Obirija *et al* Pan African Journal of Life Sciences (2024): 8(1): 764-767
DOI: 10.36108/pajols/4202/80.0120

Publication of Faculty of Basic Medical Sciences and Basic Clinical Sciences , Ladoke Akintola University of Technology, Ogbomoso

www.pajols.org
Online ISSN:2672-5924

CASE REPORT **Open Access**

Sub-Septate Uterus: An Incidental Radiological Finding in a Woman with History of Recurrent Miscarriage. A Case Report

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Received 4th October 2023; Revised 2nd December 2023; Accepted 2nd February 2024

ABSTRACT

Background: The septate uterus, which is the most common Mullerian duct anomaly, results from the abnormal fusion of the Mullerian duct during embryonic life, and it is usually associated with poor obstetric outcomes such as recurrent spontaneous abortions, subfertility, preterm labour, and reproductive failure. A large proportion of the patients that are affected remain asymptomatic owing to lack of indication for abdominal ultrasound before conception, and the problems are mainly detected after several pregnancy losses. The exact aetiology of the septate uterus is unknown but is caused by incomplete resorption of the uterovaginal septum after fusion of the Mullerian duct during embryogenesis.

Case Presentation: We present a 32-year-old Para 0^{+3} woman referred to the radiology department for ultrasonography and hysterosalpingography (HSG) on account of recurrent miscarriage, which occurs within the first trimester of gestation. She has had three (3) consecutive miscarriages within the last 4 years, of pregnancies which were achieved spontaneously and were lost between the gestational ages of 9-12 weeks. She was investigated with ultrasonography, which demonstrated a bulky uterine appearance with two endometrial cavities that is connected to one cervical canal. Hysterosalpingography (HSG) showed a contrast-filled partly divided uterus with inter-cornual angles of 34º and inter-cornual distance of 1.92cm. The patient had hysteroscopic septum resection with a satisfactory outcome given addressing other medical problems that could militate against conception and has been on monthly follow-up.

Conclusion: Radiological investigation of patients with recurrent miscarriages is indispensable for optimal evaluation to achieve accurate diagnosis and identify women whose problems are amenable to specialized treatments.

Keywords: Hysterosalpingography (HSG), Septate uterus, radiology, recurrent miscarriage.

1.0 INTRODUCTION

Congenital uterine malformations occur when the Mullerian (paramesonephric) duct fails to develop normally during the embryonic stage. This may be due to total agenesis, defective fusion, or resorption failure. The anomalies are rare, with variable prevalence rates ranging from 0.001% to 10% in the general population and 8-10% in women with a bad reproductive history, respectively [1]. The most common Mullerian duct abnormalities reported in clinical practice include the sub-septate uterus, arcuate uterus, bicornuate uterus, unicornuate uterus, and uterine didelphys [2].

It has been documented those complications of pregnancy such as preterm delivery, threatened abortion, and recurrent first-trimester miscarriages are commoner in women with uterine malformation [3].

The incidence of uterine defects in the general population among infertile women is 4.3% [1]. and is commonly associated with recurrent pregnancy loss, which has been estimated to be increased by 5-25% [2,3].

Notably, about 40% of patients with a septate uterus have reproductive failure, obstetrical complications, and an increased incidence of recurrent miscarriages [4]. More importantly, the clinical manifestation varied from being asymptomatic, thus remaining undiagnosed, to the development of poor reproductive outcomes [5]. These abnormalities are usually asymptomatic and often an incidental finding in pregnancy, during evaluation for miscarriage, or on diagnostic imaging work-up for infertility.

Furthermore, uterine septum resection by a hysterolaparoscopic approach is useful, with remarkable improvement in post-procedure pregnancy rates. This has many advantages, such as shorter operating and hospitalization periods, reduced risk of postoperative pelvic adhesions, low morbidity, and an increased rate of vaginal delivery [6,7].

