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Research Article

Transvaginal Sonography for the preoperative assessment of parametrial deep infiltrating endometriosis: a diagnostic accuracy study

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Short Title: Ultrasounds for parametrial endometriosis

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Abstract

Objective: To evaluate the diagnostic accuracy for parametria endometriosis (PE) of transvaginal sonography (TVS) performed following a systematic approach for the assessment of the lateral parametria.

Design: Diagnostic accuracy study based on a prospective observational design

Participants: All consecutive patients who underwent laparoscopic surgery for endometriosis between January 2016 and December 2020.

Setting: Endometriosis referral hospital

Methods: We prospectively collected clinical, imaging, and surgical data of all consecutive patients who underwent laparoscopic surgery for endometriosis between January 2016 and December 2020. A standardized technique with a systematic approach for the assessment of the lateral parametria following specific anatomic landmarks was used for the TVS. The diagnostic accuracy for PE of TVS was assessed using the intraoperative and pathologic diagnosis of PE as the gold standard.

Results: In 476 patients who underwent surgery, PE was identified in 114 out of 476 patients (23.95%): 91 left and 54 right PE out of 476 surgical procedures were identified (19.12% vs. 11.34%; p=0.001); bilateral involvement in 27.19% (31/114 patients) cases. The sensitivity of TVS for PE was 90.74% (79.70%-96.92%, 95% CI) for the right side and 87.91% (79.40%-93.81%, 95% CI) for the left side. The specificity was almost identical for both sides (98.58% vs. 98.18%). For the right parametrium, the positive likelihood ratio (PLR) and negative likelihood ratio (NLR) were 63.82 (28.70-141.90, 95% CI) and 0.09 (0.04-0.22, 95% CI), respectively. On the left parametrium, the PLR and NLR were 48.35 (23.12-101.4, 95% CI) and 0.12 (0.07-0.21, 95% CI), respectively. The diagnostic accuracy for right and left PE was 97.69% (95.90%-98.84%, 95%CI) and 96.22% (94.04%-97.74%, 95% CI), respectively.

Limitations: The principal limit is the high dependence of TVS on the operator experience. Therefore, although a standardized approach following precise definitions of anatomical landmarks was used, we cannot conclude that the observed accuracy of TVS for PE is the same for all sonographers. In this regard, the learning curve was not assessed. In the case of negative TVS for parametrial involvement with an absent intraoperative suspect, a complete dissection of the parametrium was not performed to avoid surgical complications; therefore, cases of minor PE may be missed, underestimating false negatives.

Conclusions: TVS performed following a systematic approach for assessing the lateral parametria seems to have good diagnostic accuracy for PE with large changes in posttest probability of parametrial involvement based on the TVS evaluation. Considering the clinical and surgical implications of PE, further studies implementing a standardized approach for assessing the parametrium by TVS are recommended to confirm our observations and implement a standardized protocol in clinical practice.

Introduction

Endometriosis is a chronic, estrogen-dependent, inflammatory disease affecting 5-10% of reproductive-age women [1–4]. Deep infiltrating endometriosis (DIE) is the most severe form, defined as the infiltration of organs and anatomic structures below the peritoneum by >5mm [5–7]. Within the DIE spectrum, parametrial endometriosis (PE) is one of the most frequent localizations, commonly associated with symptoms such as chronic pelvic pain and deep dyspareunia [1,5,8].

Surgery for DIE, particularly for PE, is challenging as the disease extent may include the infiltration of blood vessels, ureters, and sympathetic and parasympathetic nerve fibers with potential severe iatrogenic pelvic organ dysfunction after surgery [1,6,9–12]. The involvement of parametria, often misdiagnosed, is a critical factor for perioperative morbidity [6,10]. Both surgeons and patients would benefit from a non-invasive and precise mapping of PE, allowing better preoperative planning and proper counseling [7,13].

Transvaginal sonography (TVS) is the first-line diagnostic tool for DIE [2,4,14,15], and its diagnostic accuracy and reliability have been well documented [4,14,16]. However, considering the complexity of endometriosis and that TVS is firmly operator-dependent, adequate protocols are required to achieve appropriate diagnostic accuracy [4]. In 2016, the International Deep Endometriosis Analysis (IDEA) group recognized the importance of a dedicated standardized protocol to overcome this limit [14,17,18]. A systematic 4-step approach to describe and examine the pelvis with TVS was developed to accurately map the disease by assessing the anatomic structures and their dynamic features [4,17,18]. The IDEA protocol was an attempt to standardize DIE reporting among endometriosis centers and countries [17].

