

ENDOMETRIAL CARCINOMA CONFINED TO A SINGLE HORN OF A BICORNUATE UTERUS: A CASE REPORT WITH RADIOLOGIC-PATHOLOGIC CORRELATION

Dr Sri Indira Kumar Udayakumar^{1*}, Dr Karthik Krishna Ramakrishnan², Dr Paarthipan Natarajan³,

Dr Jeeva Harini Saravanan⁴

¹Department: Department of Radiology; Institution/affiliation: Saveetha Medical College and Hospital, SIMATS, Chennai, India

²Department: Department of Radiology; Institution/affiliation: Saveetha Medical College and Hospital, SIMATS, Chennai, India

³Department: Department of Radiology; Institution/affiliation: Saveetha Medical College and Hospital, SIMATS, Chennai, India

⁴Department: Department of Radiology; Institution/affiliation: Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India.

*Corresponding author: Dr Sri Indira Kumar Udayakumar, sriindirakumar@gmail.com

ABSTRACT

Background: Endometrial carcinoma in a bicornuate uterus is rare and may be missed when blind sampling accesses only the uninvolved horn.

Case presentation: A 62-year-old postmenopausal woman presented with 2 months of intermittent bleeding. Ultrasonography showed asymmetric endometrial thickening but did not define uterine morphology. CT and multiparametric MRI demonstrated a bicornuate uterus and a 28 x 13 x 23 mm left-horn lesion with restricted diffusion, heterogeneous enhancement, and more than 50% myometrial invasion; the right horn and extrauterine structures were uninvolved. Endometrial sampling confirmed endometrioid adenocarcinoma. Total abdominal hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node dissection were performed. Histopathology showed grade 2 endometrioid adenocarcinoma with deep myometrial invasion, no lymphovascular space invasion, and negative nodes, supporting FIGO 2023 stage IB.

Conclusion: In duplicated uterine cavities, both horns require evaluation; MRI enables cavity-specific diagnosis, staging, and surgical planning.

Keywords: Bicornuate uterus, Endometrial carcinoma, Magnetic resonance imaging, Mullerian anomaly, Case report

How to cite this article: Udayakumar SIK, Ramakrishnan KK, Natarajan P, Saravanan JH., Endometrial Carcinoma

Confined to a Single Horn of a Bicornuate Uterus: A Case Report with Radiologic-Pathologic Correlation. Int J Drug Deliv Technol. 2026;16(7): 1492-1498; DOI: 10.25258/ijddt.16.7.160

INTRODUCTION

Mullerian duct anomalies arise from abnormal development, fusion, or resorption of the paired paramesonephric ducts. A bicornuate uterus is an incomplete fusion anomaly characterized by two divergent uterine horns, with either one cervix (unicollis) or two cervices (bicollis).¹ The 2021 American Society for Reproductive Medicine classification standardized description of uterine, cervical, and vaginal anomalies and facilitates communication among radiologists, gynecologists, and pathologists.²

Endometrial carcinoma arising in a congenital uterine anomaly is rare. A 2020 review identified 27 reported endometrial cancers in Mullerian anomalies, including 9 (33.3%) in bicornuate uteri.¹⁴ Published tumors have involved one cavity, both cavities, or a noncommunicating component.^{3,4} Diagnostic challenges described in prior reports include blind sampling of the uninvolved horn, failure to access a duplicated or noncommunicating cavity, delayed recognition of the anomaly, and different histologic findings between the two horns.^{4,12,13}

The 2023 FIGO staging system integrates anatomic extent with histologic and, when available, molecular features.⁵ Contemporary multidisciplinary guidance similarly emphasizes depth of myometrial invasion, cervical involvement, lymphovascular space invasion, nodal status, and molecular classification for risk stratification and treatment planning.⁶

Pelvic magnetic resonance imaging (MRI) is the principal imaging modality for local staging because it delineates uterine zonal anatomy, tumor extent, and myometrial invasion with high

soft-tissue contrast. The American College of Radiology considers contrast-enhanced pelvic MRI appropriate for pretreatment assessment of endometrial cancer,⁷ and European Society of Urogenital Radiology guidance supports standardized protocols and reporting.⁸ T2-weighted, diffusion-weighted, and contrast-enhanced sequences provide complementary information for tumor detection and staging.⁹

We report a unilateral FIGO grade 2 endometrioid adenocarcinoma confined to the left horn of a bicornuate uterus. The distinctive contribution is complete CT-MRI-gross-histologic correlation, including preoperative MRI prediction of deep myometrial invasion, together with a practical demonstration of why each uterine cavity must be mapped and sampled separately.