We present a case of subseptate uterus in a 32-year-old woman with a history of recurrent first-trimester miscarriage who was evaluated with hysterosalpingography (HSG) and ultrasonography.

This case is reported because of its rarity and to highlight the importance of radiological imaging modalities in its diagnosis.

2.0 CASE PRESENTATION

Mrs. NR was a 32-year-old Para 0^{+3} referred to the radiology department for ultrasonography hysterosalpingography (HSG) on account of recurrent miscarriage within the first trimester of gestation. She presented with a history of recurrent miscarriage of three consecutive pregnancies within the last 4 years. The pregnancies were achieved spontaneously and were lost between the gestational ages of 9-12 weeks. The last episode happened two months before the presentation to this hospital. There was no history of ingestion of any medication except the routine drugs given to her in the hospital. There was no history of trauma, fever, or abnormal vaginal discharge during the pregnancy. She is rhesus D positive with haemoglobin type AA. She achieved menarche at the age of 15 years and has been having a regular 28-day cycle with a flow duration of five days. She had already visited a number of private medical institutions, where laboratory tests and ultrasound scans were performed and the results were all normal. Family and social history were not contributory. Physical examination findings were normal.

Ultrasonography demonstrated a bulky uterus with two endometrial cavities that is connected to a single cervical canal. Hysterosalpingography (HSG) showed contrast-filled partly divided uterine horns with inter-cornual angles of 34º and inter-cornual distance of 1.92 cm as shown in Figure 1. The right-sided cavity was more distended with the abrupt termination of contrast at the cornual end and paucity of intraperitoneal contrast spillage. The left fallopian tube was better outlined and showed normal caliber and free intraperitoneal contrast spillage as illustrated in Figure 2. A diagnosis of subseptate uterus with possible right tubal blockage was made based on imaging findings. Subseptate uterus was confirmed during metroplasty (surgical repair of the uterus). The patient had no post-operative complications; she is currently on monthly follow-ups.

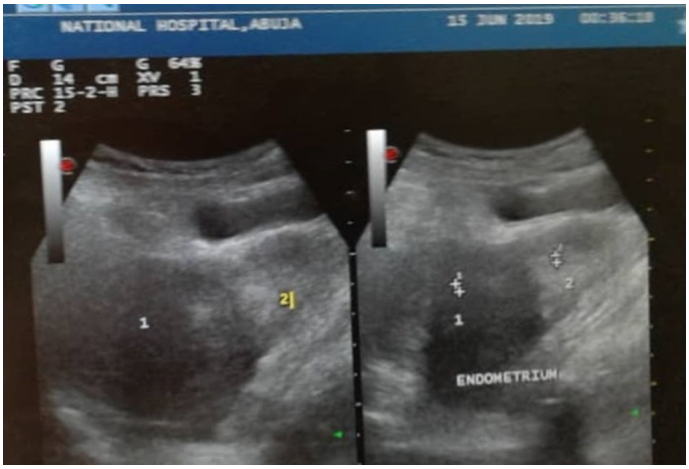

Figure 1. Gray-scale Ultrasound image of the uterus showing a transverse view of two endometrial cavities marked by calipers 1 and 2.

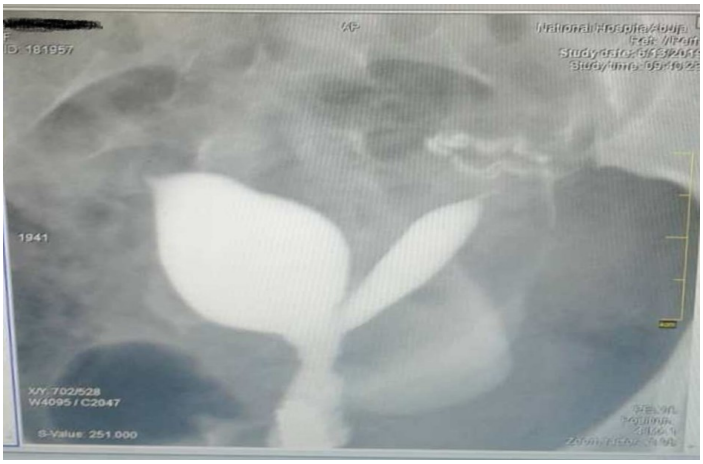

Figure 2. Hysterosalpingography image showing two contrast-filled asymmetric uterine cavities connected to a single lower uterus and cervical canal.

