COMPARISON OF SENSITIVITY AND SPECIFICITY OF STRUCTURED AND NARRATIVE REPORT OF TRANSVAGINAL ULTRASOUND FOR ADENOMYOSIS

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**Precis**

A structured report in transvaginal ultrasound presents a greater sensitivity for the diagnosis of adenomyosis compared to narrative reports.
ABSTRACT

Study Objective: To compare the sensitivity and specificity of transvaginal ultrasound (TVUS) narrative to those of the structured report for the diagnosis of adenomyosis.

Design: retrospective study

Setting: a tertiary teaching hospital

Patients: One hundred and ninety-two patients (45 with adenomyosis and 147 controls) who underwent hysterectomy between 2012 and 2016, aged 30 – 55 years, with available preoperative TVUS images were included.

Interventions: To compare preoperative TVUS with histological analysis of the uterus after hysterectomy for the diagnostic of adenomyosis.

Measurements and main results: Data on the presence of the ultrasonographic characteristics previously described for the diagnosis of adenomyosis were obtained from the original TVUS report (narrative report) and structured report from 2 blinded radiologists (R1 and R2). Histological analysis was defined as the gold standard for the diagnosis of adenomyosis. Mean age (45.4 ± 5.3 vs. 44.9 ± 4.8; p = 0.496) and clinical symptoms were similar between the adenomyosis and control groups, except for dyspareunia, which was more frequently reported in patients with adenomyosis (25.6% vs. 9.4%; p = 0.006). All TVUS characteristics were more frequently observed in structured reports than in narrative reports. The structured report presented higher sensitivity (R1: 84.4%, R2: 69.1%; Narrative: 31.1%; p< 0.05) and lower specificity (R1 1: 28.0%, R2 2: 31.2%, Narrative: 90.5%; p <0.05) for adenomyosis. The structured report presented higher sensitivity for all sonographic characteristics evaluated, except for poorly defined junctional zone (34% vs. 0%). After logistic regression analysis, no sonographic characteristics presented with statistical significance for the diagnosis of adenomyosis on the structured report, while in the narrative report, myometrial cyst was associated with a higher risk of adenomyosis (OR = 9.5; p = 9.486).

Conclusion: Narrative reports were more specific, while structured reports were more sensitive for the diagnosis of adenomyosis. In addition, the sensitivity of each sonographic feature of adenomyosis was higher and the specificity was lower in the structured report, except for the poorly
defined junctional zone. Future prospective studies comparing both reports are needed to validate current findings.

**Keywords:** adenomyosis, structured report, narrative report, transvaginal ultrasound
Introduction

Adenomyosis is characterized by ectopic endometrial foci (glandular tissue and/or stroma) within the myometrium, which may be diffusely distributed (diffuse adenomyosis) or circumscribed (focal adenomyosis) [1]. The pathogenesis of this disease is not yet fully understood, and there are two main theories: first, that adenomyosis would be secondary to direct invasion of the basal endometrial layer in the myometrium, and the second, in which the foci are derived from remnant pluripotent Mullerian tissue [2]. The main symptoms and clinical conditions associated with adenomyosis are menorrhagia, dysmenorrhea, chronic pelvic pain, dyspareunia, and infertility [3].

The gold standard for the diagnosis of adenomyosis is the histological evaluation of affected tissue samples, whether from hysterectomy, adenomyomectomy, or uterine biopsy [4-7]. Because the definitive diagnosis is made only after invasive procedures, especially hysterectomy, new noninvasive methods with significant accuracy for the diagnosis of adenomyosis have been evaluated, especially in women with fertility desire [8].

Transvaginal ultrasonography (TVUS) is a widespread method in clinical practice and can be used as a complementary exam for pelvic evaluation of suspected adenomyosis [8, 9]. The main sonographic findings related to adenomyosis are due to the presence of glandular endometrial tissue or stroma between the myometrium as well as hyperplasia and hypertrophy of the muscular layer caused by this ectopic tissue in the myometrium [9].