CASE PRESENTATION

Patient Information

A 62-year-old multiparous woman, 10 years postmenopausal, presented with intermittent vaginal bleeding for 2 months. The available record documented no use of hormone replacement therapy or tamoxifen and no history of diabetes mellitus, prior pelvic malignancy, or pelvic irradiation. No history of obesity was documented; however, the exact body mass index was unavailable. Relevant family history of gynecologic malignancy, genetic information, and psychosocial history were not available in the source record. No prior diagnostic or therapeutic intervention for the current episode was documented before presentation.

Clinical Findings and Timeline

Table 1: CARE-compliant clinical timeline.

Time point	Event	Findings and outcome
2 months before presentation	Symptom onset	Intermittent postmenopausal vaginal bleeding began.
At presentation	Clinical assessment	Hemodynamically stable; healthy-appearing cervix; mildly enlarged uterus; no clinically evident adnexal mass. Exact hemoglobin and individual laboratory values were unavailable.
Initial imaging	Transabdominal ultrasonography	Bulky uterus with asymmetric endometrial thickening; external fundal contour and separate cavities were not clearly delineated.
Subsequent imaging	Noncontrast CT and multiparametric MRI	Bicornuate uterus; 28 x 13 x 23 mm left-horn lesion with restricted diffusion and more than 50% myometrial invasion; right horn and extrauterine structures uninvolved.
Preoperative assessment	Endometrial sampling	Endometrioid adenocarcinoma confirmed; sampling method and hysteroscopy status were not documented.
Definitive treatment	Surgery	Total abdominal hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node dissection.
Postoperative pathology	Final diagnosis	FIGO grade 2 endometrioid adenocarcinoma, deep myometrial invasion, no lymphovascular space invasion, negative pelvic lymph nodes; FIGO 2023 stage IB.
At manuscript preparation	Follow-up	Molecular classification, postoperative treatment, current disease status, patient perspective, and long-term follow-up were unavailable.

At presentation, the patient was hemodynamically stable. Abdominal examination was unremarkable. Pelvic examination showed a healthy-appearing cervix, a mildly enlarged uterus, and no clinically evident adnexal mass. Routine hematologic and biochemical test results were documented as within reference ranges; exact hemoglobin and individual laboratory values were not available in the supplied record. Cervical cytology showed atrophic postmenopausal changes.

Diagnostic Assessment

Transabdominal ultrasonography demonstrated a bulky uterus with asymmetric endometrial thickening. Because the examination did not clearly delineate the external fundal contour or the two endometrial cavities, uterine morphology remained indeterminate. A three-dimensional or transvaginal ultrasound assessment was not documented. Cross-sectional imaging was

therefore obtained to characterize both the focal endometrial abnormality and the suspected congenital anomaly.

Available noncontrast computed tomography images of the pelvis showed two widely divergent uterine horns, supporting a bicornuate configuration (Figure 1). A sagittal lumbosacral image showed degenerative spinal changes but did not contribute to oncologic assessment and was not included.

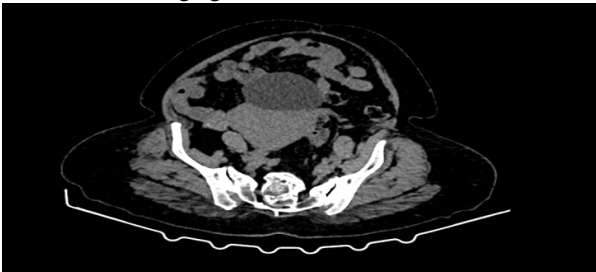
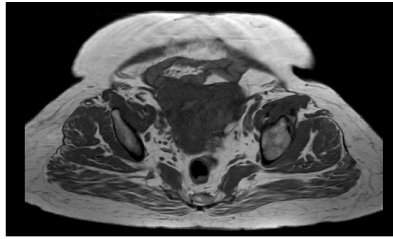


Figure 1: Axial noncontrast computed tomography image shows two widely divergent uterine horns, supporting a bicornuate configuration.

