of surgical technique and perioperative care.

Survey Results (India) (Figs. 8A and B)

- History of recurrent abortions (1st or 2nd trimester): 52.90% (n = 219)
- History of 2nd-trimester abortions: 22.71% (n = 94)
- History of 1st-trimester abortions: 12.32% (n = 51)
- Infertility: 10.87% (n = 45)
- Incidental finding: 1.21% (n = 5)

Integration with Evidence

Most Indian clinicians operate only in cases with recurrent pregnancy loss, consistent with international guidelines advocating selective surgical correction. Evidence supports the benefit in miscarriage reduction but not definitive LBR improvement. According to the 2024 evidence-based guidelines of the American Society for Reproductive Medicine (ASRM), there is strong evidence that a septate uterus is associated with an increased risk of spontaneous abortion.

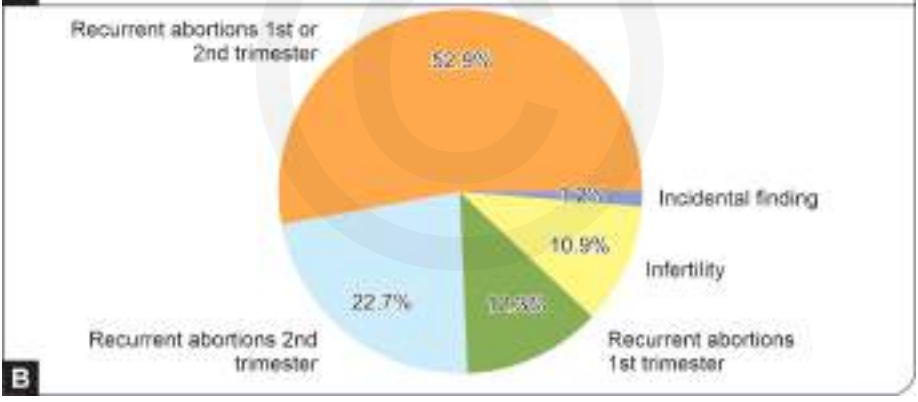
PICO 8: WHAT INSTRUMENT DO YOU USE FOR SEPTAL RESECTION IN ROUTINE PRACTICE?

Recommendation

Bipolar electrosurgical resection is preferred for hysteroscopic septal incision owing to its precision, hemostasis, and reduced risk of thermal injury compared to monopolar energy. A cold knife may be used in select cases, depending on the surgeon's experience.

Choices	Percentage	Count
History of recurrent abortions 1st or 2nd trimester	52.90%	219
History of recurrent abortions 2nd trimester	22.71%	94
History of recurrent abortions 1st trimester	12.32%	51
Infertility	10.87%	45
Incidental finding	1.21%	5
	Total	414
	Unanswered	9

A



B

Figs. 8A and B: Reasons for consultation

Summary of Evidence

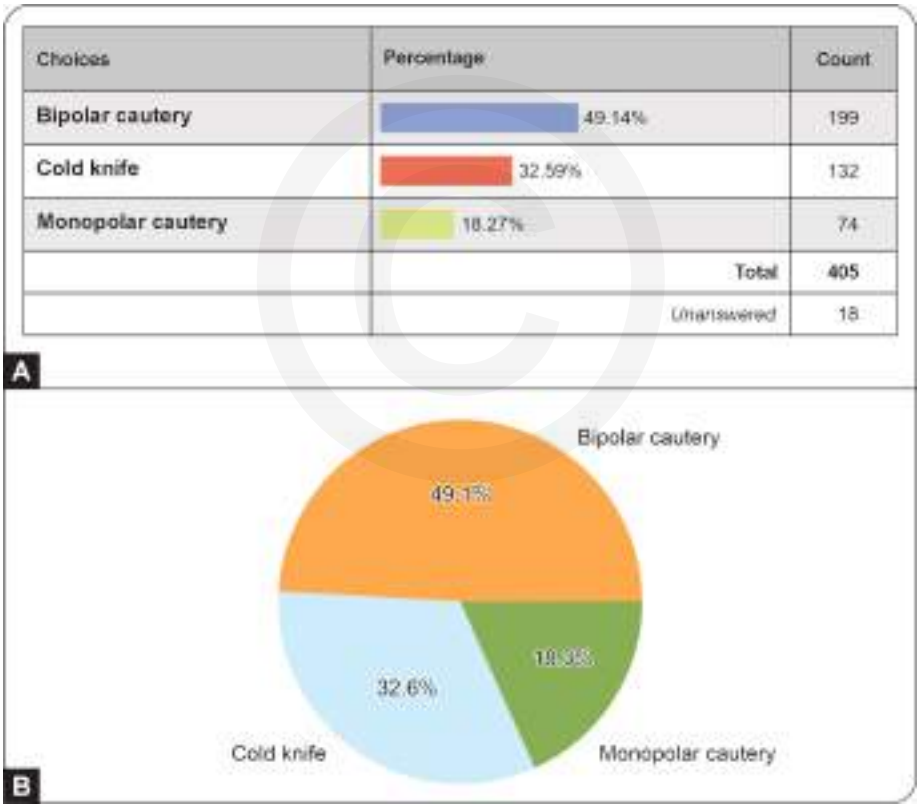
Comparative analyzes show that *bipolar resection* minimizes complications such as uterine perforation, fluid overload, and adhesion formation.[13,19] Cold knife resection avoids electrical energy use but may result in greater bleeding. There is no evidence of a difference in reproductive outcomes across techniques when performed by experienced surgeons.

Research Gaps

- Limited head-to-head trials comparing bipolar, monopolar, and mechanical methods.
- Long-term obstetric outcomes remain underreported.

Survey Results (India) (Figs. 9A and B)

- Bipolar cautery: 49.14% (n = 199)
- Cold knife: 32.59% (n = 132)
- Monopolar cautery: 18.27% (n = 74)



Choices	Percentage	Count
Bipolar cautery	49.14%	199
Cold knife	32.59%	132
Monopolar cautery	18.27%	74
	Total	405
	Unanswered	18

A

B

Figs. 9A and B: Distribution of methods used

Integration with Evidence

Indian practice aligns with global trends favoring bipolar resection (~49%) for safety and efficacy, especially in cases for the management of a septate uterus. This was followed by cold knife and then the Monopolar cautery in the end. Continued adherence to minimally traumatic hysteroscopic techniques remains a good practice standard.

PICO 9: WHAT IS THE PREFERRED METHOD TO PREVENT POSTOPERATIVE ADHESIONS AFTER SEPTAL RESECTION?

Recommendation

Routine use of postoperative estrogen therapy, intrauterine devices (IUDs), or balloons to prevent intrauterine adhesions is not supported by high-quality evidence. Short-term estrogen therapy may be considered based on the clinician's judgment and patient preference.

Summary of Evidence

The ASRM 2024 guideline reports no strong data to support postoperative hormonal or mechanical interventions after septum incision. Some observational studies suggest combined estrogen and progesterone therapy may aid in endometrial regeneration, but evidence remains inconsistent.[15]

Research Gaps

- Lack of adequately powered RCTs comparing postoperative regimens.
- Limited evaluation of adhesion prevention and long-term reproductive outcomes.