The left fallopian tube is normal in caliber and showed free intraperitoneal spillage. No convincing spillage is seen from the right fallopian tube.

2.1 Ethical Consideration

The case report was conducted in compliance with the guidelines of the Helsinki Declaration on biomedical research in human subjects. Confidentiality of the patient and personal health information was maintained, and informed consent was obtained from the patient.

3.0 DISCUSSION

A septate uterus is a form of congenital malformation of the uterus resulting from the partitioning of the uterine cavity into two cavities by a longitudinal septum. The partitioning may be complete (septate), incomplete (subseptate), or involving the cervix, resulting in a double cervical canal [4]. The index patient has an incomplete division, as evidenced by the common cervical canal.

The septate uterus has been noted to be the most common Mullerian duct abnormality and is involved in around 55% of the instances [5]. The occurrence of Mullerian duct anomalies is either sporadic or multi-factorial in nature, with extrauterine and intrauterine factors like hypoxia in pregnancy, medications like methotrexate, thalidomide, or diethylstilbestrol, ionizing radiation, and intrauterine viral infections documented as possible aetiologic agents [6]. There was no associated history linking the index patient with these causative agents.

Patient with Mullerian duct anomalies usually witness little or no difficulty in achieving conception but has higher rates of spontaneous abortion, premature delivery, abnormal foetal lie, and shoulder dystocia [3,7]. More importantly, it has been shown that a higher proportion of this group of patients developed complications in the first trimester, estimated to be 25%, in contrast with 10% in the general population [8]. The index patient had had a recurrent spontaneous first-trimester miscarriage. She, however, did not experience the other documented complications as she has never carried any pregnancy beyond the first trimester. These findings are in agreement with the review by Moemenam *et al.,* [9] in Owerri, South East Nigeria, and documented obstetric complications associated with septate uterus such as early spontaneous abortion and preterm delivery by other reviewers [3,7,8,9,10].

The reason for this poor obstetric outcome may be related to septal implantation and its associated poor vascular perfusion compared to the uterine wall, as noted by Atobatele et al. in a case report of a 32-year-old with poor obstetric outcome [11]. This report agrees with the index patient-who was also 32 years old.

Imaging evaluation is central to the diagnosis of uterine abnormalities, given that most of these anomalies are found on imaging except in rare cases of vaginal septum or double cervix, which are visualized in speculum examination [11].

Hysterosalpingography (HSG), Ultrasonography, and magnetic resonance imaging MRI) are the common imaging modalities used to evaluate uterine anomalies. Most of the time, the anomalies are detected incidentally in HSG before other imaging modalities are used for further characterization and definitive diagnosis [5,8,9,10]. This was how the present case was detected.

Hysterosalpingography usually demonstrates a divided uterine cavity, possibly due to a septate uterus, bicornuate uterus, or uterine didelphys. The inter-cornual angle and inter-cornual distance help suggest the exact diagnosis. The inter-cornual distance of < 2cm suggests the septate uterus; > 4 cm increases the likelihood of didelphys [9, 10]. The index case showed two uterine cavities with inter-cornual distance < 2 cm. Also, an inter-cornual angle of less than 75º is highly suggestive of a septate uterus; an angle ≥ 105º is suggestive of a uterine bicornuate uterus [9, 10]. The present case revealed an angle of 34º, in keeping with the septate uterus.