Nevertheless, a shortcoming of the IDEA approach is the absence of a proper evaluation of the lateral parametria [11,12]. A preoperative TVS mapping of PE through a systematic approach would achieve a safer and better resection of the disease through a targeted surgical excision [19,20]. Therefore, this study aimed to evaluate the diagnostic accuracy for PE of TVS performed following a systematic approach for the assessment of the lateral parametria among all consecutive patients who underwent laparoscopic surgery for endometriosis.

Materials and Methods

We performed a diagnostic accuracy study based on a prospective observational design. We prospectively collected clinical, imaging, and surgical data of all consecutive patients who underwent laparoscopic surgery for endometriosis with expert surgeons between 1 January 2016 and 31 December 2020.

All consecutive patients who underwent a gynecologic evaluation with a pelvic examination, TVS, and transabdominal ultrasound that documented endometriosis were eligible. Patients with surgical treatment indications and who provided consent for surgery and data collection for research purposes were included. All TVS were performed using a standardized technique with a systematic approach to assess the lateral parametria following specific anatomic landmarks. PE was reported as present or absent, with details regarding localization and extension for the right and left parametrium separately. A multi-disciplinary team of surgeons performed the surgical procedures by laparoscopy to eradicate endometriosis. The multi-disciplinary team of surgeons variably involved gynecologic surgeons expert in endometriosis surgery, general surgeons, and urologists. PE was defined surgically as the presence of a nodule of DIE involving the parametrium, which was determined based on standardized surgical anatomic landmarks. The histological diagnosis of PE was used as the gold standard. All data were prospectively collected in a prespecified form.

Anatomic Landmarks for Surgical and Ultrasound Diagnosis

Imaging and surgery use different anatomical terminology with discrepancies in reporting the pelvic distribution of endometriosis, with anatomical structures of surgical interest that are often neglected [1]. Our study used the following anatomic definitions for the endometriosis description during TVS and surgery.

As parametrium, we considered the fibrous and fatty connective tissue that bilaterally surrounds the uterus, extending from the lateral surface of the uterus, cervix, and vagina to the lateral pelvic wall. It contains crucial structures, such as blood vessels, the ureter, and the inferior hypogastric plexus. The uterus and vagina lie medially to it, the peritoneum superiorly, and the internal iliac vessels define its lateral border. Conventionally, the ureter divides the parametria into cranial and caudal.

The *cranial part* (proper parametrium) lies cranial to the ureters, between the uterine corpus and the pelvic sidewall. It contains the uterine artery, the superficial uterine veins, and lymphatic vessels.

The *caudal part* lies below the ureter and is considered the paracervix and paracolpium, which contains functional nerves and vessels, particularly the sympathetic and parasympathetic nerve fibers forming the inferior

hypogastric plexus [8]. It is bordered laterally by the internal iliac vessels, with its medial border defined by the cervix and upper two-thirds of the vaginal walls and the insertion of the uterosacral ligament. The lower limit is the elevator ani muscle and the presacral fascia [1]. The paracervix and paracolpium contain the inferior vesical artery, the vaginal artery, the proximal part of the deep uterine vein, the distal portion of the hypogastric nerve, which carries sympathetic signals to the internal urethral and anal sphincter, and the pelvic splanchnic nerves, for the nociceptive and parasympathetic signals to the bladder, rectum, sigmoid, and left colon. The uterosacral ligaments are retroperitoneal structures extending posteriorly from the uterine cervix to the sacrum. This dense connective tissue structure defines rectouterine and rectovaginal spaces and contains tiny blood vessels and small branches of the inferior hypogastric plexus. They are anatomically divided into cervical, intermediate, and sacral sections [1,8].

Standardized Ultrasounds technique

Patients were examined in the lithotomy position with transvaginal and transabdominal transducers (Wide Band Micro Convex Endocavitary Probe, 4 – 9 MHz; XDclear Wide Band Convex Probe, 3 – 9 MHz; GE Voluson E10, Healthcare Ultrasound, United States). The sonographer evaluated the uterus, ovaries, and then the vagina, rectovaginal septum, uterosacral ligaments, Douglas pouch, parametrium, and tender sites. We assessed the kidney and ureters bilaterally to detect any signs of ureteral obstruction.