Survey Results (India) (Figs. 10 A and B)

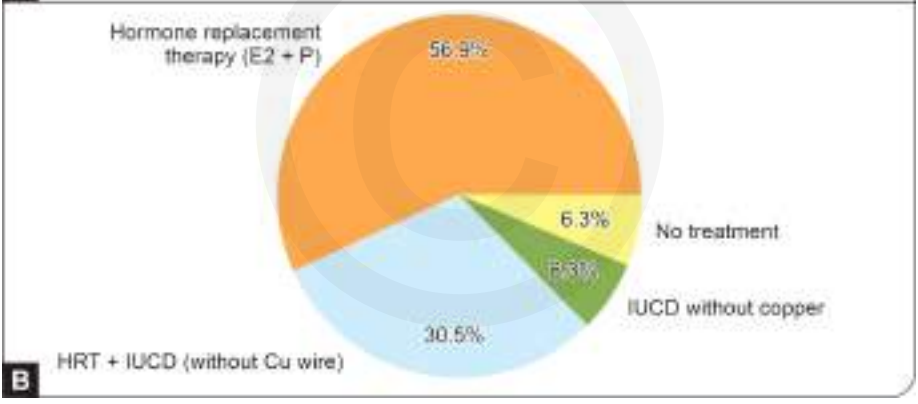
- Hormone replacement therapy (E2 + P) 56.9% n = 235
- IUCD without copper 6.30% n = 26
- HRT + IUCD (without Cu wire) 30.51% n = 126
- No treatment 6.30% n = 26

Integration with Evidence

Despite limited supporting data, most Indian clinicians (~57%) prescribe postoperative combination hormonal therapy, reflecting entrenched practice traditions. Guideline alignment would encourage selective use until stronger evidence emerges.[13]

Choices	Percentage	Count
Hormone replacement therapy (E2 + P)	56.90%	235
HRT + IUCD (without Cu wire)	30.51%	126
IUCD without copper	6.30%	26
No treatment	6.30%	26
	Total	413
	Unanswered	10

A



Figs. 10A and B: Management options distribution in MRKH (vaginal agenesis) focusing on vaginal dilator therapy (93.5%)

PICO 10: WHEN DO YOU DECIDE TO OPERATE ON A UNICORNUATE UTERUS?

Recommendation

Surgical excision of the cavitated non-communicating rudimentary horn is recommended to relieve symptoms such as dysmenorrhea, hematometra, or endometriosis risk. Conservative management is appropriate in asymptomatic cases or those with non-cavitated horns.

Summary of Evidence

For symptomatic unicornuate uteri with a functioning rudimentary horn, laparoscopic excision is the treatment of choice to prevent pain, hematometra, and ectopic pregnancy.[8,9] Resection should be performed by experienced surgeons with careful identification of the ureter and vascular pedicles. In cases of a unicornuate uterus with hematometra in the rudimentary horn, a laparoscopic horn resection is fast, efficient, and technically easy in the hands of low-volume surgeons, where the rudimentary horn is flimsy in connection with the main body of the unicornuate uterus. Unilateral salpingectomy is often performed concurrently to prevent ectopic implantation. With concomitant endometriosis and adhesions, transperitoneal identification of the ureter can be a challenge, making a retroperitoneal approach essential. Suturing of the uterine wall may be necessary to restore integrity; bleeding may be more extensive, and identification and ligation of the uterine artery may be necessary.[22,23]

Research Gaps

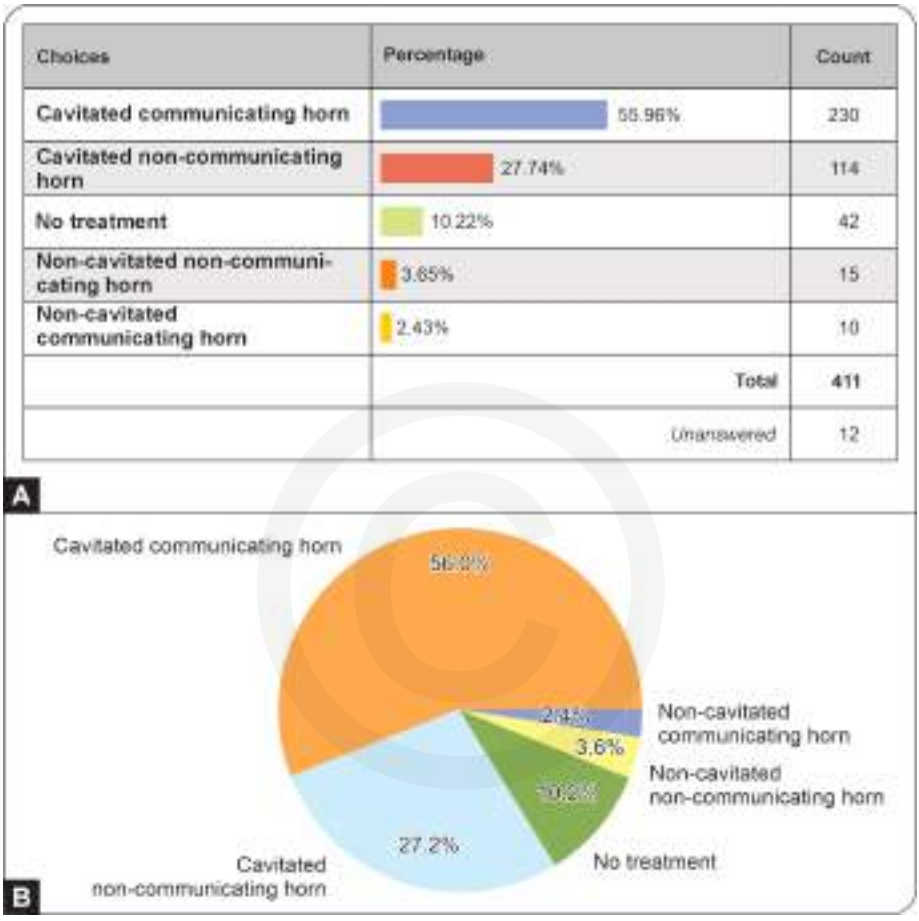
- Need for data on fertility outcomes post-horn excision.
- Scarce prospective studies comparing surgical vs. expectant management.

Survey Results (India) (Figs. 11 A and B)

- Non-cavitated non-communicating horn 3.65% n = 15
- Cavitated non-communicating horn 27.74% n = 60
- Non-cavitated communicating horn 2.43% n = 10
- Cavitated communicating horn 55.96% n = 230
- No treatment 10.22% n = 42

Integration with Evidence

Indian data demonstrate appropriate alignment with global recommendations favoring surgical resection in symptomatic cavitated horns. Cavitated non-communicating horns often present with cyclic dysmenorrhea of varying severity and are the most frequently referred cases for clinical management. Literature also indicates that when hematometra is present, these cases are effectively managed by laparoscopic resection. This corresponds to the ESHRE/ESGE consensus that surgical management should be symptom- and function-driven.



Choices	Percentage	Count
Cavitated communicating horn	55.96%	230
Cavitated non-communicating horn	27.74%	114
No treatment	10.22%	42
Non-cavitated non-communicating horn	3.65%	15
Non-cavitated communicating horn	2.43%	10
	Total	411
	Unanswered	12

A

Figs. 11A and B: Management approaches

PICO 11: WHAT IS THE FIRST-LINE MANAGEMENT FOR A PATIENT WITH A HYPOPLASTIC UTERUS AND INFERTILITY WHO DESIRES TO CONCEIVE?

Recommendation

In women with a hypoplastic or infantile uterus, hormonal therapy with cyclical estrogen and progesterone should be the first-line intervention to promote uterine growth and endometrial development. Surgical correction is not indicated, except when associated structural anomalies demand intervention.