Multiparametric pelvic MRI confirmed a bicornuate uterus and demonstrated an endometrial lesion confined to the left horn (Figure 2). The lesion measured approximately 28 x 13 x 23 mm. It was predominantly isointense to the myometrium on T1-

weighted imaging and heterogeneously hyperintense on T2-weighted imaging. The lesion distended the left endometrial cavity and disrupted the normal low-signal junctional zone. The right horn showed no suspicious endometrial abnormality.

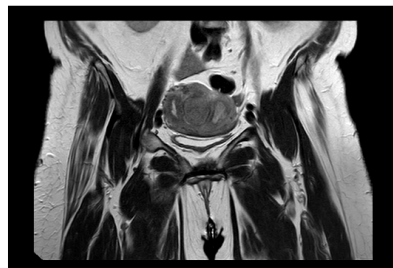
A



B



C



D

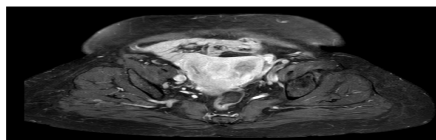


Figure 2: Multiparametric MRI demonstrates a lesion confined to the left uterine horn. Axial T1-weighted (A), axial T2-weighted (B), coronal T2-weighted (C), and sagittal T2-weighted (D) images show distension of the involved cavity, disruption of the junctional zone, and relative preservation of the right horn.

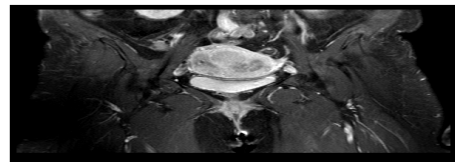
Postcontrast fat-suppressed T1-weighted images showed heterogeneous enhancement, irregular margins, and myometrial invasion involving more than 50% of the myometrial thickness

(Figure 3). There was no definite cervical stromal invasion, serosal breach, adnexal disease, pelvic lymphadenopathy, or adjacent-organ extension.

A



B



C

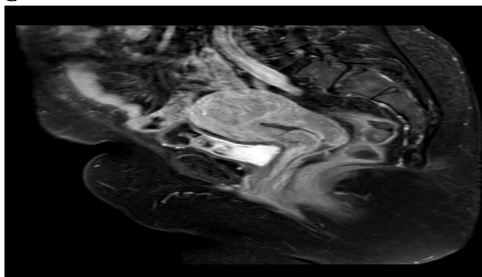


Figure 3: Axial (A), coronal (B), and sagittal (C) postcontrast fat-suppressed T1-weighted images show heterogeneous enhancement, irregular margins, and deep myometrial invasion, without definite cervical, serosal, adnexal, or adjacent-organ involvement.

Diffusion-weighted imaging showed high signal within the lesion with corresponding low signal on the apparent diffusion coefficient map, confirming true diffusion restriction (Figure 4). Taken together, the imaging findings favored endometrial carcinoma confined to the left horn, with deep myometrial

invasion and no macroscopic extrauterine disease. MRI therefore suggested an anatomic stage IB pattern; definitive FIGO 2023 staging required histopathologic confirmation. Radiologic-pathologic correlation is summarized in Table 2.

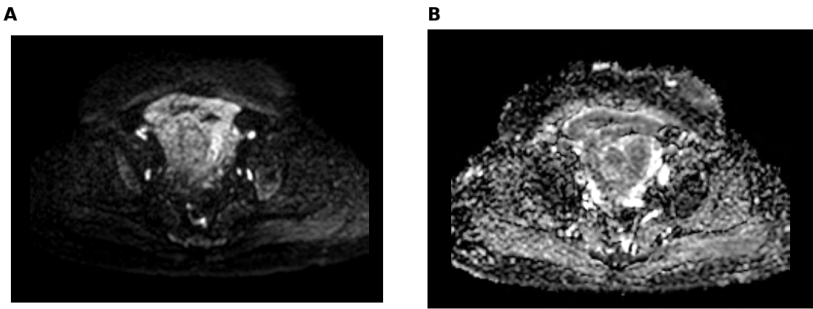


Figure 4: Diffusion-weighted image (A) shows high signal in the left-horn lesion, with corresponding low signal on the apparent diffusion coefficient map (B), confirming true diffusion restriction.