The systematic approach for assessing the parametria started with introducing the transvaginal probe in the posterior vaginal fornix. From the longitudinal axis in the mid position (Figure 1a; Videoclip S1), the image was regulated to make the cervix occupy one-third of the image. After that, a lateral rotation of about 45° was performed to identify the hyperechoic uterosacral ligament, with the edge of the ligament and the paracervix/parametrium, respectively, distal and proximal to the probe and the cervix at one side (Figure 1b; Videoclip S2) [1,21]. We paid particular attention to avoiding hard pushing with the probe since it may result in a ligament displacement (rotation), altering the anatomy and possibly masking the actual extent of a lesion (Videoclip S3). A possible hint to not rely on the subjective feeling of the operator (i.e., not pushing) could be visualizing the small vessels within the lowest part of the uterosacral ligament using color Doppler as these may be closed by excessive pressing of the probe (Figure 1c; Videoclip S4). Nodules of endometriosis at this site appear as hypoechoic lesions altering the ligament's regular pattern, with no or scanty signs of vascularization at color or power Doppler [1]. PE was described as ill-shaped or fan-shaped hypoechoic nodules; the first was mainly noticed in lesions lying cranial to the ureter, whereas the latter was caudal (Figure 1d) [12].

Statistical Analysis

All data were analyzed using SPSS version 28.0 (IBM Corp. SPSS Statistics for Macintosh, Version 28.0. Armonk, NY) and MedCalc Statistical Software version 20.115 (Ostend, Belgium).

Standard descriptive statistics were used to describe the clinical, surgical, and ultrasound characteristics of the study population. Differences between the right and left parametrium were investigated with the Chi-square test. Calculations of sensitivity, specificity, positive and negative predictive values (PPV and NPV), positive and negative likelihood ratio (PLR and NLR), and accuracy with 95% confidence intervals (CIs) for preoperative TVS were performed for left and right parametrium separately using the pathological diagnosis as the gold standard.

Results

From 1 January 2016 to 31 December 2020, 3,449 consecutive patients were evaluated with TVS for endometriosis. A total of 2104 patients were diagnosed with endometriosis; of them, 476 underwent laparoscopic surgery. No one refused consent for data collection for research purposes. In all patients, endometriotic lesions were histologically and surgically confirmed.

Of 476 patients who underwent surgery, 114 (22.62%) were diagnosed with stage I-II ASRM and 362 with stage III-IV ASRM (76.05%) endometriosis. Bowel endometriosis involving the rectum, sigma, or cecum was surgically treated in 16.39% (78/476) of patients. Complete Douglas obliteration or rectovaginal septum infiltration was reported in 24.79% (118/476) of women. Among women with stage I-II ASRM endometriosis, the most frequent indications for surgery were chronic pelvic pain and unexplained infertility. Bowel symptoms and deep dyspareunia were additional indications for surgery frequently reported among women with III-IV ASRM endometriosis.

Based on intraoperative and pathologic reports, PE was identified in 114 out of 476 patients (23.95%). The involvement was unilateral in most cases: 52.63% (60/114) in the left and 20.18% (23/114) in the right

parametrium. Bilateral PE was found in 27.19% (31/114) cases. Overall, 91 left and 54 right PE out of 476 surgical procedures for endometriosis were identified (19.12% vs. 11.34%; p=0.001).
The diagnostic accuracy for PE of preoperative TVS was assessed among the 476 patients who underwent surgery. Sensitivity, specificity, positive and negative predictive values (PPV and NPV), positive and negative likelihood ratio (PLR and NLR), and accuracy with 95% confidence intervals (CIs) of preoperative ultrasounds for left and right PE are reported in **Table 1**. The sensitivity was 90.74% (79.70%-96.92%, 95% CI) for the right side and 87.91% (79.40%-93.81%, 95% CI) for the left side. The specificity was almost identical for both parametria (98.58% vs. 98.18%). PPV and NPV were 89.09% (78.59%-94.78%, 95%CI) and 98.81% (97.31%-99.48%, 95% CI) for the right side and 91.96% (84.53%-95.99%, 95%CI) and 97.17% (95.18%-98.36%, 95% CI) for the left side, respectively. For the right parametrium, the PLR and NLR were 63.82 (28.70-141.90, 95% CI) and 0.09 (0.04-0.22, 95% CI), respectively. On the left parametrium, the PLR and NLR were 48.35 (23.12-101.4, 95% CI) and 0.12 (0.07-0.21, 95% CI), respectively. The diagnostic accuracy for right and left PE was 97.69% (95.90%-98.84%, 95%CI) and 96.22% (94.04%-97.74%, 95% CI), respectively.