Summary of Evidence

A hypoplastic uterus commonly results from congenital Müllerian hypoplasia or hypoestrogenism. Observational data suggest that combined estrogen–progestogen therapy for 6–12 months can improve uterine dimensions and secondary sexual characteristics.[9] No controlled trials demonstrate improved fertility after surgery, and both ESHRE (2023) and ASRM (2024) discourage operative approaches.

Research Gaps

- Lack of standardized hormonal regimens and duration.
- Sparse outcome data on fertility after hormonal correction.

Survey Results (India) (Figs. 12A and B)

- Uterine transplantation1.72% n = 7
- Hysteroscopic uterine augmentation 2.21% n = 9
- Hormonal therapy to stimulate endometrial growth 71.57% n = 292
- Assisted reproductive techniques with a gestational carrier 24.51% n = 100

Integration with Evidence

The overwhelming reliance on hormonal therapy in Indian practice is in full alignment with current international recommendations, reinforcing that surgical management has no proven benefit in isolated uterine hypoplasia.[24]

PICO 12: HOW WOULD YOU ADDRESS SEXUAL CONCERNS IN A 20-YEAR-OLD MANAGEMENT OF MRKH SYNDROME PATIENT?

Recommendation

Routine surgical correction (Strassman metroplasty) is not recommended for an asymptomatic bicornuate uterus. Surgical unification may be considered only in women with repeated second-trimester loss or preterm delivery after exclusion of other causes.

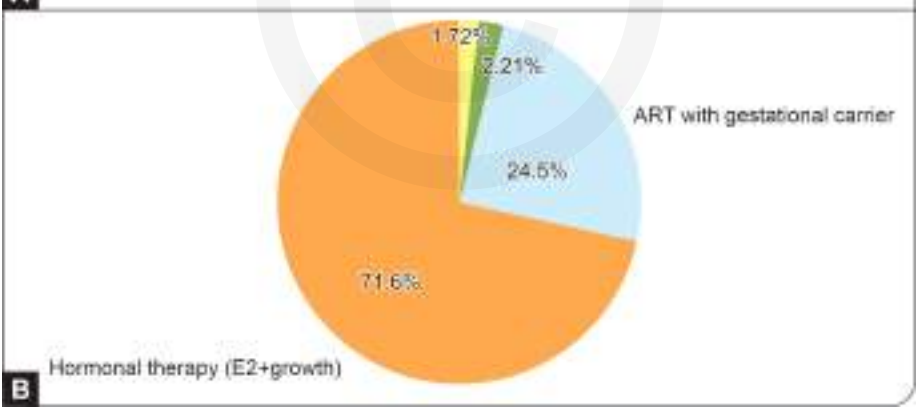
Summary of Evidence

A bicornuate uterus results from incomplete fusion of the Müllerian ducts. Meta-analysis shows increased rates of second-trimester loss, preterm labor, and malpresentation compared with a normal uterus, yet surgical correction has not consistently improved live-birth rates.[10,20] Primary vaginal elongation

by dilation is the appropriate first-line approach in most patients because it is safer, patient-controlled, and more cost-effective than surgery. Surgery should be reserved for the rare patient who is unsuccessful with primary dilator therapy or who prefers surgery.[25]

Choices	Percentage	Count
Hormonal therapy to stimulate endometrial growth	71.57%	292
Assisted reproductive techniques with a gestational carrier	24.51%	100
Hysteroscopic uterine augmentation	2.21%	9
Uterine transplantation	1.72%	7
	Total	408
	Unanswered	15

A



B

Figs. 12A and B: Treatment distribution

Research Gaps

- Need for well-designed trials evaluating obstetric benefit after metroplasty.
- Limited data on long-term uterine integrity and caesarean risk.

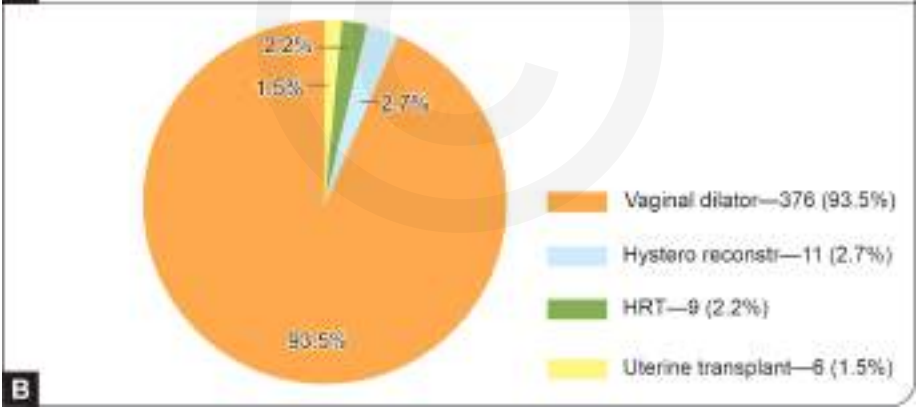
Survey Results (India) (Figs. 13A and B)

- Vaginal dilator therapy 90.97% n = 131

- Hysteroscopic uterine reconstruction 2.08%, n = 3
- Uterine transplantation 2.08%, n = 3
- Hormonal replacement therapy 4.86 %, n = 7

Choices	Percentage	Count
Vaginal dilator therapy	93.53%	376
Hysteroscopic uterine reconstruction	2.74%	11
Hormonal replacement therapy	2.24%	9
Uterine transplantation	1.49%	6
	Total	402
	Unanswered	21

A



B

Figs. 13A and B: Management options distribution in MRKH (vaginal agenesis) focusing on vaginal dilator therapy (93.5%)

Integration with Evidence

Indian practice appropriately favors expectant management and selective surgery, in agreement with ESHRE/ESGE 2023 consensus discouraging routine correction for bicornuate uteri. However, non-surgical vaginal dilation is the recommended

first-line approach for vaginal agenesis and for prevention/treatment of vaginal stenosis, as supported by professional guidance (ACOG) and multiple recent reviews and practice resources; ASRM practice materials discuss dilation as the primary non-surgical option, while ESHRE/ESGE documents emphasize classification and do not publish a separate 2024 treatment guideline explicitly stating the 'first-line' wording."[26]

PICO 13: WHAT IS THE FIRST-LINE APPROACH FOR A PATIENT WITH A UTERUS DIDELPHYS WHO IS ASYMPTOMATIC AND HAS HAD SUCCESSFUL PREGNANCIES?

Recommendation

Expectant management is recommended as the first-line approach for an asymptomatic patient with uterus didelphys who has already achieved successful pregnancies.

