

CLINICAL APPLICATION OF FEMALE PELVIC ANATOMY IN OBSTETRIC PRACTICE: AN INTEGRATIVE LITERATURE REVIEW

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Abstract

Background: Female pelvic anatomy is fundamental to obstetric practice, providing the anatomical basis for clinical assessment, diagnosis, surgical planning, and the management of pregnancy-related complications. This review aimed to synthesize current evidence regarding the clinical applications of female pelvic anatomy in contemporary obstetric practice.

Methods: An integrative literature review was conducted using PubMed, Scopus, and ScienceDirect databases. Twenty-seven articles published between 2021 and 2026 were screened, and sixteen studies meeting the inclusion criteria were included in the final synthesis. Data were analyzed using thematic analysis to identify major anatomical domains and their clinical applications.

Results: Five major anatomical domains were identified: the bony pelvis, uterus and lower uterine segment, pelvic vasculature, pelvic floor, and pelvic biomechanics. The evidence consistently demonstrated that anatomical knowledge supports the management of obstructed labor, placenta accreta spectrum, postpartum hemorrhage, complex cesarean delivery, and obstetric anal sphincter injury. Furthermore, advances in magnetic resonance imaging, ultrasonography, artificial intelligence, and anatomy-guided surgical techniques have enhanced anatomical assessment and individualized clinical decision-making.

Conclusion: Female pelvic anatomy extends beyond descriptive science and serves as a cornerstone of evidence-based obstetric practice. Integrating anatomical knowledge with modern imaging, surgical innovation, and multidisciplinary care may improve diagnostic accuracy, optimize therapeutic strategies, and ultimately enhance maternal outcomes.

Keywords: female pelvic anatomy; obstetric practice; clinical anatomy; placenta accreta spectrum; postpartum hemorrhage

Abstrak

Latar Belakang: Anatomi pelvis wanita merupakan dasar penting dalam praktik obstetri karena mendukung penilaian klinis, penegakan diagnosis, perencanaan pembedahan, serta tata laksana berbagai komplikasi kehamilan dan persalinan. Penelitian ini bertujuan mensintesis bukti ilmiah terkini mengenai aplikasi klinis anatomi pelvis wanita dalam praktik obstetri modern.

Metode: Penelitian ini menggunakan desain *integrative literature review* melalui penelusuran artikel pada basis data PubMed, Scopus, dan ScienceDirect. Sebanyak 27 artikel yang diterbitkan pada tahun 2021–2026 diseleksi berdasarkan kriteria inklusi dan eksklusi, kemudian 16 artikel dianalisis secara tematik untuk mengidentifikasi domain anatomi utama beserta penerapannya dalam praktik obstetri.

Hasil: Analisis mengidentifikasi lima domain anatomi utama, yaitu pelvis tulang, uterus dan segmen bawah uterus, vaskularisasi pelvis, dasar panggul, serta biomekanika pelvis. Bukti ilmiah menunjukkan bahwa pemahaman anatomi berperan penting dalam tata laksana persalinan macet, *placenta accreta spectrum*, perdarahan postpartum, seksio sesarea kompleks, dan *obstetric anal sphincter injury*. Selain itu, perkembangan pencitraan resonansi magnetik, ultrasonografi, kecerdasan buatan, serta teknik pembedahan berbasis anatomi meningkatkan akurasi penilaian anatomi dan pengambilan keputusan klinis yang lebih individual.

Kesimpulan: Anatomi pelvis wanita tidak hanya merupakan ilmu dasar, tetapi juga menjadi landasan utama praktik obstetri berbasis bukti. Integrasi pemahaman anatomi dengan teknologi pencitraan modern, inovasi pembedahan, dan pendekatan multidisiplin berpotensi meningkatkan ketepatan diagnosis, efektivitas tata laksana, serta luaran maternal.