In a recent systematic review with meta-analysis on TVUS for the diagnosis of adenomyosis, the authors showed a sensitivity of 84% and specificity of 64% for diagnosis with 2-dimensional (2D) TVUS [10]. The accuracy of the analyzed findings varied substantially among the studies. When evaluated individually, myometrial heterogeneity showed the highest sensitivity (86%) and the highest specificity was a globular-shaped uterus (78.1%). The significant variation in the accuracy of each characteristic observed may be a result of a nonsystematic approach to TVUS evaluation of adenomyosis.

Traditionally, radiology reports were created using free-text, a narrative language that consists of non-structured reports. Structured reports have been considered as a solution for
improving the quality of radiology reports by adding templates, macros, or checklists. Growing evidence suggests that structured as opposed to narrative reports improve report clarity, focus on key findings for clinicians, and may help radiologists to improve the accuracy of imaging exams [11].

The main objective of this study was to compare the sensitivity and specificity of TVUS narrative (original) and the structured report for the diagnosis of adenomyosis.

Methods

This was a retrospective study at the Endometriosis Division, Hospital das Clinicas, Universidade de São Paulo, a tertiary teaching hospital. We included all patients who underwent abdominal, laparoscopic, or vaginal hysterectomy between 2012 and 2016, aged 30 - 55 years, with available preoperative TVUS up to 2 years before surgery. Patients with pelvic malignancy, congenital malformation of pelvic organs, menopause, or the uterus extracted from the abdominal cavity via a morcellation technique were excluded.

Outcomes evaluated

Clinical characteristics and medical hormonal treatment were obtained from medical charts. Data on patient's age, symptoms, parity, body mass index (BMI), associated diseases, previous surgeries, main symptoms (dysmenorrhea, dyspareunia, acyclic pelvic pain, cyclic dysuria and dyschezia, increased abdominal volume, and abnormal uterine bleeding), and infertility were obtained. Infertility was defined as the failure to achieve clinical pregnancy after 12 months of regular unprotected sexual intercourse.

The original (narrative) TVUS report was abstracted by two evaluators (JR and MPA). Discrepancies were resolved by consensus between those evaluators. Two experienced radiologists (APKL and MTNAG), blinded to the original report, reviewed the images from the TVUS exam using a structured report by means of a standardized sheet (Figure 1). The revision of the images followed the analysis of the presence or absence of ultrasonographic characteristics previously described by the authors in a systematic review and meta-analysis for ultrasonographic
diagnosis of adenomyosis [10]. The characteristics were: myometrial cysts, heterogeneous myometrial areas, myometrial hypoechoic linear striations, globular-appearing uterus, asymmetry of the myometrial wall, poor definition of the endometrial–myometrial junction, and the “question mark" sign (Figure 2).

**Histological analysis**

Uterine weight, presence of uterine fibroids, endometriosis, and adenomyosis were obtained from histological analysis (considered the gold standard for the diagnosis of adenomyosis).

In the Pathology Department of Hospital das Clinicas, cuts of the uterus along the anteroposterior diameter are performed as a representation of the endometrium and myometrium. There are also representative cuts from the cervix. When there is a macroscopic finding of adenomyosis, these representative cuts are made at a distance of 1 cm all around the lesion. More representative cuts can be performed depending on the macroscopic findings and diagnostic hypothesis.

The cuts obtained were used to prepare histology cassettes that were embedded in paraffin. Each block was sliced into thin sections of 5 µm, and then stained with hematoxylin and eosin for routine microscopy.

The histological diagnosis of adenomyosis is made by the presence of endometrial glands and stroma within the myometrium distancing at least one low-power field from the endomyometrial junction at the lowest magnification of the microscope.

Five pathologists were involved in analyzing the products of hysterectomies, and they were equally predisposed to identify adenomyosis.

**Statistical Analysis**

Data were described considering mean, standard deviation, maximum, minimum, and quartiles for quantitative variables and frequency tables for qualitative variables.
Sensitivity and specificity were calculated for each TVUS finding of adenomyosis using histological examination as the gold standard. Sensitivity and specificity were compared between the narrative TVUS and the structured TVUS reports using the McNemar test.

The Chi-square test (or Fisher’s exact test) was used to compare the qualitative characteristics and the Student’s t test (or Mann-Whitney) for the quantitative characteristics. Outcomes that obtained a p-value < 0.2 were adjusted several times through the Logistic Regression Model. A p-value < 0.05 was considered significant and analyzed using SPSS v25 Software.

