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Morphological Uterus Sonographic Assessment Criteria for Adenomyosis Diagnostic: A Case Report

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Abstract

BACKGROUND: The Morphological Uterus Sonographic Assessment (MUSA) statement is a consensus statement on terms, definitions, and measurements that may be used to describe and report the sonographic features of the myometrium using gray-scale sonography, color/power Doppler and three-dimensional ultrasound imaging. MUSA adenomyosis ultrasound features: Asymmetrical thickening, fan shape shadowing, cyst, hyperechoic island, echogenic sub endometrial lines and buds, trans lesion vascularity, irregular junctional zone, and interrupted junctional zone. Classification and descriptions of the MUSA criteria for adenomyosis are presented: Location, classification (diffuse/focal), cystic, layer involvement (type), extent, and size of the lesion.

CASE REPORT: Mrs. D, 46 years old, P0A0, in this case, the patient was 46 years old with complaints of a history of heavy menstrual bleeding abnormal uterine bleeding, menstrual pain, and infertility. The vaginal toucher examination found uterus AF, size bigger than normal size, size of the baby's head, a little solid, mobile, smooth surface, tenderness (+), both adnexas: No mass (−), both parametrium laxed (+), and Douglas cavity not protruded. In the supporting examination with transabdominal sonography and transvaginal sonography, MUSA criteria were found: Hyperechoic appearance with indistinct borders with a size of 58 × 57.4 mm intrauterine, translesional vascularity, and disappear of endomyometrial junction. MUSA Description: Diffuse type 3, adenomyosis in the anterior and posterior wall, extent severe, and the biggest diameter is 7 cm. Diagnosed with adenomyosis, followed by surgical therapy (hysterectomy), because the patient did not need a reproductive function, and results of histopathology examination, concluded that it was adenomyosis.

CONCLUSION: The MUSA criteria on how the sonographic features of adenomyosis should be described and measured, which should help improve diagnostic accuracy.

Introduction

Adenomyosis is a form of endometriosis that affects the myometrium, which is morphologically described as the endometrial glands and stroma in the uterine muscle. Adenomyosis is a form of endometriosis that affects the myometrium, morphologically described as the endometrial glands and stroma in the uterine muscle. It is generally estimated that adenomyosis occurs in about 20–35% of women of reproductive age. Symptoms can vary in intensity and can include heavy menstruation, bleeding, infertility, dysmenorrhea, chronic pelvic pain, and dyspareunia, all of which can lead to poor quality of life [1].

The etiopathogenesis of adenomyosis is still unknown, the most common theory is that adenomyosis develops from invagination of the basal layer of the endometrium into the myometrium [2]. A reliable diagnosis of adenomyosis can be made by a combination of clinical history, gynecological examination, and 2D and 3D transvaginal ultrasound [3]. The 2D transvaginal sonography (TVS) and 3D TVS criteria used in the diagnosis of adenomyosis are reproducible parameters in the diagnosis of adenomyosis [4]. The Morphological Uterine Sonographic Assessment (MUSA) group on how the sonographic features of adenomyosis should be described and measured should help improve diagnostic accuracy [5].

Case Report

Mrs. D, 46 years old, P0A0, visited the Gynecology Outpatient clinic at USU Medan Hospital on February 10, 2021 with chief complaint of profuse menstrual bleeding that has been experienced by patients for 8 months ago, bleeding was in the form of fresh blood and blood clots, with a volume of approximately >5 times changing pads/day. Menstrual pain was found for 8 months earlier. The patient also complained of a palpable lump in the stomach for 8 months ago, intermittent pain (+) and becomes heavier during menstruation.

Physical examination: Abdomen: Supple, normoperistaltic, seen old surgical scar, midline, palpable mass with upper pole two fingers below umbilical, lower pole on symphysis, smooth surface,