Summary of Evidence[27]

Surgical interventions such as metroplasty or hysteroscopic procedures are not indicated in the absence of symptoms or adverse reproductive outcomes.[28]

- Uterus didelphys does not require surgery if the woman is asymptomatic.
- Previous successful pregnancies further reinforce the choice of expectant management.
- Surgery (e.g., Strassman metroplasty) is not indicated and may worsen outcomes.[28]

Research Gaps

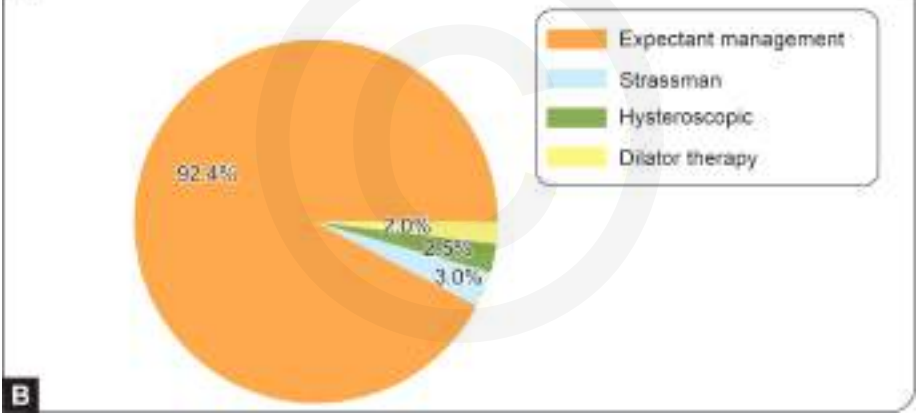
- Lack of RCTs: Most available data are based on case reports, retrospective series, and heterogeneous observational studies.
- Variable obstetric definitions: Studies differ in defining outcomes such as preterm birth and malpresentation.
- Limited data on long-term follow-up of women with uterus didelphys managed expectantly vs. surgically.

Survey Results (India) (Figs. 14A and B)

- Hysteroscopic resection of the septum 2.45% n = 10
- Expectant management 92.40% n = 377
- Strassman metroplasty 3.19% n = 13
- Vaginal dilator therapy1.96% n = 8

Choices	Percentage	Count
Expectant management	92.40%	377
Strassman metroplasty	3.19%	13
Hysteroscopic resection of the septum	2.45%	10
Vaginal dilator therapy	1.96%	8
	Total	408
	Unanswered	15

A



B

Figs. 14A and B: Management options for uterus didelphys, showing predominant expectant management (92.4%)

Integration with Evidence

The most common presentation of uterus didelphys relates to obstetric issues. In asymptomatic women with a history of successful pregnancies, expectant management remains the preferred approach. According to ACOG Committee Opinion, nonsurgical vaginal dilation achieves a success rate of 90–96%, and surgical intervention should be reserved only for the small subset of patients who do not respond to primary dilator therapy or who specifically opt for surgery.[25]

PICO 14: WHAT IS THE FIRST-LINE MANAGEMENT FOR A PATIENT WITH A BICORNUATE UTERUS AND A HISTORY OF RECURRENT PREGNANCY LOSS?

Recommendation

Strassman metroplasty (surgical unification of the bicornuate uterus) is recommended as the first-line management in patients with a bicornuate uterus who have a history of recurrent pregnancy loss.

Summary of Evidence

The association between a bicornuate uterus and recurrent pregnancy loss has been well documented in observational studies. Surgical correction through Strassman metroplasty has demonstrated consistent improvement in pregnancy outcomes.[29] A prospective study by Rechberger et al., 2009 reported that fetal viability improved dramatically after open metroplasty, rising from 0% before intervention to nearly 80% following surgery.[30] Similarly, a series reported by Alborzi et al., 2015 demonstrated that laparoscopic metroplasty resulted in an 85% pregnancy achievement rate, with most patients carrying their pregnancies beyond the first trimester and several reaching term.[31] The laparoscopic approach additionally showed advantages such as reduced formation of adhesions and improved uterine compliance, contributing to lower risks of future complications. Overall, the available literature indicates that surgical unification of the bicornuate uterus leads to significantly improved reproductive performance in women with recurrent pregnancy loss, thereby supporting its role as the first-line treatment.

Research Gaps

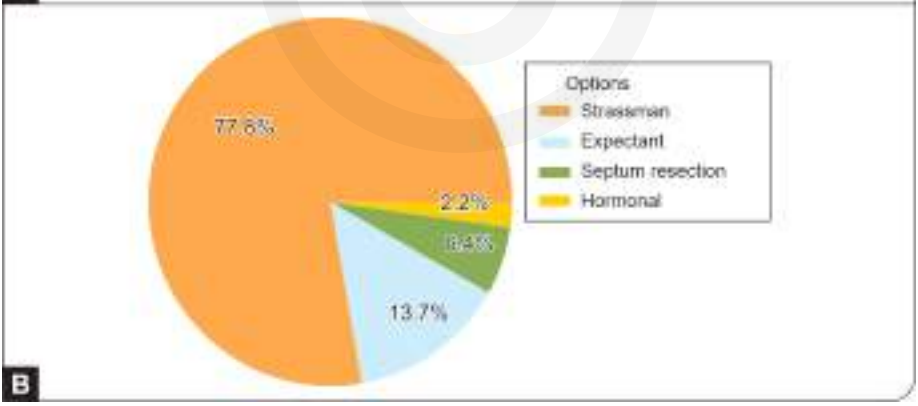
- Lack of randomized controlled trials comparing expectant management with metroplasty in women with recurrent pregnancy loss.
- Predominance of retrospective and observational studies with methodological heterogeneity.
- Limited long-term data on uterine rupture risk and obstetric outcomes following metroplasty.
- Variability in diagnostic criteria and imaging standards for distinguishing bicornuate uterus from septate uterus.
- Insufficient evidence on optimal timing and surgical approach (open vs. laparoscopic) for best reproductive outcomes.

Survey Results from India (Figs. 15A and B)

- Expectant management 13.69% n = 56
- Hormonal therapy 2.20% n = 9
- Strassman metroplasty 77.75% n = 318
- Hysteroscopic septum resection 6.36% n = 26

Choices	Percentage	Count
Strassman metroplasty	77.75%	318
Expectant management	13.69%	56
Hysteroscopic septum resection	6.36%	26
Hormonal therapy	2.20%	9
	Total	409
	Unanswered	14

A



B

Figs. 15A and B: Management choices for bicornuate uterus with recurrent pregnancy loss, showing Strassman metroplasty as the preferred approach (77.75%)

Integration with Evidence

Expectant management alone is generally not recommended in women with repeated pregnancy losses and a confirmed bicornuate uterus, as untreated uterine duplication is associated with increased miscarriage, preterm labor,

and malpresentation. Surgical unification addresses these mechanical limitations and improves the intrauterine environment for implantation and fetal growth.

Before proceeding with surgery, however, accurate diagnosis using 3D ultrasonography or MRI is essential to ensure proper differentiation from a septate uterus, following ASRM and ESHRE guidelines.[7,9] Comprehensive patient counselling about benefits, potential risks, and future obstetric considerations including careful monitoring for uterine rupture in pregnancy is a key component of good clinical practice.

PICO 15: WHAT IS THE FIRST-LINE MANAGEMENT FOR A PATIENT WITH A TRANSVERSE VAGINAL SEPTUM CAUSING PRIMARY AMENORRHEA AND CYCLIC PELVIC PAIN?

Recommendation

Surgical resection of the transverse vaginal septum is recommended as the first-line management in patients presenting with primary amenorrhea and cyclic pelvic pain.

Summary of Evidence

Transverse vaginal septum is a congenital obstructive anomaly that frequently presents during adolescence with primary amenorrhea and cyclic pelvic or abdominal pain. Obstruction leads to retention of menstrual blood, resulting in hematocolpos, hematometra, and sometimes hematosalpinx, contributing to progressive pelvic pain and risk of endometriosis. The standard and most effective management is surgical resection of the septum to restore the patency of the vaginal canal.

Clinical evidence and case series consistently demonstrate that septal excision provides immediate relief of obstruction and prevents further complications. Abbassi et al., 2023 described successful outcomes following complete resection in patients with symptomatic obstruction, emphasizing that timely surgical correction allows evacuation of retained blood products and prevents long-term sequelae.[32] Surgical treatment is considered essential, as medical therapy cannot relieve the structural obstruction. Preoperative or postoperative dilation may be used selectively depending on septum thickness and the risk of restenosis.