Ultrasonographic evaluation may reveal depressed uterine fundal contour, divergent uterine horns, and two distinct echogenic endometrial stripes, especially with transvagi-

-nal ultrasound. Sono hysterography may also reveal two distinct fluid-filled uterine cavities [9,11,12]. In this index case, transabdominal ultrasound revealed two distinct echogenic endometrial plates connected to a common uterus. Other features were not demonstrated on the transabdominal scan.

Magnetic resonance imaging (MRI) is the modality of choice in differentiating between septate and bicornuate

uterus. This is because of its multiplanar and excellent soft tissue resolution capabilities, which show the dividing septum clearly, making it easier for a definite diagnosis to be made [8]. However, MRI is not a routine imaging modality for the evaluation of infertility or the causes of recurrent miscarriage. It is recommended when the findings in other modalities are equivocal. The index patients did not undergo MRI scanning as it was not necessary.

Mullerian duct anomalies, especially septate/sub-septate uterus, are an important cause of recurrent miscarriage and poor obstetric outcomes. It is usually not suspected clinically until the patient begins to experience recurrent miscarriages or other associated obstetric complications. Imaging evaluation is crucial to the early detection and management of these anomalies- more importantly, as they do not have defining clinical features.

Abnormal ultrasound features like a double endometrial plate is a good pointer and should be followed up with other imaging modalities to ensure detection and prompt management before the early obstetric complication.

Conflicts of Interest

The authors declare that there is no conflict of interests.

Authors' Contributions

OSM conceived and designed the study, contributed to data collection and manuscript writing. **RMW** contributed to data collection, data analysis tools, analysis of data and manuscript writing. **OJE** contributed to data analysis. **LTO-O** contributed to manuscript writing . All authors approved the final copy of the manuscript.

REFERENCES

1. Grimbizis GF, Camus M, Tarlatzis BC, Bontis JN, Devroey P. Clinical implications of uterine malformations and hysteroscopic treatment results. Hum Reprod Update. 2001;7(2):161-74
2. Abdullahi M, Aliyu L. Bicornuate uterus mimicking ectopic pregnancy- A case report. J West Afr Coll Surg. 2012; 2: 84-90.
3. Braun P, Grau FV, Pons RM, Enguix DP. Is hysterosalpingography able to diagnose all uterine malformations correctly? A retrospective study. Eur J Radiol. 2005;53(2): 274-9.
4. Tehrani Nejad ES, Naderi T, Irani S, Azimi Nekoo E. Frequency distribution of pregnancy occurrence in infertile women after diagnostic-surgical hysteroscopy. Iranian J Reprod Med. 2007;5: 99–102
5. Troiano RN, McCarthy SM. Mullerian duct anomalies: imaging and clinical issues. Radiology. 2004 Oct;233 (1):19-34.
6. Bradley LD. Complications in hysteroscopy: prevention, treatment and legal risk. Curr Opin Obstet Gynecol. 2002 Aug;14(4):409-15.
7. Selvaraj P, Selvaraj K. Reproductive outcome of septate uterus following hysteroscopic septum resection. J Hum Reprod Sci. 2010; 3(3): 143-5.
8. Moghadam AH, Jozi Z, Dahas S, Nejad DB. Septate uterus as congenital uterine anomaly: a case report. Rep Syst Sex Disor. 2014; 3: 141-142.
9. Muoemenam OO, Okeudo. Subseptate uterus causing recurrent miscarriage. N Niger J Clin Res. 2019; 8: 40-42.
10. Ansbacher R. Uterine anomalies and future pregnancies. Clin perinatal. 1983; 10: 295-304.
11. Atobatele MO, Oyinloye OI, Akande HJ. Poor obstetrics outcome in an undiagnosed subseptate uterus. Sub-Saharan Afr J Med. 2015; 2: 184-186.
12. Troiano RN, McCarthy SM. Mullerian duct anomalies: Imaging and clinical issues. Radiology. 2004; 233: 19-34