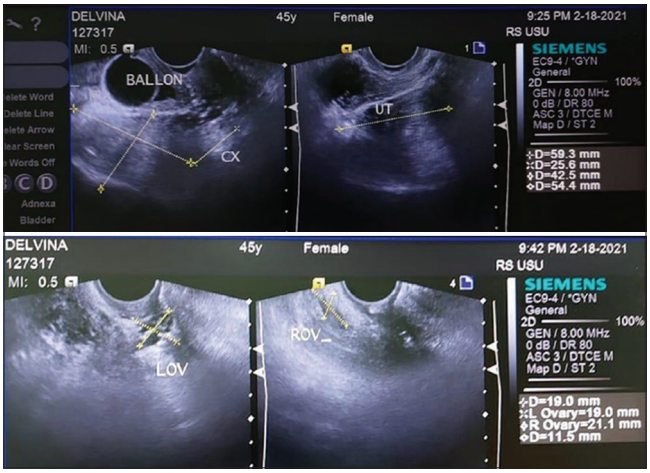

Figure 1: Transvaginal sonography performed on February 18, 2021. (a) Endomyometrial junction was not clear and (b) endometrioma was not found on both ovaries

solid consistency, mobile, and tenderness (+). On gynecology examination, RVT was performed, found the uterus anteflexion, bigger than normal size, size of baby's head, mobile, solid consistency, smooth surface, tenderness (+), both adnexas: no palpable mass (−), and both parametrium loose (+), the Douglass cavity is not prominent, anal sphincter is tight, smooth mucosa, and ampula recti contains feces.

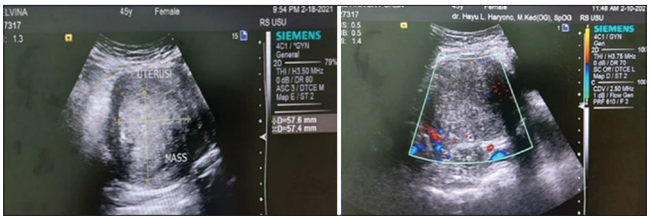

Figure 2: Transabdominal sonography performed on February 18, 2021. (a) Found hypo hyperechoic appearance with indistinct borders with a size of 58 × 57.4 mm, intrauterine and (b) translesional vascularization

Transvaginal and Transabdominal Ultrasonography was performed on February 18, 2021. On TVS found the endomyometrial junction was not clear and endometrioma was not found on both ovaries (Figure 1). On TAS found intrauterine mass with hypo hyperechoic appearance with indistinct borders with a size of 58 x 57,4 mm and translesional vascularization (Figure 2). Musa Description: Diffuse type 3, a denomyosis in the anterior and posterior wall, extent severe, biggest diameter 7 cm (Figure 3).

Adenomyosis Yes/no?	Location	Classification (diffuse/focal)	Cystic ?	Layer involvement (type)	Extent	Size of the lession (max diameter)	Description
Yes	Anteroposterior wall	Diffuse	No	Innermyometrium, middle myometrium and outer myometrium (type 1-3)	>50 % of total myometrium	7 cm	Diffuse type 1-3, adenomyosis in the anterior and posterior wall, extent : severe, maximal diameter 7 cm

Figure 3: Classification and descriptions of the Morphological Uterus Sonographic Assessment criteria for adenomyosis are presented

A blood sample showed hemoglobin 8.3 g/dL, a white blood cell count of 10.410/mL, and a platelet count of 372,000/mL. The patient gave consent of removing the uterus mass by undergoing hysterectomy. The patient was also already informed regarding the consequence, of which menstruation and conceiving will no longer possible.