Research Gaps

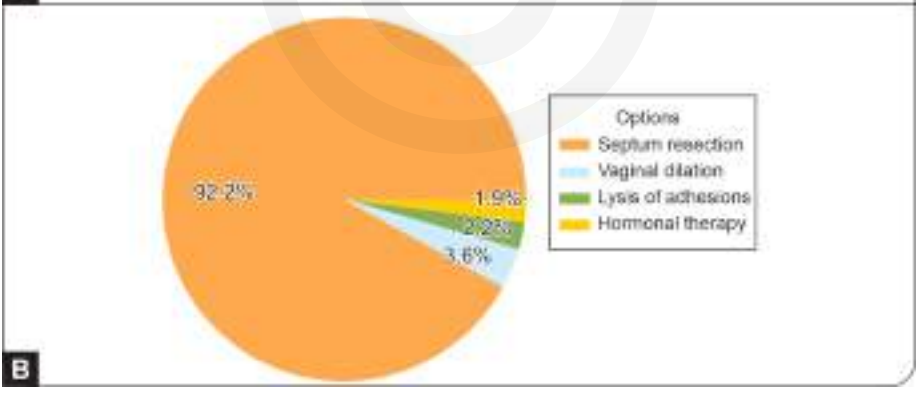
- Lack of long-term reproductive data post reconstruction.
- No standardized surgical technique with proven durability.

Survey Results (India) (Figs. 16A and B)

- Hormonal therapy 1.94%, n = 8
- Surgical resection of the septum 92.93% n = 380
- Hysteroscopic lysis of adhesions 2.18% n = 9
- Vaginal dilation 3.64% n = 15

Choices	Percentage	Count
Surgical resection of the septum	92.23%	380
Vaginal dilation	3.64%	15
Hysteroscopic lysis of adhesions	2.18%	9
Hormonal therapy	1.94%	8
	Total	412
	Unanswered	11

A



B

Figs. 16A and B: Survey responses showing first-line management for transverse vaginal septum surgical resection chosen by 92.23% of clinicians

Integration with Evidence

The clinical practice pattern in India, with nearly 93% of clinicians choosing surgical resection, is strongly aligned with the international literature. Surgical

excision is the only effective method to relieve outflow obstruction in transverse vaginal septum, as medical therapies cannot address the underlying anatomic barrier. Evidence from case series, including the report by El Abbassi et al., demonstrates that prompt surgical resection safely resolves hematocolpos and associated complications while minimizing long-term damage to the reproductive tract.[32] Postoperative management may include vaginal dilatation to prevent restenosis, a practice also supported by scoping reviews such as Brander et al. 2022, which noted higher stenosis rates when dilation was not performed.

Taken together, both evidence and expert practice strongly support *timely* surgical resection as the first-line, definitive treatment for transverse vaginal septum presenting with primary amenorrhea and cyclic pelvic pain.

PICO 16: WHAT THERAPY DO YOU USE POST TRANSVERSE VAGINAL SEPTAL RESECTION?

Recommendation

Mechanical vaginal dilatation is recommended as the preferred postoperative therapy following transverse vaginal septum resection to prevent restenosis and maintain vaginal patency. Hormonal therapies such as GnRH analogues, OCPs, or danazol do not address the structural risk of restenosis and therefore are not recommended as primary postoperative management.

Summary of Evidence

Transverse vaginal septum resection aims to restore vaginal patency; however, postoperative restenosis remains a recognized complication. Current literature demonstrates that vaginal dilation is the most effective strategy for preventing postoperative scarring and narrowing.

In a scoping review analyzing 152 cases of transverse vaginal septum, Brander et al. (2022) reported that postoperative stenosis occurred in 21 cases, and importantly, half of these (11/21) occurred in patients who did not undergo postoperative dilation. The review concluded that mechanical dilation substantially reduces the risk of restenosis and improves long-term functional outcomes. Other therapies, including hormonal suppression or danazol, do not modify the structural healing process and have no proven benefit in reducing stenosis rates.

As a result, postoperative mechanical dilation remains the most evidence-supported intervention to ensure durable surgical success, especially in adolescents and young adults with obstructive anomalies.

Research Gaps

- Lack of standardized protocols regarding timing, duration, and size progression of postoperative dilators.
- Limited comparative data evaluating different dilation methods (self-dilation vs. supervised dilation vs. stents).
- Few long-term studies evaluating sexual, reproductive, and obstetric outcomes post-dilation.
- Insufficient evidence assessing adjunctive measures such as estrogen cream or hyaluronic acid-based gels.
- Need for objective criteria to identify patients at highest risk of restenosis.

Survey results from India (Figs. 17A and B)

- GnRH analogues 6.11% n = 25
- OCPs 9.05% n = 37
- Danazol 0.24% n = 1
- Mechanical dilatation 67.73% n = 277
- No therapy16.87% n = 69

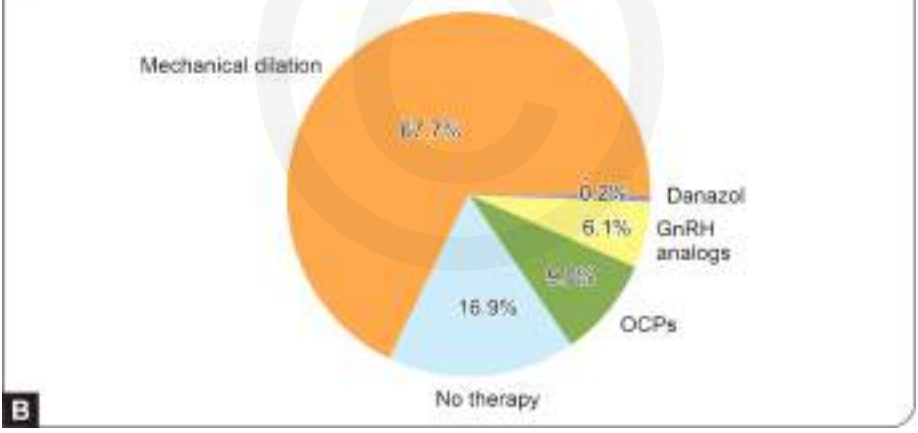
Integration with Evidence

Mechanical dilatation in the postoperative period is known to reduce the chances of restenosis and improve outcomes in patients with transverse vaginal septum. This is favoured by 67.7% of the clinicians. In a review by Bander et al., 2022, he stated a higher incidence of post operative stenosis when dilatation was not performed.

Clinical practice in India closely mirrors the published evidence, with mechanical dilatation being the most widely adopted postoperative therapy. Research shows a clear association between postoperative dilation and decreased rates of vaginal stenosis. Brander et al. highlighted that stenosis was significantly more common in patients who did not undergo dilation, underscoring its importance in maintaining patency following septal excision.[33] While no single standardized protocol exists, the principle of regular, gentle, progressive dilation remains widely accepted to optimize outcomes. Hormonal therapies alone do not prevent fibrosis or contracture and therefore should not replace mechanical dilation.

Choices	Percentage	Count
Mechanical dilatation	67.73%	277
No therapy	16.87%	69
OCPS	9.05%	37
GnRH analogs	6.11%	25
Danazol	0.24%	1
	Total	409
	Unanswered	14

A



B

Figs. 17A and B: Postoperative therapy following transverse vaginal septum resection, with mechanical dilation used by 67.73% of clinicians

PICO 17: IN CONGENITAL ABSENCE OF THE CERVIX, WHAT ARE THE TREATMENT OPTIONS?