Ethics committee

This study was approved by the Institutional Review Board (IRB) under the number 3.0007.205.

Results

Between 2012 and 2016, 1,647 hysterectomies were performed. From that number, 1,252 patients were excluded according to the exclusion criteria (Figure 3). Imaging of the remaining 250 patients was obtained and 15 (6%) were excluded for poor quality of available imaging, 19 (7.6%) for unavailability of imaging, and 24 (9.6%) patients due to a period greater than 2 years between the TVUS and the surgery. One hundred and ninety-two patients were included in the final analysis, 45 (23.4%) with adenomyosis and 147 (76.6%) without.

Patient Characteristics

The mean age was 45.4 ± 5.3 years old in the adenomyosis group and 44.9 ± 4.8 in the control group (p = 0.496). The clinical symptoms were similar between the groups, except for dyspareunia, which was more frequently reported in patients with adenomyosis (25.6% vs. 9.4%; p = 0.006, Table 1). Medical hormonal treatment before surgery was similar between adenomyosis and control groups and included progestins (32.5% vs. 33.3%; p = 0.923), combined contraceptives
(22.5% vs. 21.1%; p = 0.848), levonorgestrel intrauterine device (2.5% vs. 0.87%; p =0.975), and Gonadotropin Releasing Hormone agonists (2.5% vs. 1.75%; p = 0.767; Table 1). The association with myomas (82.2% vs. 89.1%; p = 0.221) and endometriosis (2.2% vs 2.0%; p = 0.940) were also similar between the adenomyosis and control groups.

The mean number of histological slides of surgical specimens was 8.4 in adenomyosis and 8.6 in the control group (p = 0.44).

**Narrative versus structured report**

For the structured report, we defined adenomyosis as the presence of at least two sonographic features as it had a good relationship between sensitivity and specificity (84.4%; CI:70.5-93.5 and 24.9%; CI: 20.8-35.9, respectively), compared to one (sensitivity 97.8%; CI: 88.23-99.9 and specificity 4.08%; CI:1.51-8.7.) and more than three characteristics (sensitivity, 64.4%; CI: 48.8-78.1; specificity, 46.3%; CI: 38.01-54.7; (Supplemental Table 1).

All TVUS characteristics were more frequently observed in structured reports than in narrative reports (Table 2). Overall, the structured report presented significantly higher sensitivity (Radiologist 1: 84.4%, Radiologist 2: 69.1%; Narrative: 31.1%; p< 0.05) and lower specificity (Radiologist 1: 28.0%, Radiologist 2: 31.2%, Narrative: 90.5%; p <0.05) for adenomyosis diagnosis, compared to the narrative report (Table 3).

When comparing narrative and structured reports of Radiologists 1 and 2 on each TVUS characteristic, the structured reports showed a higher sensitivity for all characteristics evaluated, mainly asymmetry of uterine walls (Radiologist 1: 40.0%, Radiologist 2: 57.1%, Narrative: 6.7%; p <0.05), hypoechoic linear striation (Radiologist 1: 46.7%, Radiologist 2: 21.4%, Narrative: 2.2%; p <0.05), and globular uterus (Radiologist 1: 46.7%, Radiologist 2: 38.2%, Narrative: 11.1%; p< 0.05). The structured report had a lower specificity for all characteristics in comparison to the narrative report, except for a poorly defined junctional zone and the question mark sign, which were not reported in any narrative report.
For Radiologist 1' structured report, the characteristics included in the logistic regression were myometrial cysts (p = 0.153) and the question mark sign (p = 0.058). After logistic regression analysis, none of the characteristics was significantly associated with adenomyosis (myometrial cysts p = 0.158; CI95%: 0.780 - 4.612 and question mark sign p = 1.00). For Radiologist 2' structured report, myometrial cysts, hypoechoic linear striation, globular uterus, and poorly defined junctional zone were included in the logistic regression analysis. Globular uterus (OR = 0.276; p = 0.006; CI95%; 0.11 - 0.697) and poorly defined junctional zone (OR = 3.6; p = 0.007; CI95%; 1.4 - 9.2) were significantly associated with adenomyosis. The presence of fibroids on the TVUS was not significant after logistic regression (p = 0.561; CI95%; 0.346 - 1.78).