Discussion

TVS performed following a systematic approach reported good diagnostic accuracy for PE. The good sensitivity and high specificity suggest the capacity to correctly identify patients with and without parametrial involvement among those undergoing surgery for endometriosis. However, the value of TVS performed following a systematic approach is demonstrated by the high positive and negative predictive values and likelihood ratios. Calculated likelihood ratios suggest large changes in the posttest probability of parametrial involvement among patients undergoing surgery for endometriosis based on the TVS evaluation.
A limited number of studies have investigated the diagnostic accuracy of TVS for PE (**Table 2**). A recent meta-analysis reported high specificity but low sensitivity. The pooled estimated sensitivity, specificity, and positive and negative likelihood ratios were 31% (95% CI, 10–64%), 98% (95% CI, 95–99%), 18.5 (95%CI, 8.8–38.9), and 0.70 (95% CI, 0.46–1.06), respectively [22]. In contrast, our study reported good diagnostic accuracy, high sensitivity, specificity, and positive and negative likelihood ratios for PE in both the left and right parametrium.
The limitations highlighted in the meta-analysis can explain these differences with previous evidence [22]. Indeed, most of the available studies were affected by many methodological limitations. Moreover, descriptions, classifications, and anatomical definitions used in previous investigations were heterogeneous and ambiguous [22]. These factors were considered the leading cause of the observed wide range in reported sensitivity (40%-80%) and specificity (73%-100%) of TVS for PE [22]. Therefore, the use of a standardized approach and a reproducible clear definition for anatomical landmarks may explain the observed differences with previous evidence. In this regard, one of the most significant steps that may explain the substantial difference in sensitivity is the avoidance of hard pushing. Excessive pressure may result in a ligament displacement (rotation), altering the anatomy and possibly masking the lesion.
Regarding the prevalence of PE among women undergoing surgery for endometriosis, we observed that PE is not a rare finding. The prevalence of 23.95% was slightly lower compared to our previous study [23] but similar to other retrospective works [6,10,12]. Other studies observed an even higher prevalence of PE. Chiantera et al. observed parametrial involvement in 75% of patients [24]. Benoit et al., who observed a higher prevalence of PE on the left than the right side, similar to our results, observed a parametrial involvement in 70.87% of the left and 49.12% of the right side, respectively [6]. Differences in observed prevalence could be explained by differences in the population selection [10,24]. Moreover, various definitions and the lack of standard terminology may further concur with the wide range (14%-75%) of reported prevalence [6,10,12,24].
The parametrium is a controversial anatomic region, including critical anatomic structures such as blood vessels, ureters, and the inferior hypogastric plexus [6]. The presence and the potential involvement by DIE of these critical structures explain the observed association between PE and a higher risk of bowel, bladder, and sexual dysfunction, or ureteral stenosis and dilatation, potentially leading to hydronephrosis [9,10,12,25]. For the same reasons, this bilateral anatomical region demands a dedicated, technically prepared, usually multi-disciplinary, surgical team. Parametrium involvement has been reported as an independent risk factor of intra- and postoperative complications: longer operating times, hospital stays, and increased intraoperative and postoperative morbidity have been observed to be associated with PE [6,10,12,14,22,25].
Therefore, appropriate preoperative TVS evaluation of the parametria in women undergoing surgery for DIE may have a key role in defining surgical complexity [1,6,9–12]. By correctly mapping endometriosis, we could counsel the patients on the possible short and long-term risks, estimate the surgical complexity, and be more prepared for

an extensive eradication. In this scenario, our results suggest that preoperative TVS has high diagnostic accuracy for PE if a standardized approach and reproducible clear definition for anatomical landmarks are used. The easy accessibility of TVS, the observed diagnostic accuracy of TVS when performed with a standardized approach and anatomic definitions, and the prevalence of PE among patients undergoing surgery for endometriosis suggest a crucial role of such evaluation in clinical practice.