Recommendation

Reconstructive surgery is recommended as the first-line management in patients with congenital absence of the cervix who desire uterine preservation

and future fertility, provided the anatomy is suitable and thorough counselling is completed. Hysterectomy is reserved for patients with severe symptoms, advanced disease, failed reconstruction, or those not desiring fertility.

Gestational surrogacy using oocyte retrieval may be considered for fertility preservation when reconstructive options are not feasible.

Summary of Evidence

Congenital cervical agenesis is a rare Müllerian anomaly, frequently associated with obstructive symptoms such as pelvic pain and hematometra. The goals of management include relief of obstruction, restoration of normal sexual function, and, where possible, preservation of fertility.

Earlier literature favored hysterectomy due to high rates of restenosis, pelvic infections, and surgical complications. However, improvements in reconstructive surgical techniques have shifted management toward uterine-preserving procedures in select patients.

Mikos et al. (2020) reported that reconstructive approaches such as uterovaginal anastomosis can successfully restore menstrual outflow and preserve the uterus in carefully selected individuals. Nevertheless, these procedures may require multiple operations and prolonged postoperative catheterization. Rock et al., 2010, reporting on a cohort managed with a standardized protocol, emphasized that reconstructive surgery can be effective but carries significant risks of restenosis, infection, and repeat surgery.[34] For patients whose anatomy is unfavourable for reconstruction or who present late with severe pelvic adhesions, hysterectomy remains an appropriate definitive treatment.

When fertility preservation is desired but cervical continuity cannot be restored, oocyte retrieval and gestational surrogacy provide an alternative pathway.

Overall, reconstructive surgery is increasingly considered the primary option in motivated, appropriately selected patients, but requires expert surgical care and long-term follow-up.

Research Gaps

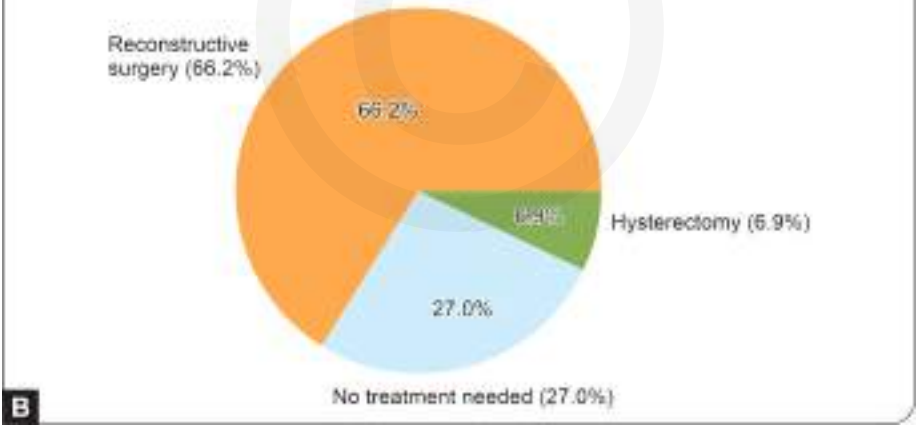
- Lack of standardized surgical techniques and postoperative management protocols.
- Scarcity of long-term data on menstrual, sexual, and reproductive outcomes after reconstructive surgery.
- Limited evidence regarding predictors of restenosis and surgical failure.
- Few prospective studies comparing reconstructive approaches versus hysterectomy.
- Insufficient data on ovarian stimulation and oocyte retrieval outcomes in patients with cervical agenesis.

Survey Results (India) (Figs. 18A and B)

- Hysterectomy 6.86% (n = 28)
- Reconstructive surgery 66.18 % (n = 270)
- No treatment needed 26.96% (n = 110)

Choices	Percentage	Count
Reconstructive surgery	66.18%	270
No treatment needed	26.96%	110
Hysterectomy	6.86%	28
	Total	408
	Unanswered	15

A



B

Figs. 18A and B: Management options for congenital absence of the cervix, showing reconstructive surgery preferred by 66.18%

Integration with Evidence

- A conservative, uterus-preserving approach is preferred in patients with congenital absence of the cervix, provided detailed counselling is undertaken regarding the complexity of management.
- Multiple surgical procedures may be required, as reconstructive techniques often necessitate staged interventions to maintain patency and function.

- Postoperative Foley catheter placement is typically needed for 6 weeks to 6 months to maintain the neo-cervical tract and prevent early restenosis.
- Patients should be counselled about the risk of pelvic inflammatory disease (PID), restenosis, and the possibility of repeat surgery, all of which are well-documented complications of reconstructive management.
- Extirpative surgery (hysterectomy) should be reserved as a last resort, particularly when reconstruction fails, when severe adhesions or infection preclude further attempts at restoration, or when the patient does not desire future fertility.

KEY GOOD PRACTICE POINTS

1. Congenital uterine anomalies are *relatively uncommon* but clinically relevant findings in reproductive practice. Clinicians should maintain a high index of suspicion in women presenting with infertility, recurrent pregnancy loss, or abnormal uterine bleeding, even though the overall prevalence is low.
   Indian clinicians have encountered the patients with congenital uterine anomalies in 5–8% of women evaluated for infertility. In our Indian survey 50% encountered commonly, 49.2% encountered rarely and, while 0.5% have never come across them. The findings highlight the need for systematic screening during fertility work-up, particularly in women with repeated implantation failure or miscarriage

2. CUAs are most often detected in women of reproductive age (20–35 years) undergoing fertility evaluation or pregnancy care. Early recognition, especially in adolescents presenting with amenorrhea or dysmenorrhea, can prevent later complications.
   The majority of clinicians reported that patients with congenital uterine anomalies most commonly belonged to the reproductive age group (20–35 years), accounting for 64.10%. This was followed by adolescents (18.80%), while cases in pediatric (3.37%) and women older than 35 years were relatively rare (13.73%).[16] *These observations are consistent with previous reports, wherein retrospective analyses have shown that approximately 64% of patients with congenital uterine anomalies were above 30 years of age.*

3. Clinicians should evaluate for CUAs in women presenting with recurrent miscarriage, infertility, or unexplained menstrual irregularities, as these are the predominant clinical presentations associated with structural uterine anomalies.

Recurrent miscarriage emerged as the most common presentation in Indian practice amounting to a ~46.62% with 27.7% presenting as infertility, 15.4% as amenorrhea, 9.9% as cylic abdominal pain and 0.24% as other anomalies, highlighting miscarriage as the principal clinical consequences of CUAs in India. Abortions followed by Infertility is one of the commonest presentations as evidenced by the literature.

4. In pregnant women, CUAs should be suspected in cases of second-trimester loss, preterm labor, or malpresentation as per the literature evidence. Early diagnosis enables individualized obstetric surveillance to reduce adverse outcomes.
   Second-trimester pregnancy loss is the predominant presentation (~46%), followed by first trimester abortion 36.83% , asymptomatic diagnosis at CS in 10.73% and preterm labor in 6.34% of clinicians encountering first trimester abortions as a commoner presentation in their practice.

5. Three-dimensional (3D) transvaginal ultrasonography (TVUS), with or without saline infusion, is recommended as the first-line non-invasive diagnostic tool for uterine anomaly assessment. MRI is reserved for complex or inconclusive cases.
   Current Indian statistics of 76.3% favouring 3D ultrasound as the first line modality. 8.21% preferred MRI Pelvis in contrast, 7.73% prefer HSG/hyCoSy, 4.83% prefer 2D ultrasound, 2.66% prefer laproscopy and hysteroscopy, 0.24% prefer hysteroscopy.