For the narrative report, after logistic regression analysis, myometrial cyst was associated with a higher risk of adenomyosis (OR = 9.486; p = 0.002; CI: 2.359-38.149) and the presence of a globular uterus with a lower risk of adenomyosis (OR = 0.4; p = 0.045; CI: 0.127-0.978).

The symptoms that presented a p-value <0.2 were dyspareunia (p = 0.006), increased abdominal volume (p = 0.131), and dyschezia (p = 0.125). Logistic regression analysis showed that only dyspareunia was significantly associated with a higher risk of adenomyosis (OR=3.3, p = 0.009; CI: 1.35-8.06).

Discussion

Adenomyosis has a prevalence ranging from 20% to 35% in women of reproductive age. Even so, this diagnosis is underestimated due to the lack of standardization of criteria for the identification of adenomyosis in imaging exams as well as the variation of histological diagnosis [9]. In the present study, we compared the structured and narrative reports for preoperative TVUS for the diagnosis of adenomyosis.

The most prevalent symptoms observed in patients with adenomyosis were abnormal uterine bleeding (67%) and dysmenorrhea (46%), with no significant difference in patients in the control group. The lack of statistical significance between the adenomyosis and control group could be explained by the high prevalence of uterine fibroids in the control group in this cohort of patients.
Dyspareunia was significantly associated with adenomyosis (25.6%), in accordance with previous studies [12].

The use of ultrasound for the diagnosis of adenomyosis was first described in 1979 [13]. Moreover, we still need a classification system and a structured report for ultrasound that agrees with the histopathologic features of adenomyosis and provides clinical utility for the management of patients [14, 15, 16].

In this study, the overall sensitivity and specificity of TVUS for the diagnosis of adenomyosis had opposite values on the narrative and structured reports. The narrative report showed a higher specificity and lower sensitivity compared to the structured report. The narrative reports were provided by different radiologists, over five years, not following the most recent criteria for the sonographic diagnosis of the disease. The structured report of imaging examinations for adenomyosis increased the sensitivity to 75%, but had lower specificity, suggesting that the systematic approach can identify a greater number of sonographic characteristics. The literature shows that structured reports have many advantages, such as using a checklist and a systematic search pattern, which help to avoid diagnostic errors and reduce their error rate. Ideally, structured reports should use a standard lexicon and incorporate evidence-based recommendations. Another advantage is to decrease the incidence of syntactic and semantic errors and, eventually, may be financially rewarding [17].

Regarding the characteristics of adenomyosis evaluated on TVUS, heterogeneous myometrium had a high prevalence in both narrative (82.2%) and structured (Radiologist 1 95.6% and Radiologist 2 92.1%) reports. It also had the highest sensitivity, with low specificity. This finding is in agreement with the result of a previous meta-analysis that showed a sensitivity of 86% for this characteristic [10]. Low specificity has also been reported by other authors and may be increased in this study by the higher number of patients with concurrent leiomyomas, as it is difficult to differentiate adenomyosis from fibroids [11].

Myometrial cysts was the characteristic most specific for adenomyosis on TVUS, on both narrative (98%) and structured (88% and 97.5%) reports. Also, myometrial cysts were identified in
13.5% and 16.7% of TVUS images by Radiologists 1 and 2, respectively. This characteristic was first described by Walsh et al, in 1979, as 5-7 mm irregular cystic spaces disrupting the normal fine, speckled echo pattern of the uterus, in a focal honeycomb appearance [13]. Other studies reported the presence of myometrial cysts in 13-25% of patients with adenomyosis with a specificity of 92-100% [17-20].

The Question Mark Sign has been recently described as a typical sign of adenomyosis associated with posterior deep infiltrating endometriosis [21]. It is a particular shape of the uterus, when the uterine corpus is flexed backward, the fundus of the uterus is facing the posterior pelvic compartment and the cervix is directed anteriorly towards the urinary bladder (Figure 2E). It has been reported to have a specificity of 93% for ultrasonographic diagnosis of adenomyosis, improving the agreement between TVUS and histology (90% agreement) [21]. A recent prospective study [20] proposed a validation for the use of the question mark sign as an adenomyosis radiological characteristic. In our study, only one same patient presented with question mark sign on both radiologist’s revisions, with a specificity of 100%. It is valid to believe that a structured analysis including this feature could increase adenomyosis USTV diagnosis.