Strengths and limitations

Our study is strengthened by the prospective design, which allowed for the collecting all data of interest following standardized definitions. Moreover, surgical procedures were performed following a standardized technique by expert surgeons who could dissect the retroperitoneum and assess the parametrium appropriately intraoperatively. Furthermore, the use of intraoperative findings and the confirmation by pathologic report strengthens the diagnostic accuracy estimation. However, we recognize some limitations. The principal limit is the high dependence of TVS on the operator and the performance of TVS by expert sonographers. Although using a standardized approach following precise definitions of anatomical landmarks, we cannot conclude that the observed accuracy of TVS for PE is the same for all sonographers; in particular, the learning curve assessment was not performed. Finally, we recognize that in the case of negative TVS for parametrial involvement with an absent intraoperative suspect, a complete dissection of the parametrium was not performed to avoid surgical complications; therefore, cases of minor PE may be missed, underestimating false negatives.

Conclusion

The present work estimated the prevalence of PE in our population submitted to surgery for DIE, confirming that PE is not rare and demands a dedicated preoperative evaluation in routine practice. We observed a good diagnostic accuracy of TVS for PE among women undergoing surgery for DIE using surgical and pathological reports as the gold standard. The high predictive values and likelihood ratios suggest that we can almost exclude the parametria involvement in the case of negative preoperative TVS when performed with a standardized approach. At the same time, when PE is suspected by TVS, a proper evaluation by a dedicated surgical team and patient counseling are warranted. Future studies implementing a standardized approach for assessing the parametrium by TVS, using uniform anatomical definitions, are recommended to confirm our observations and implement a standardized protocol for the TVS evaluation of parametrium in clinical practice.

Statement of Ethics

The design, analysis, interpretation of data, drafting, and revisions conform to the Helsinki Declaration, the Committee on Publication Ethics guidelines, and the Standards for Reporting Diagnostic Accuracy Studies (STARD) guidelines available through the Enhancing the Quality and Transparency of Health Research Network. The data collected were anonymized, considering the observational nature of the study, without personal data that could lead to formal identification of the patients. Each patient included in this study was informed about the procedures and signed informed consent to allow data collection and analysis for research purposes. The study was not advertised. No remuneration was offered to the patients to give consent to be enrolled in this study. The study protocol was reviewed and approved by the Ethics Committee of the Padua Province, Padua, Italy, approval number: CESC126. The study was registered before starting the patient recruitment (R000046364-UMIN000040625).

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Conceptualization: MS, SG, ASL, and SG; Data curation: MS, SG, ASL, and SG; Formal analysis: MS and SG; Methodology: MS, SG, ASL, SG, JLAZ, and SU; Supervision: MS, SU, SG, and JLAZ; Writing - original draft: MS, SG, ASL, and SD; Writing - review & editing: MS, SG, ASL, SG, JLAZ, SD, and SU.

Data Availability Statement

The data that support the findings of this study are not publicly available due to privacy reasons but are available from the corresponding author upon reasonable request.

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Figure legend

Figure 1: a) Starting point for assessing the parametria with the probe in mid-position on the longitudinal axis, anterior to the cervix, before approaching the posterior fornix. C = Cervix; B = Bladder. b) Transvaginal probe in the posterior fornix with a 45° rotation from the longitudinal axis. A normal Uterosacral Ligament (white arrow, white line) is visible as a hyperechoic arc from the border of the posterior cervix to the rectum. The edge of the ligament and the paracervix/parametrium are respectively distal and proximal to the probe. USL = Uterosacral ligament; C = Cervix; R = Rectum; P = Paracervix/parametrium. c) Transvaginal probe in the posterior fornix with a 45° rotation from the longitudinal axis. Uterosacral Ligaments (white arrows, white lines) are visible as a hyperechoic arc from the border of the posterior cervix to the rectum. Visualizing the small vessels within the lowest part of the uterosacral ligament using color Doppler allows for avoiding excessive pushing of the probe as these may be temporarily closed by excessive pressure that may alter the anatomy. USL = Uterosacral ligament; C = Cervix; R = Rectum. d) Deep endometriotic lesions. E1) hypoechoic lesion of deep infiltrating endometriosis involving the proximal parametrium (white arrow). E2) hypoechoic lesion of deep infiltrating endometriosis involving the uterosacral ligament and the proximal parametrium (white arrow). C = Cervix. Corresponding intraoperative images are provided in Videoclip S5.