Table 2: Radiologic-pathologic correlation.

Parameter	Imaging finding	Pathologic finding	Clinical implication
Uterine morphology	Two divergent horns on CT and MRI.	Bicornuate uterus on gross examination.	Each cavity required separate assessment.
Tumor location	Lesion confined to the left horn; right horn uninvolved.	Tumor confined to one horn.	Supported cavity-specific sampling and specimen orientation.
Signal and enhancement	Heterogeneous T2 signal and postcontrast enhancement.	FIGO grade 2 endometrioid adenocarcinoma.	Supported malignant endometrial pathology.
Diffusion restriction	High diffusion-weighted signal with low apparent diffusion coefficient signal.	Cellular carcinoma on microscopy.	Increased diagnostic confidence.
Myometrial invasion	Invasion of more than 50% of the myometrial thickness.	Deep invasion confirmed histologically; exact depth in millimeters unavailable.	Supported FIGO 2023 stage IB.
Extrauterine disease	No cervical, serosal, adnexal, nodal, or adjacent-organ involvement.	No lymphovascular space invasion; pelvic lymph nodes negative.	Supported disease confined to the uterus.

Therapeutic Intervention

Endometrial sampling confirmed endometrioid adenocarcinoma. The sampling method and whether hysteroscopy was performed were not documented in the supplied record. The patient

underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy and pelvic lymph node dissection. Gross examination confirmed bicornuate uterine morphology, with the tumor confined to one horn (Figure 5).

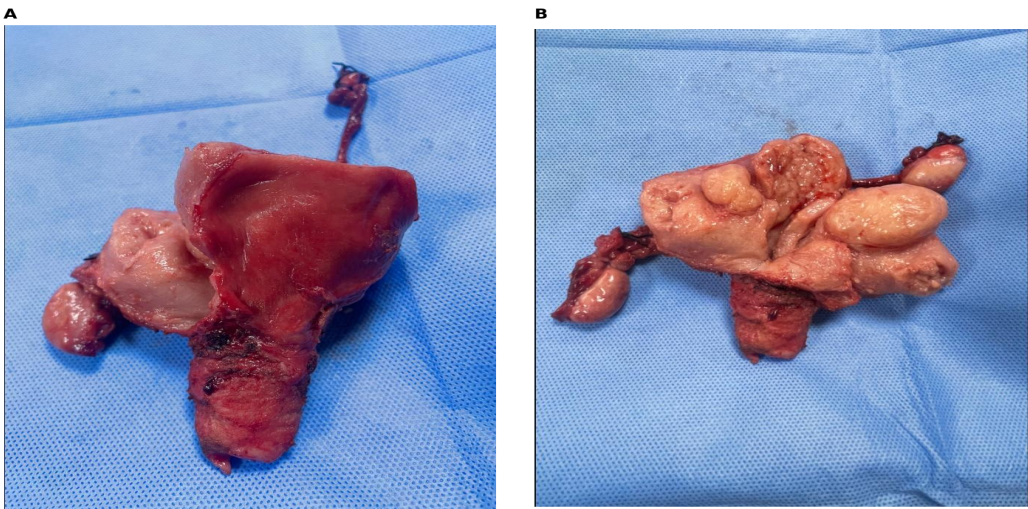


Figure 5: Gross hysterectomy specimen. External (A) and opened (B) views demonstrate bicornuate uterine morphology, with the tumor confined to one horn.

