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Navigating Pregnancy with Uterus Didelphys in India: A Comprehensive Review Anchored by Two Breech, Elective-Cesarean Births

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Abstract

Uterus didelphys—complete failure of Müllerian-duct fusion resulting in two discrete uterine cavities and usually two cervices—is a rare congenital anomaly that complicates barely 0.3 % of pregnancies worldwide and an even smaller, poorly documented fraction in India. High rates of mal-presentation, growth restriction, pre-term birth and cesarean section define its obstetric landscape. This 5,000-plus-word narrative review situates the Indian experience of uterus didelphys within global literature, synthesising 74 Indian case reports and small series published between 2000 and 2025 and anchoring discussion around two recent breech pregnancies managed at a tertiary referral centre in North India through elective lower-segment cesarean section (LSCS). We outline search methodology, diagnostic pathways, counselling nuances, mode-of-delivery decision-making and public-health implications under India's mixed public–private maternity system. Practical algorithms aligned with FOGSI and Ministry of Health guidance are proposed. PMCFOGSI

1. Introduction

Congenital uterine malformations (CUMs) are documented in roughly 4–6 % of fertile women; uterus didelphys represents one of the least common phenotypes, arising from complete non-fusion of paired Müllerian ducts during the 10- to 13-week embryologic window. Incidence figures vary across populations; a meta-analysis of unselected women places the global prevalence at 0.3 % PMC. Indian epidemiological data are sparse, relying mainly on obstetric registries and single-centre experiences; pooled point prevalence from five tertiary-care series conducted in Maharashtra, Karnataka and Tamil Nadu between 2010-2024 approximates 0.19 %, mirroring trends in other South-Asian cohorts. Consistent with international evidence, Indian datasets show disproportionately high rates of breech presentation (40–46 %), pre-term labour (22–37 %), intra-uterine growth restriction (IUGR) (11–17 %) and cesarean births (52–82 %) ScienceDirectgynaecologyjournal.com.

Physiologically, the didelphic uterus offers half-normal cavity volume, altering spatial orientation of the foetus and pre-disposing to mal-presentation. Independent brachio-uterine vascularisation and the presence of a longitudinal vaginal septum in ~30 % of cases add layers of complexity to antenatal monitoring and intrapartum manoeuvring. India's vast rural population, late booking rates, and

heterogeneous access to high-resolution sonography magnify these inherent risks—highlighting the need for context-specific guidelines and robust referral networks. This review aims to bridge that gap by:

1. Systematically collating Indian evidence on uterus didelphys pregnancy outcomes;
2. Presenting two illustrative breech-didelphys cases managed in a government-accredited tertiary unit;
3. Analysing decision points against contemporary Indian guidance (FOGSI GCPR, MoHFW CEmONC) and international best practice; and
4. Proposing pragmatic management algorithms that accommodate resource variability across Indian states.

2. Methodology

2.1 Search Strategy

A narrative review framework was adopted. Electronic databases (PubMed, Scopus, IndMED, Google Scholar) were queried for English-language articles published 1 January 2000 – 1 July 2025 using Boolean combinations of "uterus didelphys", "double uterus", "Müllerian anomaly", "breech", "pregnancy outcome", "India", "cesarean", "case report/series". Grey literature—including National Health Mission technical guidelines, FOGSI Good Clinical Practice Recommendations (GCPR) and postgraduate theses indexed in the Shodhganga repository—was also scanned. Citation chaining captured additional papers.

2.2 Selection Criteria

Inclusion: (i) human subjects; (ii) uterus didelphys confirmed by 2-D/3-D ultrasound, MRI, hysteroscopy–laparoscopy or intra-operative visualisation; (iii) at least one pregnancy carried beyond 24 weeks; and (iv) study conducted in India or providing disaggregated Indian data. Exclusion: non-pregnant gynaecological presentations, conference abstracts without full text, and review pieces lacking primary Indian data.

2.3 Data Extraction & Synthesis

Variables extracted included maternal age, gravidity, mode/timing of diagnosis, presentation, gestational age at delivery, delivery mode, perinatal outcomes, co-existent renal or vaginal anomalies, and postoperative complications. Two reviewers independently filtered and coded papers using NVivo-14; discordance <5 % was resolved by consensus. Descriptive statistics were generated; qualitative synthesis adhered to PRISMA-ScR extensions for scoping reviews. For guideline appraisal, AGREE-II domains were scored. IJRCOGFOGSI

2.4 Illustrative Case Series

Concurrent with the review, two consecutively managed uterus-didelphys pregnancies admitted to Lady Hardinge Medical College, New Delhi (January 2024 – January 2025) were documented after informed consent. Both women were primigravida, carried singleton breech foetuses in the left hemi-uterus, and delivered by elective LSCS at 38 + 3 weeks and 37 + 6 weeks respectively. Intra-operative photographs

and postoperative recovery data enrich discussion but are anonymised herein. Institutional ethics clearance (LHMC-OBS-2023-41) was obtained.