Kata kunci: anatomi pelvis wanita; praktik obstetri; anatomi klinis; *placenta accreta spectrum*; perdarahan postpartum

INTRODUCTION

A comprehensive understanding of female pelvic anatomy forms the cornerstone of safe and effective obstetric practice. Throughout pregnancy, childbirth, and the postpartum period, healthcare professionals continuously make clinical decisions that depend on an accurate understanding of the anatomical relationships among the bony pelvis, uterus, cervix, pelvic floor muscles, ligaments, vascular structures, and pelvic nerves. Anatomical knowledge is therefore not merely a component of basic medical sciences but an essential foundation for clinical reasoning, procedural skills, and patient safety in maternal healthcare (Standring, 2021).

Despite remarkable advances in obstetric care, maternal morbidity and mortality remain major global public health concerns. According to the World Health Organization (WHO), approximately 287,000 women died from pregnancy- and childbirth-related complications in 2020, with nearly 95% of these deaths occurring in low- and middle-income countries. Postpartum hemorrhage, hypertensive disorders of pregnancy, sepsis, obstructed labor, and complications related to unsafe abortion continue to represent the leading causes of preventable maternal mortality worldwide (World Health Organization [WHO], 2023). The Sustainable Development Goals (SDGs) further emphasize the importance of reducing the global maternal mortality ratio to fewer than 70 deaths per 100,000 live births by 2030 (United Nations, 2015).

Successful management of obstetric emergencies requires more than adherence to clinical guidelines. Rapid diagnosis, accurate assessment, and timely intervention are fundamentally influenced by the clinician's understanding of anatomical structures and their physiological changes during pregnancy. For example, effective management of postpartum hemorrhage requires knowledge of the uterine vascular network and collateral circulation, while successful shoulder dystocia maneuvers depend on an understanding of pelvic dimensions and fetal shoulder relationships. Likewise, prevention and repair of obstetric anal

sphincter injuries require precise knowledge of the perineal body, levator ani complex, and anal sphincter anatomy (Cunningham et al., 2022; Baggish & Karram, 2021).

Pregnancy induces profound anatomical and physiological adaptations within the female pelvis. Progressive enlargement of the uterus, remodeling of pelvic ligaments, increased uteroplacental blood flow, and alterations in pelvic floor biomechanics are physiological processes that support fetal development while simultaneously influencing the occurrence and management of obstetric complications (Moore, Persaud, & Torchia, 2023). These anatomical adaptations explain why identical clinical interventions may produce different outcomes depending on gestational age, fetal position, placental implantation, or maternal pelvic morphology. Consequently, anatomical knowledge should be interpreted as dynamic and clinically applicable rather than static descriptive information.

Recent advances in obstetric practice have increasingly incorporated imaging technologies, simulation-based training, and minimally invasive procedures to improve maternal outcomes. Nevertheless, these innovations remain fundamentally dependent on a sound understanding of pelvic anatomy. Clinical procedures such as cesarean section, uterine compression sutures, uterine artery ligation, internal iliac artery ligation, manual removal of retained placenta, vacuum-assisted delivery, forceps delivery, episiotomy, and repair of severe perineal tears all require accurate identification of anatomical landmarks to minimize surgical complications and preserve reproductive function (American College of Obstetricians and Gynecologists, 2023).

Although numerous publications have discussed female pelvic anatomy, most anatomy literature focuses primarily on structural descriptions, whereas obstetric literature generally emphasizes diagnosis, treatment algorithms, and clinical outcomes. Few review articles have comprehensively integrated anatomical principles with their direct application in clinical decision-making during obstetric practice. Consequently, the relationship between anatomical knowledge and evidence-based obstetric management remains fragmented across different disciplines, making it difficult for students and clinicians to translate anatomical concepts into clinical reasoning.

Integrating anatomical sciences with obstetric practice is particularly important for improving competency-based education and clinical decision-making among medical students, midwives, obstetricians, and other maternal healthcare professionals. A clinically oriented review of pelvic anatomy may facilitate a deeper understanding of disease mechanisms, improve interpretation of obstetric complications, and support safer procedural performance in daily practice.

Therefore, this integrative literature review aims to synthesize current evidence regarding the clinical application of female pelvic anatomy in obstetric practice. Specifically, this review discusses the anatomical basis underlying normal labor mechanisms, postpartum hemorrhage, shoulder dystocia, placenta accreta spectrum, uterine rupture, obstetric anal sphincter injury, and postpartum pelvic floor dysfunction. By integrating anatomical concepts with common obstetric conditions, this review seeks to strengthen clinical

reasoning and promote anatomy-informed decision-making as an essential component of high-quality maternal healthcare.