Follow-up and Outcomes

Histopathologic examination showed moderately differentiated (FIGO grade 2) endometrioid adenocarcinoma with myometrial invasion of more than 50% (Figure 6). Lymphovascular space invasion was not identified, and all dissected pelvic lymph nodes were negative for metastasis. The gross pathologic tumor dimensions and the exact myometrial thickness and invasion depth in millimeters were not available; the corresponding MRI tumor measurement was 28 x 13 x 23 mm. On the available

anatomic and histopathologic findings, the final stage was FIGO 2023 stage IB. Molecular classification was not available. The final postoperative histopathology constituted the documented immediate outcome. Information on postoperative recovery, adjuvant-treatment recommendations, treatment adherence or tolerability, recurrence surveillance, current disease status, patient-reported outcomes, and long-term follow-up was not available in the supplied clinical material. The supplied material contained no report of adverse or unanticipated events.

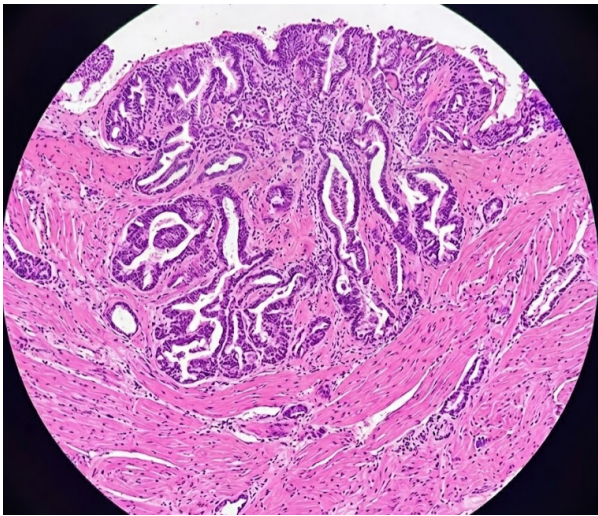


Figure 6: Hematoxylin and eosin-stained section shows endometrioid glands infiltrating the myometrium, confirming deep myometrial invasion.

Patient Perspective

The patient's perspective on the diagnostic process and treatment was not available for inclusion.

DISCUSSION

This case illustrates a rare diagnostic scenario in which endometrial carcinoma arose in only one horn of a bicornuate uterus. The historical literature remains small: a 2020 review found 27 endometrial cancers in Mullerian anomalies, of which 9 involved bicornuate uteri.¹⁴ The present case adds complete cross-sectional imaging, gross specimen, and microscopic correlation for unilateral grade 2 endometrioid carcinoma with deep myometrial invasion.

The principal clinical risk is false-negative or incomplete endometrial sampling. Blind biopsy or curettage may sample only the uninvolved horn when anomalous anatomy is not recognized. Dane et al. described carcinoma confined to one horn and emphasized evaluation of both cavities after persistent bleeding despite negative histology.¹² Munkhdelger et al. reported different tumor components in the two horns, showing that one cavity cannot be assumed to represent the other.¹³ Gao et al. also described failed or negative biopsy in congenital uterine anomalies and highlighted MRI when a cavity cannot be accessed or the anomaly is not recognized.⁴ Selected bicornuate-uterus cases are compared in Table 3.

Table 3: Selected published endometrial carcinoma cases in bicornuate uteri compared with the present case.

Study	Horn(s) involved	Histology	Stage and diagnostic lesson
Dane et al., 2009 [12]	Left horn	Well-differentiated endometrioid adenocarcinoma	FIGO IA; unilateral disease illustrates the risk of sampling the uninvolved horn.
Munkhdelger et al., 2014 [13]	Both horns	Mixed endometrial adenocarcinoma and undifferentiated carcinoma in one horn; focal adenocarcinoma in the other	FIGO IA; both cavities may contain different tumor components.
Gao et al., 2017, case 2 [4]	Right horn	Uterine papillary serous carcinoma, grade 3	FIGO IIIC; advanced unilateral disease underscores the cost of delayed or incomplete diagnosis.
Present case	Left horn	Endometrioid adenocarcinoma, FIGO grade 2	FIGO 2023 IB; MRI localized the lesion and correctly predicted deep myometrial invasion.