6. A septate uterus should be diagnosed when the internal fundal indentation exceeds 1 cm from the interostial line and forms an angle of less than 90°, with a smooth external contour indentation less than 1 cm. The diagnosis should be established by 3D transvaginal ultrasound (TVUS) or MRI, which offer the most accurate cavity and fundal contour delineation.
   Most Indian clinicians use indentation depth and fundal angle as diagnostic criteria. 42.09% depth of septum, 40.88% vertical distance between the interostial line and fundus, 15.57% angel made by the septum and fundus (obtuse), 1.46% intraoperative length of the septum.

7. Hysteroscopic septum incision is recommended for women with a septate uterus and a history of recurrent miscarriage or adverse obstetric outcomes in a shared decision-making model. It is not routinely recommended in asymptomatic women or those without reproductive failure.
   Most Indian clinicians operate only in cases with recurrent pregnancy loss in first or second trimester (52.90%), in 22.7% in second trimester, 10.87% in

infertility, 1.21% incidental findings. This is, consistent with international guidelines advocating selective surgical correction. Evidence supports the benefit in miscarriage reduction but not definitive LBR improvement.

8. Bipolar electrosurgical resection is preferred for hysteroscopic septal incision owing to its precision, hemostasis, and reduced risk of thermal injury compared to monopolar energy. Cold knife may be used in select cases depending on surgeon experience.
   Indian practice aligns with global trends favoring bipolar resection (~49%) for safety and efficacy especially in the cases for management of septate uterus. This was followed by cold knife (32.5%) and then the Monopolar cautrery (18.27%) in the end. Continued adherence to minimally traumatic hysteroscopic techniques remains a good practice standard.

9. Routine use of postoperative estrogen therapy, intrauterine devices (IUDs), or balloons to prevent intrauterine adhesions is not supported by high-quality evidence. Short-term estrogen therapy may be considered based on clinician judgment and patient preference.
   Despite limited supporting data, most Indian clinicians (~57%) prescribe postoperative combination hormonal therapy, reflecting entrenched practice traditions, 30.51% HRT and IUCD (without Cu wire), 6.30% IUCD without Cu, 6.30% no treatment. Guideline alignment would encourage selective use until stronger evidence emerges.

10. Surgical excision of the cavitated non-communicating rudimentary horn is recommended to relieve symptoms such as dysmenorrhea, hematometra, or endometriosis risk. Conservative management is appropriate in asymptomatic cases or those with non-cavitated horns.
    Indian data demonstrate appropriate alignment with global recommendations favoring surgical resection in symptomatic cavitated horns in 55.96%. Cavitated non-communicating horns (27.74%) often present with cyclic dysmenorrhea of varying severity and are the most frequently referred cases for clinical management. Indian survey noted 10.22% have no treatment, 3.65% non-cavitated non-communicating horn, 2.43% non-cavitated communicating horn. Literature also indicates that when hematometra is present, these cases are effectively managed by laparoscopic resection.

11. In women with a hypoplastic or infantile uterus, hormonal therapy with cyclical estrogen and progesterone should be the first-line intervention to

promote uterine growth and endometrial development. Surgical correction is not indicated, except when associated structural anomalies demand intervention.

The overwhelming reliance on hormonal therapy in Indian practice (71.57%) is in full alignment with current international recommendations, reinforcing that surgical management has no proven benefit in isolated uterine hypoplasia. The other finding in Indian surveys were- 24.51% assisted reproductive techniques with a gestational carrier, 2.21% hysteroscopic uterine augmentation and 1.72% uterine transplantation.

12. Routine surgical correction (Strassman metroplasty) is not recommended for asymptomatic bicornuate uterus. Surgical unification may be considered only in women with repeated second-trimester loss or preterm delivery after exclusion of other causes.

    Indian practice appropriately favors expectant management (92.4%) and selective surgery (Strassman metroplasty 3.19%), discouraging routine correction for bicornuate uteri (Hysteroscopic resection of the septum 2.45%) and vaginal dilator therapy in 1.96%. However, non-surgical vaginal dilation is the recommended first-line approach for vaginal agenesis and for prevention/treatment of vaginal stenosis.

13. Expectant management is recommended as the first-line approach for an asymptomatic patient with uterus didelphys who has already achieved successful pregnancies.

    As per the Indian survey 92.4% give expected management, 3.19% use strassman metroplasty, 2.45% hysteroscopic resection of the septum, 1.96% in vaginal dilator therapy.

14. Strassman metroplasty (surgical unification of the bicornuate uterus) is recommended as the first-line management in patients with a bicornuate uterus who have a history of recurrent pregnancy loss.

    As per the Indian survey 77.75% use strassman metroplasty, 13.69% give expectant management, 6.36% hysteroscopic septum resection and 2.2% hormonal therapy.

15. Both open and laparoscopic approaches are acceptable, though laparoscopic metroplasty is associated with reduced postoperative adhesions and faster recovery. Expectant management alone is generally not recommended in women with repeated pregnancy losses and a confirmed bicornuate uterus,

as untreated uterine duplication is associated with increased miscarriage, preterm labor, and malpresentation. Surgical unification addresses these mechanical limitations and improves the intrauterine environment for implantation and fetal growth. Before proceeding with surgery, however, accurate diagnosis using 3D ultrasonography or MRI is essential to ensure proper differentiation from a septate uterus.

As per Indian survey 92.23% surgical resection of the septum, 3.64% vaginal dilation, 2.18% hyteroscopic lysis of adhesion, 1.94% hormonal therapy.

16. Hormonal therapies such as GnRH analogues, OCPs, or danazol do not address the structural risk of restenosis and therefore are not recommended as primary postoperative management.

    Mechanical dilatation in the postoperative period is known to reduce the chances of restenosis and improve outcomes in patients with transverse vaginal septum. This is favoured by 67.7% of the clinicians.

    Clinical practice in India closely mirrors the published evidence, with mechanical dilatation (67.7%) being the most widely adopted postoperative therapy. No therapy in 16.87%, OCPS 9.05%, GnRH analogs 6.11%, Danazol 1.24%.

17. Reconstructive surgery is recommended as the first-line management in patients with congenital absence of the cervix who desire uterine preservation and future fertility, provided the anatomy is suitable and thorough counselling is completed.

    Gestational surrogacy using oocyte retrieval may be considered for fertility preservation when reconstructive options are not feasible.

    A conservative, uterus-preserving approach is preferred in patients with congenital absence of the cervix, provided detailed counselling is undertaken regarding the complexity of management.

    Multiple surgical procedures may be required, as reconstructive techniques often necessitate staged interventions to maintain patency and function.

    Postoperative Foley catheter placement is typically needed for 6 weeks to 6 months to maintain the neo-cervical tract and prevent early restenosis.

    Patients should be counselled about the risk of pelvic inflammatory disease (PID), restenosis, and the possibility of repeat surgery, all of which are well-documented complications of reconstructive management.

    As per the Indian survey 66.18% reconstructive surgery, no treatment needed in 26.96% and 6.86% hysteractomy.