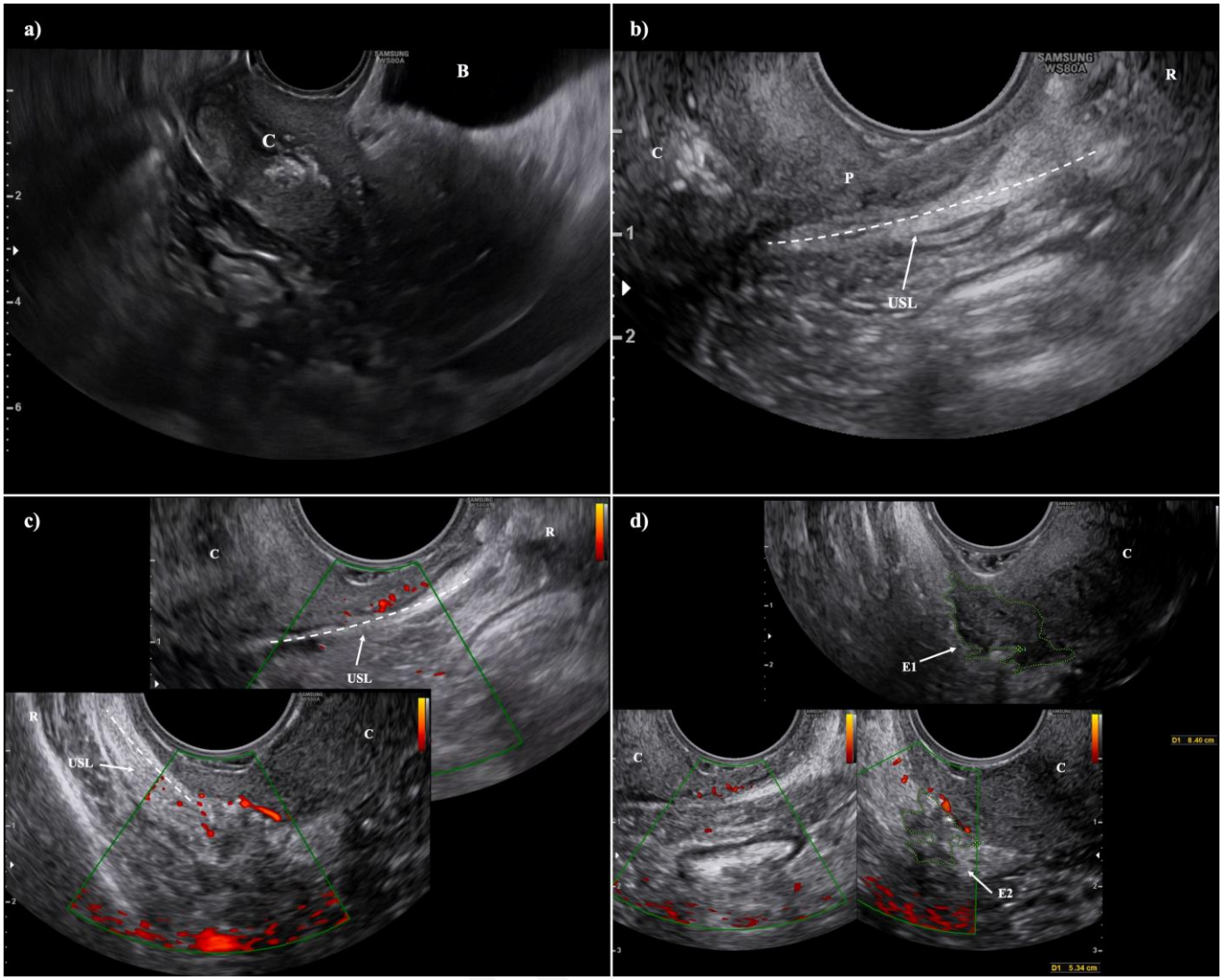

Table 1. Results on transvaginal ultrasounds detection of parametrial endometriosis