In the present case, imaging provided both the anatomic diagnosis and the local tumor map. Computed tomography suggested the fusion anomaly, whereas MRI localized the lesion to the left horn, assessed the right horn, demonstrated deep myometrial invasion, and excluded gross cervical, adnexal, nodal, serosal, and adjacent-organ involvement. This information

supported appropriate sampling, surgical orientation, and pathologic sectioning. Recent imaging literature supports MRI in revised FIGO staging and treatment planning. Menendez-Santos et al. reviewed the 2023 FIGO system and the continuing role of radiology in the diagnostic pathway.¹⁰ Neves et al. reported that fused T2-

weighted and diffusion-weighted images can improve assessment of myometrial invasion, consistent with the complementary value of multiparametric MRI in this case.¹¹

Reports involving other Mullerian anomalies provide similar lessons. Rockson et al. described endometrial adenocarcinoma in a complete septate uterus with duplicated lower genital tract anatomy,¹⁴ and Yu et al. reported unilateral endometrial carcinoma in uterus didelphys.¹⁵ Collectively, these cases support a cavity-specific approach to postmenopausal bleeding when congenital uterine duplication is suspected.

Several practical implications follow. Persistent postmenopausal bleeding should not be dismissed after a negative or limited biopsy when imaging or examination suggests a duplicated cavity. Both horns should be evaluated and, when feasible, sampled under direct hysteroscopic guidance. In the present case, transabdominal ultrasonography did not delineate the external fundal contour or both cavities; MRI resolved the anatomy and should be obtained when uterine morphology remains uncertain or ultrasonography shows asymmetric endometrial thickening. The radiology report should identify the involved horn, lesion dimensions, depth of myometrial invasion, cervical and adnexal status, nodal findings, and any extrauterine extension.

Accurate cavity-specific staging also has direct therapeutic consequences. Underestimation of disease in an unsampled horn could lead to inappropriate risk classification, incomplete surgical planning, or omission of indicated adjuvant treatment. In this case, MRI prediction of deep myometrial invasion was concordant with pathology and supplied clinically relevant preoperative risk information for multidisciplinary management.

The strengths of this report are the multimodality imaging, direct radiologic-pathologic correlation, and clear demonstration of a preventable sampling pitfall. Limitations include the single-patient design and unavailable exact body mass index, family/genetic history, individual laboratory values, hysteroscopy details, gross pathologic tumor dimensions, invasion depth in millimeters, molecular classification, sentinel lymph node mapping details, postoperative treatment data, patient perspective, and long-term follow-up. These missing data are stated explicitly rather than inferred.

CONCLUSION

Endometrial carcinoma confined to one horn of a bicornuate uterus can be missed when duplicated anatomy is not recognized. Multiparametric MRI defines the uterine configuration, localizes the involved cavity, estimates myometrial invasion, and supports targeted sampling and surgical planning. In patients with persistent postmenopausal bleeding and an inconclusive initial assessment, both uterine cavities should be evaluated. Cavity-specific radiologic-pathologic correlation is essential for accurate staging and safe management.

DECLARATIONS

Reporting guideline: This case report was prepared in accordance with the CARE guideline.¹⁶

Ethics approval: According to institutional policy, formal Institutional Ethics Committee approval was not required for this retrospective single-patient case report.

Consent for publication: Written informed consent was obtained from the patient for publication of the de-identified clinical information and radiologic, gross specimen, and histopathologic images.

Confidentiality: All patient identifiers were removed, and the clinical information and images were anonymized.

Author contributions: Karthik Krishna Ramakrishnan contributed to conceptualization, imaging interpretation, and manuscript drafting. Sri Indira Kumar Udhay contributed to data curation, literature review, manuscript preparation, and correspondence. Paarthipan Natarajan contributed to supervision, validation, and critical revision. All authors reviewed and approved the final manuscript.

Conflict of interest: None.

Funding: None.

Data availability: All data relevant to the reported case are contained in the manuscript and figure set. Additional patient-level data are not publicly available to protect confidentiality.