The histological evaluation of adenomyosis may vary according to the evaluator’s experience and the number of histological slides processed [7]. As an example of diagnostic variation, Bird et al. (1972) demonstrated an increase in adenomyosis diagnosis from 31% to 61.5% when 6 extra histological slides were made to analyze the uterus from 200 hysterectomies [1]. The lack of standardization for the histological diagnosis of adenomyosis is reflected in the different prevalence obtained between studies, ranging from 5% to 70%, with an average of 20 to 35% [8]. Although the histological analysis of adenomyosis is still heterogeneous, in our study we did not observe a difference between the number of histological slides and the accuracy of adenomyosis diagnosis.

The main weakness of this study is its retrospective design, which affects the number of TVUS images available in the digital archive. In our institution, due to the academic profile, the exams are double-checked because they are performed by radiology residents and then by an experienced assistant radiologist. Thus, the report is then released by both doctors, with no need to
file many images for later interpretation, which in fact ended up being a limiting factor in our study, in the evaluation of the structured report. In addition, the histological evaluation of surgical specimens by different pathologists at different times, considering the possibility of different anatomopathological evaluation protocols, was a possible limitation.

The main strength of this study is that this is the first of its kind to compare the narrative and the structured TVUS report for adenomyosis diagnosis, which has been advocated as a potential solution for improving the quality of radiology reports [22]. The structured analysis presented a higher sensitivity over narrative report, which highlights its use as a first line imaging exam and triage test for women with suspected adenomyosis, leaving a more specific investigation only for positive exams (e.g. magnetic resonance and 3D transvaginal ultrasound). Prospective studies using the structured report are needed to validate current findings.

**Conclusion**

Transvaginal ultrasound (TVUS) narrative reports were more specific, while structured reports were more sensitive for the diagnosis of adenomyosis. Overall, the sensitivity of each sonographic feature of adenomyosis was higher in the structured report while specificity was higher in the narrative report. Future prospective studies comparing both reports are needed to validate current findings.
References


Figure 1 – Structured report sheet for TVUS evaluation of women with suspected adenomyosis

TVUS: transvaginal ultrasound

<table>
<thead>
<tr>
<th>TVUS Feature</th>
<th>Structure analyzed</th>
<th>Description</th>
<th>Quantification on structured report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymmetry of uterine wall</td>
<td>Myometrial walls</td>
<td>Subjective impression of asymmetry</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Globular uterus</td>
<td>Serosal contour of uterus</td>
<td>Regular/ lobulated/ globally enlarged</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Heterogeneous myometrium</td>
<td>Overall myometrial echogenicity</td>
<td>Homogeneous/heterogeneous</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Hypoechoic linear striation</td>
<td>Myometrial Lesions</td>
<td>Number, Location, Shape, Contour, Shadowing, Echogenicity</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Myometrial cysts</td>
<td>Myometrial Lesions</td>
<td>Number, Location, Shape, Contour, Shadowing, Echogenicity</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Poor defined junctional zone</td>
<td>Junctional Zone</td>
<td>Regular/poorly defined/ interrupted, not visible, not assessable</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Question Mark Sign</td>
<td>Endometrium</td>
<td>Thickness, Echogenicity, Shape</td>
<td>Present or Absent</td>
</tr>
<tr>
<td>Adenomyosis</td>
<td></td>
<td>Yes: ≥ 2 TVUS features</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2 – Transvaginal ultrasound features suggestive of adenomyosis

A- Transversal view of the uterus showing a heterogenous myometrium with myometrial cysts (right-sided arrows: 5 to 7 mm irregular cystic spaces disrupting the normal pattern of the uterus) and hypoechoic linear striations (left-sided arrows).

B: Longitudinal view of the uterus showing a poorly defined junction zone (dotted line).

C: Transversal and longitudinal view showing a globular shaped uterus.