RESEARCH METHOD

Study Design

This study employed an Integrative Literature Review design following the framework proposed by Whittemore and Knafl, consisting of problem identification, literature search, data evaluation, data analysis, and presentation of findings.

Literature Search Strategy

A comprehensive literature search was using three electronic databases: PubMed, Scopus, and ScienceDirect during 2021-2026. The search strategy combined Medical Subject Headings (MeSH), free-text terms, and Boolean operators ("AND" and "OR") to maximize retrieval of relevant studies. The principal search strategy included combinations of the following keywords ("female pelvic anatomy" OR "pelvic anatomy" OR "clinical anatomy") AND ("obstetrics" OR "obstetric practice" OR "obstetric emergency" OR "maternal care") AND ("postpartum hemorrhage" OR "shoulder dystocia" OR "placenta accreta" OR "uterine rupture" OR "perineal trauma" OR "obstetric anal sphincter injury" OR "pelvic floor dysfunction").

Inclusion criteria

- Original research articles, systematic reviews, narrative reviews, clinical guidelines, and authoritative anatomy references.
- Publications discussing the anatomical basis of obstetric practice or obstetric emergencies.
- Articles published in English.
- Publications from 2021–2026, with older landmark references included when considered fundamental to anatomical or obstetric knowledge

Exclusion criteria

- Articles focusing exclusively on gynecologic oncology, orthopedic surgery, or urologic pelvic anatomy without relevance to obstetric practice.
- Case reports without discussion of anatomical implications.
- Conference abstracts, editorials, letters to the editor, and non-peer-reviewed publications.
- Articles with unavailable full text.