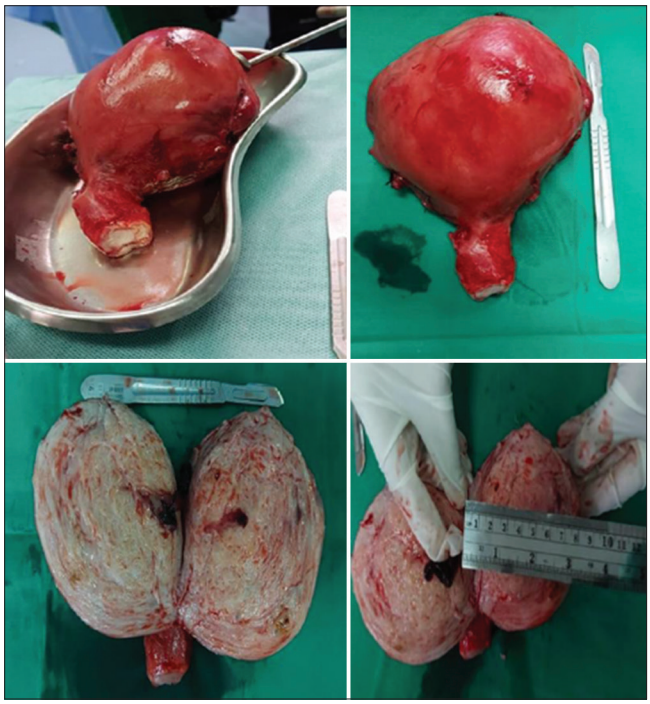

Figure 4: Macroscopic appearance of the uterus and adenomyosis lesions

Complication of surgery was also explained, including the risk: Adhesions to the surrounding organs (for examples, bladder, intestine, ureter surrounding organ injury, the risk related to intraoperative bleeding), which can be unpredictably catastrophic or life-threatening, for that patient is advised to get two bag PRC transfusion before surgery and one bag WB and one bag PRC during the operation. This was performed the next day. The procedure went smoothly under GA-ETT.

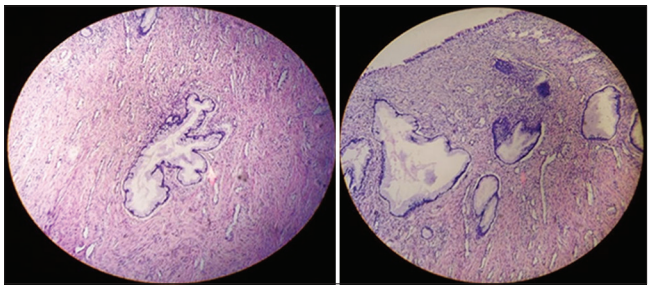

Figure 5: The basophilic stroma and endometrial glands are seen between the layers of the myometrium

There was no adhesions from previous surgery scars, no adhesion to surrounding organs, the usual procedure hysterectomy was performed, and both ovaries were normal limit. Uterine tissue was sent to the PA laboratory for histopathological examination (Figure 4), massive bleeding, and the post-operative course was uneventful. The hemoglobin level after hysterectomy was 11.1 g/dL.

The patient was discharged on February 14, 2021 in a stable condition. There were no abnormal findings in the subsequent follow-up visits to our outpatient department on February 17, 2021 and from PA examination result supports an adenomysosis (Figure 5).

Discussion

In this case, it is known that a 46-year-old female patient with parity P0A0 visited us for complaints of a history of heavy menstrual bleeding abnormal uterine bleeding (AUB), menstrual pain, and palpable mass on the abdominal. Studies have shown that adenomyosis is increasingly found in women aged >40 years with pain during menstruation, AUB, and infertility [6].

Research shows that women with more than 5 symptoms presenting adenomyosis have a 3-fold increased risk of developing infertility, independent of the severity of endometriosis. Infertility has been considered a clinical symptom of adenomyosis and several theories have been proposed to explain the underlying mechanism. Adenomyosis can lead to infertility by causing aberrant uterine contractility, abnormal myometrial activity, and endometrial environment with altered expression of implantation factors [1], [6], [7].

In the investigation with TVS, MUSA criteria were found, including description: (a) Asymmetric thickening, (b) cyst, (c) hyperechoic island, (d) fan-shaped image, (e) echogenic sub endometrial line and buds, (f) trans lesion vascularization, (g) irregular junction zone, and (h) the junction zone is disconnected [8].

In this case, MUSA criteria were found, hypo hyperechoic appearance with indistinct borders with a size of 58 × 57.4 mm intrauterine, vascularization translation, and missing endomyometrial junction. The management strategy for adenomyosis as in the case of endometriosis mainly depends on the symptoms that appear and whether they are associated with reproductive failure [5]. The management of adenomyosis is described as follows: Medical treatment, non-surgical alternative treatments, and treatment with surgery [5]. In this case, surgical therapy (hysterectomy) was performed as the patient decided to no longer conceive.

Histopathology examination is performed as a definitive diagnosis, in this case, results of histopathology examination concluded that it was adenomyosis. The stroma and endometrial glands are seen between the layers of the myometrium.

Conclusion

It has been reported a patient with Adenomyosis and diagnosed with MUSA criteria. The sonographic features of MUSA criteria for diagnosing Adenomyosis should be described and measured, which could have improved the diagnostic accuracy.

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