D: Longitudinal view of the uterus showing an asymmetry of anterior and posterior uterine walls.
E: Longitudinal view of the uterus showing the Question Mark sign. The uterine corpus is flexed backward, the fundus of the uterus is facing the posterior pelvic compartment and the cervix is directed anteriorly towards the urinary bladder

Figure 3 - Flowchart of included patients

TVUS: transvaginal ultrasound
Total hysterectomies between 2012 and 2016 (n = 1,847)

Excluded (n = 1,397)
- TVUS not available (n = 1,252)
- Age (105 patients > 55 years; 13 patients < 30 years)
- Uterine malignancy (n = 8)
- Menopause (n = 8)
- Use of power morcellator during surgery (n = 4)
- Malformation of pelvic organ (n = 3)
- No histological report (n = 1)
- Hormone therapy replacement for sex change surgery (n = 3)

Eligible Patients (n = 250)

Excluded (n = 58)
- Poor quality of TVUS images (n = 15)
- Unavailability of TVUS images (n = 19)
- Period greater than 2 years between the TVUS and the surgery (n = 24)

Included Patients (n = 192)
## Table 1 – Demographic characteristics of included patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Adenomyosis (n = 45)</th>
<th>Control (n = 147)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>45.4 ± 5.3</td>
<td>44.9 ± 4.8</td>
<td>0.496&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>BMI (kg/m&lt;sup&gt;2&lt;/sup&gt;)</strong></td>
<td>28.5 ± 5.2</td>
<td>28.9 ± 5.5</td>
<td>0.508&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Onset of symptoms (years)</strong></td>
<td>41.8 ± 5.5</td>
<td>41.9 ± 6.2</td>
<td>0.922&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Pregnancy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>4 (10.5)</td>
<td>27 (21.3)</td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>20 (52.6)</td>
<td>59 (46.5)</td>
<td></td>
</tr>
<tr>
<td>≥ 3</td>
<td>14 (36.8)</td>
<td>41 (32.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Medical treatment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranexamic acid</td>
<td>9 (22.5)</td>
<td>24 (21.1)</td>
<td>0.766&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>7 (18)</td>
<td>18 (15.8)</td>
<td>0.753&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Combined hormonal pills</td>
<td>9 (22.5)</td>
<td>24 (21.1)</td>
<td>0.848&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Progestins</td>
<td>13 (32.5)</td>
<td>36 (33.3)</td>
<td>0.923&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>LNG IUD</td>
<td>1 (2.5)</td>
<td>1 (0.87)</td>
<td>0.975&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>GnRH Analogue</td>
<td>1 (2.5)</td>
<td>2 (1.75)</td>
<td>0.767&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>20 (46.5)</td>
<td>58 (41.7)</td>
<td>0.580&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>11 (25.8)</td>
<td>13 (9.4)</td>
<td>0.006&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Acyclic pelvic pain</td>
<td>10 (23.3)</td>
<td>24 (17.3)</td>
<td>0.379&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cyclic dysuria</td>
<td>2 (4.7)</td>
<td>4 (2.9)</td>
<td>0.569&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Cyclic dyschezia</td>
<td>3 (7.0)</td>
<td>3 (2.2)</td>
<td>0.122&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Increased abdominal volume</td>
<td>1 (2.3)</td>
<td>13 (9.4)</td>
<td>0.131&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Abnormal uterine bleeding</td>
<td>29 (67.4)</td>
<td>102 (73.4)</td>
<td>0.449&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Infertility</td>
<td>1 (2.3)</td>
<td>1 (0.7)</td>
<td>0.377&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Hysterectomy</strong></td>
<td></td>
<td></td>
<td>0.183&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Vaginal</td>
<td>7 (16.7)</td>
<td>24 (17)</td>
<td></td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>16 (38.1)</td>
<td>34 (24.1)</td>
<td></td>
</tr>
<tr>
<td>Abdominal</td>
<td>19 (45.2)</td>
<td>83 (58.9)</td>
<td></td>
</tr>
<tr>
<td><strong>Myomas</strong></td>
<td>37 (82.2)</td>
<td>131 (89.1)</td>
<td>0.221&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Endometriosis</strong></td>
<td>1 (2.2)</td>
<td>3 (2.0)</td>
<td>0.940&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
Data expressed as median or n (%) or mean ± standard deviation; aT-Student test, bChi-square test, cChi-square test Yates correction, LNG IUD (Levonorgestrel intrauterine device), NSAIDs (Non-steroidal anti-inflammatory drugs)

Table 2 – Comparison between the sonographic findings in patients with adenomyosis described by narrative and structured reports (Radiologists 1 e 2).