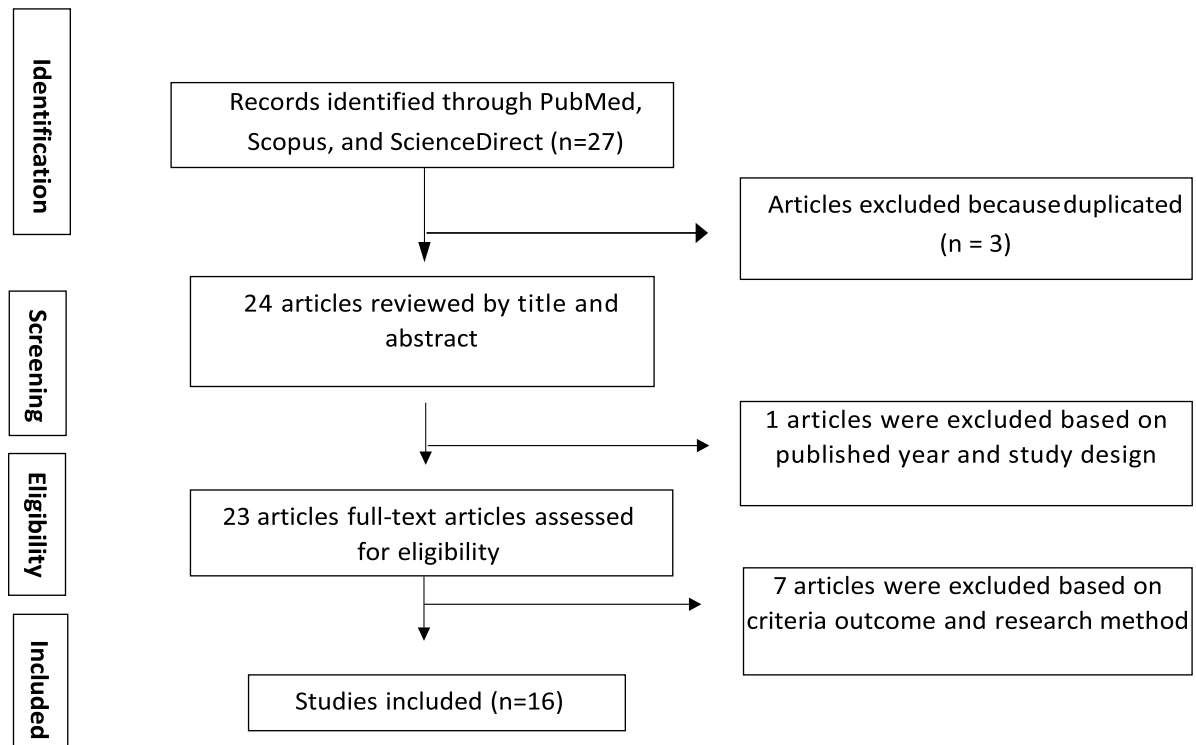


Figure 1. Prisma flow Chart

Literature Selection

Titles and abstracts retrieved from the database searches were screened to determine their relevance to the objectives of this review. Full-text articles were subsequently evaluated based on the predefined eligibility criteria. Priority was given to publications presenting clinical evidence, comprehensive anatomical descriptions, international obstetric guidelines, and high-quality review articles. When multiple publications discussed similar concepts, the most recent and methodologically robust sources were preferentially included.

Table 1. Anatomical Domains and Their Clinical Implications in Obstetric Practice

Anatomical Domain	Representative Obstetric Conditions	Clinical Relevance	Key Clinical Decision
Bony Pelvis	Shoulder dystocia, CPD	Explains labor mechanics and pelvic dimensions	Selection of appropriate obstetric maneuvers and mode of delivery
Uterus	PPH, uterine rupture	Supports understanding of uterine integrity and contractility	Conservative management versus surgical intervention

Anatomical Domain	Representative Obstetric Conditions	Clinical Relevance	Key Clinical Decision
Pelvic Vasculature	PPH	Identifies critical vascular structures	Uterine artery ligation, embolization, or hysterectomy
Pelvic Floor	OASI, perineal trauma	Guides prevention and repair of pelvic floor injuries	Episiotomy technique and perineal repair
Pelvic Innervation	Postpartum dysfunction	Explains pelvic nerve-related complications	Prevention, early diagnosis, and rehabilitation

RESULTS AND DISCUSSION

RESULTS

3.1 Study Selection

A total of 27 articles were identified through searches of PubMed, Scopus, and ScienceDirect. After screening and application of the predefined inclusion and exclusion criteria, 11 articles were excluded because they consisted of isolated case reports, editorials, conference abstracts, or studies that did not specifically address the clinical application of female pelvic anatomy in obstetric practice. A total of 16 studies were included in the final integrative review. The selected studies comprised prospective observational studies, retrospective studies, imaging studies, surgical reviews, clinical reviews, and evidence-based reviews, providing comprehensive perspectives on the relationship between female pelvic anatomy and obstetric management.

3.2 Characteristics of Included Studies

The characteristics of the included studies are summarized in Table 2. The publications were released between 2021 and 2026, reflecting the increasing interest in clinically oriented pelvic anatomy within contemporary obstetric practice. Most studies originated from Europe and Asia, with research focusing primarily on placenta accreta spectrum, postpartum hemorrhage, obstructed labor, shoulder dystocia, pelvic floor injury, and cesarean delivery.