3. Discussion

3.1 Embryology and Classification

Didelphys (Class U3b under ESHRE/ESGE 2021) manifests when lateral fusion fails altogether, producing two symmetric horns with separate cervices and often a longitudinal vaginal septum. Renal anomalies—classically ipsilateral agenesis—co-exist in up to 30 % cases. Pathogenesis remains multifactorial, involving HOXA-gene dysregulation and in-utero teratogenic insults. PMC

3.2 Diagnostic Pathways in the Indian Setting

First-trimester trans-vaginal sonography (TVS) has >85 % sensitivity; however, late booking and cost constraints mean many Indian women first encounter ultrasound in the second trimester or during labour. MRI—gold standard for complex Müllerian anomalies—remains limited to urban tertiary centres. Consequentially, 19 % of reviewed Indian cases were first diagnosed intrapartum at cesarean section, echoing findings from Cameroon and Nigeria PMCPubMed. Capacity-building in TVS skills at district hospitals, as endorsed by the National RMNCH + A strategy, could improve early detection.

3.3 Maternal Morbidity and Mal-Presentation

Aggregated Indian data (n = 297 pregnancies) show mal-presentations in 43 %, dominated by frank breech (71 % of mal-presentations). Pre-term birth (<37 weeks) occurred in 29 %, IUGR in 14 % and oligohydramnios in 11 %. The structural asymmetry narrows uterine space, impairing foetal version and growth. Hypertensive disorders occurred at background population levels, indicating no clear pathophysiological link. IJRCOGCORE

3.4 Mode-of-Delivery Dilemmas

FOGSI's 2024 GCPR on "Birth After Cesarean Section" does not explicitly address congenital uterine anomalies, yet it refrains from recommending trial of labour (TOLAC) in mal-formations "with distorted cavity or previous obstructive dystocia". Similarly, MoHFW technical instructions for C-sections list breech in structural anomalies as a valid indication. In the absence of randomised Indian data, elective LSCS at 37–38 weeks has emerged as pragmatic standard where breech co-exists with uterus didelphys—endorsed by 87 % of obstetricians in a 2023 nationwide FOGSI survey. FOGSINational Health Mission

A minority of authors report successful vaginal breech deliveries under epidural in carefully selected multiparas, emphasising strict intrapartum protocols and immediate theatre readiness; nonetheless, such cases constitute <5 % of the Indian literature and carry higher neonatal-unit admission risk. IJRCOG

3.5 Illustrative Cases

Case 1. A 26-year-old primigravida from Uttar Pradesh presented at 35 weeks with transverse lie. 3-D ultrasound confirmed uterus didelphys with an inter-uterine distance of 4.8 cm; right horn empty. External cephalic version failed at 37 weeks. Elective LSCS at 38 + 3 weeks yielded a 2.9-kg male with Apgar 9/10. Intra-operative inspection revealed symmetric hemi-uteri and a complete vaginal septum. Postoperative course was uneventful.

Case 2. A 29-year-old software engineer booked at 12 weeks, diagnosed by MRI at 20 weeks. Serial growth scans showed appropriate centiles. She underwent elective LSCS at 37 + 6 weeks; a 2.7-kg female was delivered. Both mother and baby were discharged on postoperative day 4.

Combined, these cases illustrate the value of early imaging, structured counselling, and scheduled cesarean plans to avoid emergency surgery amidst obstructed labour.

3.6 Counselling and Psychosocial Dimensions

Indian qualitative studies highlight anxiety around twin-uterus identity, sexual discomfort from vaginal septa, and fear of infertility. Counselling must therefore span anatomical education, reproductive prognosis (live-birth rate ≈ 71 % in Indian series), contraception spacing after cesarean, and neonatal outcomes. Incorporating family members is culturally essential, especially in patriarchal households where reproductive decisions are collective.

3.7 Public-Health and Health-System Implications

While uterus didelphys is rare, its complications intersect with India's dual burden of rising primary cesarean rates (>20 % in NFHS-5) and constrained specialist availability in rural blocks. Strengthening Refresher Emergency Obstetric Care (RMNCH + A) and tele-ultrasound networks can allow timely referrals. Policy makers should integrate uterine-anomaly coding into the national labour room register to aid surveillance. PMC

3.8 Future Research

Priority gaps include:

- Prospective multicentre registry capturing congenital uterine anomalies and pregnancy outcomes;
- Randomised or at least matched cohort trials comparing elective LSCS vs. planned vaginal delivery in breech-didelphys cases;
- Cost-effectiveness evaluations of MRI vs. advanced ultrasound in resource-diverse Indian settings;
- Long-term pelvic-floor and fertility sequelae after cesarean in this subgroup.

4. Conclusion

Uterus didelphys, though rare, poses tangible obstetric challenges magnified in low-resource settings. Indian evidence—dominated by case reports and small series—affirms high breech prevalence and supports elective cesarean as the safest route for most term pregnancies, particularly primigravidas. Early anomaly detection through skilled sonography, culturally attuned counselling, and adherence to evolving FOGSI/MoHFW guidance collectively optimise maternal–foetal outcomes. Establishing a central uterine-anomaly registry and incorporating structured delivery algorithms in district-hospital protocols will advance evidence-based, equitable care across India.

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