<table>
<thead>
<tr>
<th>TVUS Characteristic</th>
<th>Narrative</th>
<th>Structured Radiology 1</th>
<th>p</th>
<th>Structured Radiology 2</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myometrial cysts</td>
<td>8 (17.8)</td>
<td>9 (20)</td>
<td>0.787**</td>
<td>6 (14.3)</td>
<td>0.033**</td>
</tr>
<tr>
<td>Asymmetry of uterine wall</td>
<td>3 (6.7)</td>
<td>18 (40)</td>
<td>&lt;0.0001*</td>
<td>24 (57.1)</td>
<td>0.741**</td>
</tr>
<tr>
<td>Heterogeneous myometrium</td>
<td>37 (82.2)</td>
<td>43 (95.6)</td>
<td>0.04**</td>
<td>38 (90.5)</td>
<td>0.751**</td>
</tr>
<tr>
<td>Hypoechoic linear striation</td>
<td>1 (2.2)</td>
<td>21 (46.7)</td>
<td>&lt;0.0001*</td>
<td>9 (21.4)</td>
<td>0.183**</td>
</tr>
<tr>
<td>Globular uterus</td>
<td>5 (11.1)</td>
<td>21 (46.7)</td>
<td>&lt;0.0001*</td>
<td>16 (38.1)</td>
<td>0.024**</td>
</tr>
<tr>
<td>Poor defined junctional zone</td>
<td>0</td>
<td>33 (73.3)</td>
<td>0.0001**</td>
<td>14 (46.7)</td>
<td>0.012**</td>
</tr>
<tr>
<td>Question mark sign</td>
<td>0</td>
<td>1 (2.2)</td>
<td>0.237*</td>
<td>1 (2.4)</td>
<td>0.231*</td>
</tr>
</tbody>
</table>

TVUS: transvaginal ultrasound; Adeno: Adenomyosis; *Fisher’s exact test; **Chi-square test
Table 3 – Sensitivity and specificity of the structured compared to narrative report for the evaluation of adenomyosis

<table>
<thead>
<tr>
<th>TVUS Characteristic</th>
<th>Narrative report</th>
<th>Structured Radiologist 1</th>
<th>Structured F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sens (95% CI)</td>
<td>Spec (95% CI)</td>
<td>Sens (95% CI)</td>
</tr>
<tr>
<td>Adenomyosis</td>
<td>31.1 (18.2-46.6)</td>
<td>90.5 (84.5 - 94.7)</td>
<td>84.4 (70.5-93.5)**</td>
</tr>
<tr>
<td>Myometrial cysts</td>
<td>17.8 (8 - 32)</td>
<td>98 (94.1-99.6)</td>
<td>20.0 (9.6 - 34.6)</td>
</tr>
<tr>
<td>Asymmetry of uterine wall</td>
<td>6.7 (1.4-18.2)</td>
<td>98.6 (95.1-99.8)</td>
<td>40.0 (25.7-55.6)**</td>
</tr>
<tr>
<td>Heterogeneous myometrium</td>
<td>82.2 (68-92)</td>
<td>19.1 (13-26.3)</td>
<td>95.6 (84.8 - 99.4)</td>
</tr>
<tr>
<td>Hypoechoic linear striation</td>
<td>2.2 (0.06-11.7)</td>
<td>96.6 (92-98.9)</td>
<td>46.7 (31.6 - 62.1)**</td>
</tr>
<tr>
<td>Globular uterus</td>
<td>11.1 (3.7-24)</td>
<td>72.1 (64-79)</td>
<td>46.7 (11.6-62.1)**</td>
</tr>
<tr>
<td>Question Mark Sign</td>
<td>0</td>
<td>0</td>
<td>2.2 (0.06-11.7)</td>
</tr>
<tr>
<td>Poor defined junctional zone</td>
<td>0</td>
<td>0</td>
<td>73.3</td>
</tr>
</tbody>
</table>

TVUS: transvaginal ultrasound; Sens: sensitivity; Spec: specificity; McNemar test;  
*p<0.05 in comparison to narrative report; 
**p<0.001 in comparison to narrative report