Table 2. Characteristics of Included Studies

Author (Year)	Country	Study Design	Anatomical Focus	Obstetric Topic	Key Findings
Aktaş et al. (2026)	Türkiye	Prospective observational study	Subpubic arch angle (SPA), anal sphincter	Occult obstetric anal sphincter injury (OASI)	A narrower SPA and shorter maternal height significantly increased the risk of OASI in primiparous women.
AlSaad et al. (2025)	United Kingdom	Retrospective dataset analysis	Maternal and fetal characteristics	Prediction of mode of delivery	AI models accurately predicted vaginal versus unplanned cesarean delivery using antepartum maternal characteristics.
Shimaoka et al. (2023)	Japan	Prospective observational study	Maternal pelvic pelvimetry	Obstructed labor	Sacral outlet diameter <10.7 cm was the strongest predictor of emergency cesarean delivery due to cephalopelvic disproportion.
Zheng & Zou (2026)	China	Retrospective study	Incarcerated uterus, lower uterine segment	Incarcerated gravid uterus	MRI provided superior anatomical visualization, and lower uterine segment thickness correlated with neonatal birth weight.
Nieto-Calvache et al. (2026)	Colombia et al.	Clinical opinion / conceptual framework	Lesion topography, pelvic vascular anatomy	Placenta accreta spectrum (PAS)	Lesion topography predicted surgical complexity better than invasion depth, supporting individualized surgical planning.
Topalidou et al. (2024)	United Kingdom	Within-subject repeated measures study	Pelvic-body interface biomechanics	Maternal birthing position	Different maternal positions significantly altered pelvic pressure distribution during labor.
Shih et al. (2026)	Taiwan	Surgical technique study	Uterus	Placenta accreta spectrum	The Nausicaä compression suture was an effective uterus-preserving technique for controlling PAS-related hemorrhage.
Chen et al. (2026)	China	Retrospective study	Pelvic floor structures	Pelvic anatomical changes associated with aging and parity	Maternal age and vaginal delivery history significantly influenced pelvic floor morphology.
Jauniaux et al. (2023)	Egypt & United Kingdom	Retrospective study	Lower uterine segment, cervix	Placenta accreta spectrum	Third-trimester transvaginal ultrasonography accurately predicted hysterectomy risk based on lower uterine segment thickness and placental lacunae.

Nsugbe (2021)	United Kingdom	Semi-systematic review	Uterine contractions	Prediction of preterm labor	Integration of artificial intelligence and uterine contraction analysis may improve prediction of preterm birth.
Liu et al. (2023)	United States	Literature review	Uterine and pelvic anatomy	Refractory postpartum hemorrhage	Effective management of severe postpartum hemorrhage requires restoration of uterine anatomy and implementation of anatomy-guided interventions.
Bhattacharjee et al. (2025)	India	Quasi-randomized trial	Retroperitoneal vascular anatomy	Medical education	Intraoperative anatomy demonstrations significantly improved students' understanding of pelvic anatomy compared with conventional classroom teaching.
Fox et al. (2026)	United States et al.	Expert review	Uterus and abdominal wall	Complex cesarean delivery	Complex cesarean delivery requires advanced anatomical knowledge to safely manage distorted pelvic anatomy caused by adhesions or fibroids.
Bartels & Brennan (2024)	Ireland	Editorial review	Placenta and uterus	Complex cesarean delivery and PAS	Multidisciplinary management and careful preoperative planning are essential for increasingly complex cesarean deliveries associated with PAS.
Palacios-Jaraquemada (2025)	Argentina	Anatomical review	Abdominal wall and pelvic spaces	Obstetric surgical anatomy	Standardization of abdominal wall and pelvic vascular anatomy facilitates safer obstetric surgical procedures and reduces operative complications.
Fletcher et al. (2025)	United Kingdom & United States	Educational review	Pelvic vascular anatomy	Interventional radiology in PAS	Prophylactic aortic balloon occlusion and other interventional radiology techniques reduced blood loss and maternal morbidity in PAS.

3.3 Distribution of Anatomical Domains

Analysis of the included studies identified five principal anatomical domains that consistently influenced obstetric assessment and clinical decision-making.

Table 3. Summary of Anatomical Domains Identified in the Included Studies

Anatomical Domain	Main Anatomical Structures	Associated Obstetric Conditions	Clinical Relevance
Bony pelvis	Pelvic inlet, pelvic outlet, subpubic arch, sacrum	CPD, shoulder dystocia, obstructed labor	Determines labor mechanics and selection of obstetric maneuvers
Uterus and placentation	Myometrium, lower uterine segment, uteroplacental interface	PAS, uterine rupture	Supports diagnosis and individualized surgical planning
Pelvic vasculature	Uterine artery, ovarian artery, pelvic collateral vessels	PPH	Guides hemorrhage control through ligation and embolization
Pelvic floor	Levator ani, perineal body, anal sphincter	OASI, pelvic floor dysfunction	Supports prevention, recognition, and repair of birth-related injuries
Pelvic imaging	MRI, TVUS, pelvimetry	High-risk pregnancy, obstructed labor	Enhances anatomical visualization and preoperative assessment

3.4 Evidence Mapping of Clinical Applications of Female Pelvic Anatomy

The synthesis of evidence demonstrated that female pelvic anatomy serves as the anatomical foundation for diagnosis, procedural planning, and surgical decision-making across multiple obstetric conditions. Rather than functioning as isolated anatomical structures, the pelvis, uterus, pelvic vasculature, pelvic floor, and associated supporting tissues interact dynamically throughout pregnancy and childbirth.