	RIGHT Parametrium		LEFT Parametrium	
	Value	**95% CI**	**Value**	**95% CI**
Sensitivity	90.74%	79.70%-96.92%	87.91%	79.40%-93.81%
Specificity	98.58%	96.93%-99.48%	98.18%	96.29%-99.27%
PLR	63.82	28.70-141.90	48.35	23.12-101.14
NLR	0.09	0.04-0.22	0.12	0.01-0.21
Prevalence	11.34%		19.12%	
PPV	89.09%	78.59%-94.78%	91.96%	84.53%-95.99%
NPV	98.81%	97.31%-99.48%	97.17%	95.18%-98.36%
Accuracy	97.69%	95.90%-98.84%	96.22%	94.04%-97.74%

CI: confidence Interval; PLR: Positive Likelihood Ratio; NLR: Negative Likelihood Ratio; PPV: Positive Predictive Value; NPV: Negative Predictive Value

Right parametrium (476): True positive: 49; False Positive: 6; False Negative: 5; True Negative: 416

Left parametrium (476): True positive: 80; False Positive: 7; False Negative: 11; True Negative: 378

Table 2. Relevant studies on parametrial endometriosis-agreement between preoperative imaging and surgery

Author, year	Type of Study	Patients	Endometriosis location	Preoperative imaging	Results
Di Giovanni, 2022 [8]	Retrospective	4983	Parametrium	US	**Right parametrium:** Sensitivity 97.91 (97.21–98.56) Specificity 98.48 (98.04–98.87) **Left parametrium:** Sensitivity 98.30 (97.74–98.85) Specificity 99.21 (98.75–99.42)
Leonardi, 2022 [19]	Multicenter study	273	DIE	US	**US-based on surgical visualization** Sensitivity 88.4% Specificity 78.8% PPV 92.9% NPV 68.4% Accuracy 86.1% PLR 4.17 NLR 0.15 **US-based on histology** Sensitivity 89.8% Specificity 75.9% PPV 90.4% NPV 74.6% Accuracy 85.9% PLR 3.72 NLR 0.13

Montanari, 2022[16]	Prospective multicenter study	745	DIE - Based on Enzian classification **B compartment** (uterosacral and cardinal ligaments, parametrium, pelvic sidewalls)	US	**B compartment Left** Sensitivity 91% Specificity 88% PPV 96% NPV 74% Accuracy 90% **B compartment Right** Sensitivity 83% Specificity 94% PPV 94% NPV 83% Accuracy 88%
Hudelist, 2021[26]	Prospective	195	DIE - Based on Enzian classification **B compartment** (uterosacral and parametrium)	US	**B compartment** Sensitivity 91% Specificity 73% PPV 96% NPV 56% PLR 3.4 NLR 0.1
Guerriero, 2021[22]	Metanalysis	560	Parametrium	US	Sensitivity 31% Specificity 98% PLR 18.5 NLR 0.70
Bazot, 2021 [27]	Observational	60	Parametrium	US	Sensitivity 40% Specificity 96.7% PPV 92.3% NPV 61.7% Accuracy 68.3% PLR 12 NLR 0.62

Excoustos, 2014 [28]	Prospective	104	Right parametrium 26.7% Left parametrium 31.7% Bladder 7.7% Right USL 54.8% Left USL 61.5% Torus uterinum 52.9% Rectovaginal septum 44.2% Vagina 27.9% Cranial rectum 37.5% Cauda rectum 68.3% Right ureter 12.5% Left ureter 15.4% DPO 67.3%	US	**Right parametrium:** Sensitivity 67.9% Specificity 93.4% PPV 79.2% NPV 88.8% Accuracy 86.5% PLR 10.31 NLR 0.34 **Left parametrium** Sensitivity 78.8% Specificity 94.3% PPV 86.7% NPV 90.5% Accuracy 89.4% PLR 13.98 NLR 0.22
Bazot, 2012 [29]	Retrospective	83	Parametrium	MR	Sensitivity 83.3% Specificity 98.6% PPV 90.9% NPV 97.2% Accuracy 96.4% PLR 59.2 NLR 0.17

US: Ultrasound; MR: Magnetic Resonance; PPV: Positive Predictive Value; NPV: Negative Predictive Value; PLR: Positive Likelihood Ratio; NLR: Negative Likelihood Ratio