REFERENCE

1. Kaur P, Carlson K, Panneerselvam D. Bicornuate uterus. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Updated 2025 Jul 6. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK560859/>
2. Pfeifer SM, Attaran M, Goldstein J, Lindheim SR, Petrozza JC, Rackow BW, et al. ASRM Mullerian anomalies classification 2021. *Fertil Steril*. 2021;116(5):1238-1252. doi:10.1016/j.fertnstert.2021.09.025.
3. Barmon D, Kaur EJ, Baruah U, Begum D. Mullerian anomalies with endometrial carcinoma: nuances of management in a rare case and review of literature. *J Obstet Gynaecol India*. 2025;75(Suppl 1):S536-S538. doi:10.1007/s13224-024-01967-9.
4. Gao J, Zhang J, Tian W, Teng F, Zhang H, Zhang X, et al. Endometrial cancer with congenital uterine anomalies: three case reports and a literature review. *Cancer Biol Ther*. 2017;18(3):123-131. doi:10.1080/15384047.2017.1281495.
5. Berek JS, Matias-Guiu X, Creutzberg C, Fotopoulou C, Gaffney D, Kehoe S, et al. FIGO staging of endometrial cancer: 2023. *Int J Gynaecol Obstet*. 2023;162(2):383-394. doi:10.1002/ijgo.14923.
6. Concin N, Matias-Guiu X, Cibula D, Colombo N, Creutzberg CL, Ledermann J, et al. ESGO-ESTRO-ESP guidelines for the management of patients with endometrial carcinoma: update 2025. *Lancet Oncol*. 2025;26(8):e423-e435. doi:10.1016/S1470-2045(25)00167-6.
7. Expert Panel on GYN and OB Imaging; Reinhold C, Ueno Y, Akin EA, Ascher SM, Bhosale PR, et al. ACR Appropriateness Criteria pretreatment evaluation and follow-up of endometrial cancer. *J Am Coll Radiol*. 2020;17(11S):S472-S486. doi:10.1016/j.jacr.2020.09.001.
8. Nougaret S, Horta M, Sala E, Lakhman Y, Thomassin-Naggara I, Kido A, et al. Endometrial cancer MRI staging: updated guidelines of the European Society of Urogenital Radiology. *Eur Radiol*. 2019;29(2):792-805. doi:10.1007/s00330-018-5515-y.
9. Maheshwari E, Nougaret S, Stein EB, Rauch GM, Hwang KP, Stafford RJ, et al. Update on MRI in evaluation and treatment of endometrial cancer. *Radiographics*. 2022;42(7):2112-2130. doi:10.1148/rg.220070.
10. Menendez-Santos M, Gonzalez-Baerga C, Taher D, Waters R, Virarkar M, Bhosale P. Endometrial cancer: 2023 revised FIGO staging system and the role of imaging. *Cancers (Basel)*. 2024;16(10):1869. doi:10.3390/cancers16101869.
11. Neves TR, Correia MT, Serrado MA, Horta M, Caetano AP, Cunha TM. Staging of endometrial cancer using fusion T2-weighted images with diffusion-weighted images: a way to avoid gadolinium? *Cancers (Basel)*. 2022;14(2):384. doi:10.3390/cancers14020384.
12. Dane C, Tatar Z, Dane B, Erqinbas M, Cetin A. A single horn endometrial carcinoma of a uterus bicornis unicollis. *J Gynecol Oncol*. 2009;20(3):195-197. doi:10.3802/jgo.2009.20.3.195.
13. Munkhdelger J, Mia-Jan K, Cha DS, Eom M. Endometrial carcinoma arising in a bicornuate uterus. *Obstet Gynecol Sci*. 2014;57(5):401-404. doi:10.5468/ogs.2014.57.5.401.
14. Rockson O, Ramdani A, Bouhout T, Serji B, El Harroudi T. Rare case report of an endometrial adenocarcinoma arising in a complete septate uterus with a double cervix and vagina. *Cureus*. 2020;12(9):e10382. doi:10.7759/cureus.10382.
15. Yu J, Shang J, Wen H, Xu Y. Fertility preservation in patients with uterus didelphys and endometrial carcinoma: a case report. *BMC Womens Health*. 2021;21:319. doi:10.1186/s12905-021-01455-6.

16. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D; CARE Group. The CARE guidelines: consensus-based clinical case reporting guideline development. *J Med Case Rep.* 2013;7:223. doi:10.1186/1752-1947-7-223.