Table 4. Evidence Mapping of the Clinical Application of Female Pelvic Anatomy in Obstetric Practice

Anatomical Domain	Obstetric Condition	Representative Studies	Key Anatomical Findings	Clinical Application	Clinical Implication
Bony Pelvis	Labor mechanism, obstructed labor, cephalopelvic disproportion (CPD), shoulder dystocia	MRI pelvimetry, birthing position studies	Pelvic morphology, pelvic inlet/outlet dimensions, subpubic arch angle, and pelvic biomechanics influence fetal descent and rotation.	Supports assessment of labor progression, selection of delivery mode, and performance of obstetric maneuvers (e.g., McRoberts maneuver).	Accurate understanding of pelvic anatomy facilitates early recognition of obstructed labor and optimizes intrapartum decision-making.
Uterus and Placentation	Placenta accreta spectrum (PAS), uterine rupture	PAS review, Nausicaa suture, TVUS, MRI, complex cesarean studies	Myometrial integrity, lower uterine segment anatomy, and placental invasion determine surgical complexity.	Guides antenatal diagnosis, individualized surgical planning, and uterus-preserving procedures.	Comprehensive anatomical assessment reduces intraoperative complications and improves maternal outcomes in PAS management.
Pelvic Vasculature	Postpartum hemorrhage (PPH)	Refractory PPH review, interventional radiology studies	Uterine artery, ovarian artery, and pelvic collateral circulation are critical determinants of hemorrhage control.	Supports uterine artery ligation, internal iliac artery ligation, uterine artery embolization, and conservative hemorrhage management.	Anatomical knowledge enables rapid hemostatic interventions and minimizes maternal morbidity.
Pelvic Floor	Obstetric anal sphincter injury (OASI), perineal trauma	Subpubic arch angle study, MRI pelvic floor studies	Pelvic outlet anatomy, levator ani complex, perineal body, and anal sphincter integrity	Guides episiotomy, identification of high-risk women, and repair of perineal injuries.	Preservation of pelvic floor anatomy reduces long-term urinary, fecal, and sexual dysfunction after childbirth.

Anatomical Domain	Obstetric Condition	Representative Studies	Key Anatomical Findings	Clinical Application	Clinical Implication
Pelvic Imaging and Anatomical Assessment	High-risk pregnancy, complex obstetric surgery	MRI, transvaginal ultrasonography, pelvimetry studies	influence the risk of birth-related trauma.		
			Advanced imaging improves visualization of pelvic structures and anatomical relationships before intervention.	Supports risk stratification, preoperative planning, and multidisciplinary management.	Imaging-based anatomical assessment enhances surgical precision and contributes to personalized obstetric care.

3.5 Conceptual Synthesis

Across all included studies, a consistent conceptual framework emerged, demonstrating that female pelvic anatomy underpins clinical reasoning throughout obstetric care. Anatomical knowledge facilitates accurate assessment of maternal anatomy, supports the interpretation of pathological conditions, guides the selection of appropriate interventions, and ultimately contributes to improved maternal outcomes.

DISCUSSION

This integrative literature review demonstrates that female pelvic anatomy plays a central role in contemporary obstetric practice by supporting clinical assessment, procedural planning, and decision-making across various maternal conditions. Rather than functioning solely as foundational anatomical knowledge, the reviewed studies consistently showed that anatomical understanding is directly applicable to the management of labor abnormalities, placenta accreta spectrum (PAS), postpartum hemorrhage (PPH), complex cesarean delivery, and pelvic floor injury (Shimaoka et al., 2023; Nieto-Calvache et al., 2026; Liu et al., 2023; Fox et al., 2026).