SURVEY QUESTIONNAIRE OF CONGENITAL UTERINE MALFORMATIONS

Basic Demographic Details

1. Age
2. Years of Practice
3. Organization Type
   a. Corporate hospital
   b. Individual clinic
   c. Government organization
4. Working Position
   a. General OBGYN Consultant
   b. Resident
   c. Fellow
   d. Level 1 ART clinic
   e. Level 2 ART clinic
   f. Others

Survey Questions

1. How often do you encounter cases of genital anomalies in your practice?
   a. Rarely
   b. Commonly
   c. Never
2. Which is the most common age group of patients diagnosed with genital anomalies?
   a. Pediatric (0-12 years)
   b. Adolescent (12-19 years)
   c. Young (20-35 years)
   d. 35 years and above
3. What is the most common reason for genital anomalies consultations in your practice?
   a. Amenorrhea
   b. Cyclic abdominal pain
   c. Infertility
   d. Recurrent miscarriages
   e. Other urinary tract/skeletal anomalies
4. What is the most common presentation for genital anomalies consultations among pregnant women at your practice?
   a. Asymptomatic diagnosis at CS
   b. Abortions in 1st trimester

   c. Abortions in 2nd trimester
   d. Preterm labor/Malpresentations
5. Which system of classification is being followed in your practice?
   a. ESHRE/ESGE
   b. ASRM
   c. IMAGE
   d. VCUAM
   e. Own independent description
6. What is the first-line modality for accurate diagnosis in a suspected case of genital anomalies?
   a. 2D Ultrasound
   b. 3D Ultrasound
   c. HSG/Sonosalpingography/hyCoSy
   d. MRI pelvis with contrast
   e. Hysteroscopy
   f. Laparoscopy and Hysteroscopy
7. What are the diagnostic criteria for patients of septate uterus on ultrasound?
   a. Depth of septum
   b. Vertical distance between the interostial line and fundus
   c. Angle made by the septum and fundus (obtuse)
   d. Intraoperative length of septum
8. What are the criteria for management of septate uterus?
   a. Incidental Finding
   b. Infertility
   c. History of recurrent abortions 1st trimester
   d. History of recurrent abortions 2nd trimester
   e. History of recurrent abortions 1st or 2nd trimester
9. What instrument would you prefer for septal resection in routine practice?
   a. Cold Knife
   b. Bipolar cautery
   c. Monopolar cautery
10. What do you use for prevention of post-operative adhesions in Septal Resection?
   a. Hormone replacement therapy (E2 + P)
   b. IUCD without copper
   c. HRT + IUCD (without Cu wire)
   d. No treatment
11. When do you decide to operate in unicornuate uterus?
   a. Non-cavitated non-communicating horn
   b. Cavitated non-communicating horn
   c. Non-cavitated communicating horn

d. Cavitated communicating horn
e. No treatment

12. What is the first-line management for a patient with a hypoplastic uterus and infertility who desires to conceive?
    a. Uterine transplantation
    b. Hormonal therapy to stimulate endometrial growth
    c. Assisted reproductive techniques with a gestational carrier
    d. Hysteroscopic uterine augmentation
13. How would you address sexual concerns in a 20-year-old MRKH syndrome patient?
    a. Vaginal dilator therapy
    b. Hysteroscopic uterine reconstruction
    c. Uterine transplantation
    d. Hormonal replacement therapy
14. What is the first-line approach for a patient with a uterus didelphys who is asymptomatic and has had successful pregnancies?
    a. Hysteroscopic resection of the septum
    b. Expectant management
    c. Strassman metroplasty
    d. Vaginal dilator therapy
15. What is the first-line management for a patient with a bicornuate uterus and a history of recurrent pregnancy loss?
    a. Expectant management
    b. Hormonal therapy
    c. Strassman metroplasty
    d. Hysteroscopic septum resection
16. What is the first-line management for a patient with a transverse vaginal septum causing primary amenorrhea and cyclic pelvic pain?
    a. Hormonal therapy
    b. Surgical resection of the septum
    c. Hysteroscopic lysis of adhesions
    d. Vaginal dilation
17. What therapy do you use post transverse septal resection?
    a. GnRH analogues
    b. OCPs
    c. Danazol
    d. Mechanical dilatation
    e. No therapy
18. In congenital absence of the cervix, what are the treatment options?
    a. Hysterectomy
    b. Reconstructive surgery
    c. No treatment needed

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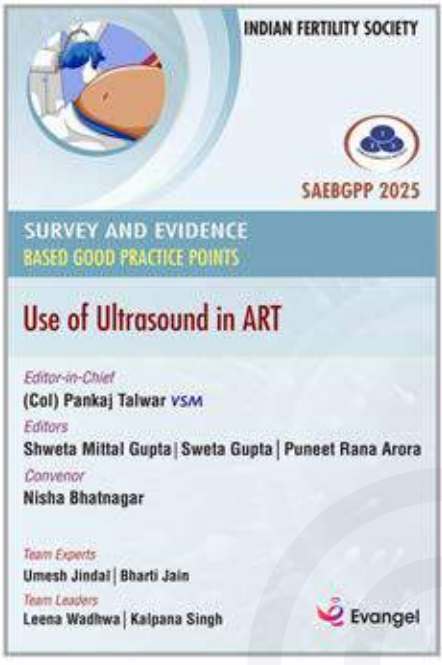
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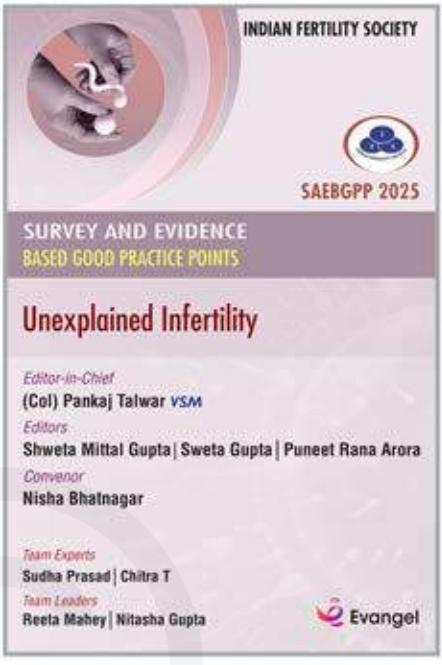
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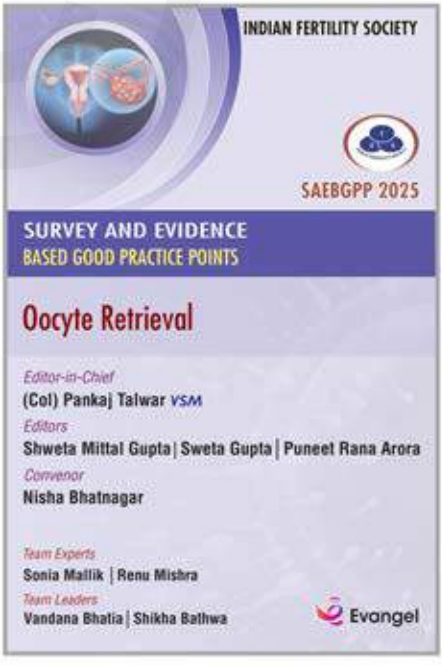
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Congenital Uterine Malformations

Prof (Col) Pankaj Talwar *VSM*, is a renowned Fertility Specialist and Director, Talwar Fertility and Men's Clinic, Gurugram, Haryana, India. Recipient of the Vishisht Seva Medal from the President of India, he has performed over 17,000 IVF cycles with a success rate exceeding 60%. A PhD in Embryology and pioneer of ovarian cortex freezing in India, he has established 29 ART units globally and trained over 2,500 gynecologists across 34 countries.

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