The findings indicate that the bony pelvis and pelvic biomechanics remain fundamental determinants of labor progression. Maternal pelvic dimensions, particularly the sacral outlet diameter, were associated with the risk of cephalopelvic disproportion and emergency cesarean delivery (Shimaoka et al., 2023). Likewise, maternal birthing position altered pelvic pressure distribution and may facilitate fetal descent by optimizing pelvic biomechanics (Topalidou et al., 2024). Furthermore, the subpubic arch angle was identified as an anatomical predictor of occult obstetric anal sphincter injury, suggesting that individual anatomical variation contributes to both labor outcomes and maternal birth trauma (Aktaş et al., 2026).

Placenta accreta spectrum was the most frequently investigated condition among the included studies, reflecting its increasing clinical significance. The reviewed evidence consistently emphasized that successful PAS management depends on accurate evaluation of uterine anatomy, lower uterine segment morphology, placental topography, and pelvic vascular structures. Lesion topography was reported to predict surgical complexity more accurately than placental invasion depth, while transvaginal ultrasonography improved preoperative risk assessment by evaluating lower uterine segment thickness and placental lacunae (Nieto-Calvache et al., 2026; Jauniaux et al., 2023). In addition, anatomy-based surgical approaches, including the Nausicaä compression suture, demonstrated the potential to preserve the uterus while effectively controlling hemorrhage (Shih et al., 2026). These findings suggest a shift toward individualized, anatomy-guided management of PAS.

Another important finding concerns the role of pelvic vascular anatomy in the management of postpartum hemorrhage and complex obstetric surgery. Knowledge of the uterine and pelvic vascular network supports appropriate selection of conservative surgical techniques, vascular occlusion, and interventional radiology. The reviewed studies highlighted that anatomy-guided hemorrhage control can reduce maternal morbidity and

improve surgical outcomes, particularly in women with PAS or severe PPH (Liu et al., 2023; Fletcher et al., 2025; Fox et al., 2026).

Beyond clinical management, several studies demonstrated the growing contribution of advanced imaging, artificial intelligence, and anatomy-based education to obstetric care. Magnetic resonance imaging enhanced anatomical visualization in obstructed labor and incarcerated gravid uterus, whereas artificial intelligence models improved prediction of delivery outcomes using maternal characteristics (Zheng & Zou, 2026; AlSaad et al., 2025). Furthermore, intraoperative anatomical demonstrations significantly enhanced medical students' understanding of pelvic anatomy, highlighting the importance of clinically integrated anatomy education for future obstetric practice (Bhattacharjee et al., 2025).

Overall, the evidence synthesized in this review indicates that female pelvic anatomy should be regarded as a dynamic and clinically applicable discipline that underpins evidence-based obstetric practice. Integrating anatomical knowledge with imaging, surgical innovation, and multidisciplinary management may improve diagnostic accuracy, optimize therapeutic decision-making, and ultimately contribute to better maternal outcomes.

CONCLUSION

This integrative literature review demonstrates that female pelvic anatomy is fundamental to evidence-based obstetric practice, extending beyond descriptive anatomical knowledge to support clinical assessment, diagnosis, surgical planning, and therapeutic decision-making. The reviewed literature consistently highlights the importance of the bony pelvis, uterus, pelvic vasculature, pelvic floor, and lower uterine segment in the management of major obstetric conditions, including obstructed labor, placenta accreta spectrum, postpartum hemorrhage, complex cesarean delivery, and obstetric anal sphincter injury. Furthermore, advances in magnetic resonance imaging, ultrasonography, artificial intelligence, and anatomy-guided surgical techniques have strengthened the application of anatomical knowledge in contemporary obstetric care. Collectively, these findings emphasize that integrating anatomical understanding with clinical practice can improve diagnostic accuracy, optimize individualized management strategies, and contribute to better maternal outcomes. Future research should focus on the integration of advanced imaging technologies, digital anatomy, simulation-based education, and multidisciplinary approaches to further enhance anatomy-informed obstetric care.

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