IJBPAS, November, 2024, 13(11): 5480-5487

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

A RARE CASE OF BICORNUATE UTERUS

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Received 24th Aug. 2023; Revised 25th Oct. 2023; Accepted 20th Jan. 2024; Available online 1st Nov. 2024

https://doi.org/10.31032/IJBPAS/2024/13.11.8413

ABSTRACT

A large external fundal indentation in an otherwise normal-appearing uterus is typically what distinguishes it as a bicornuate uterus. When there is incomplete fusion of the Mullerian ducts at the level of the fundus, the uterus develops a bicornuate shape. The external contour of the uterine fundus has a cleft that is greater than 1 centimeter wide, which serves as its defining feature. This generally have no symptoms initially, but later the women start developing dysmenorrhea, excessive pain during menstruation, frequent miscarriages **[1]**. A female patient with 22 years of age had symptoms of dysmenorrhea and pain during her period for four to five years. Her obstetrics record reveals that she is nulliparous and has had two abortions. She didn't have a history of T2DM (Type-2 Diabetes Mellitus), HTN (Hypertension), or TB(Tuberculosis). The tests done in her lab were normal. According to the USG A/P (Ultrasonography-Abdomen and Pelvis), the endometrium is splitting cranially into two horns, with normal myometrium tissue between them. MSF (Multiple small follicles) was detected in B/L(bilateral) ovaries. And, the patient was diagnosed with Bicornuate Uterus. For the treatment of it, a surgical procedure known as Strassman Metroplasty was done for the correction of the anomaly.

Keywords: Bicornuate Uterus, miscarriage, abortion, menstruation, Strassman Metroplasty, endometrium

INTRODUCTION

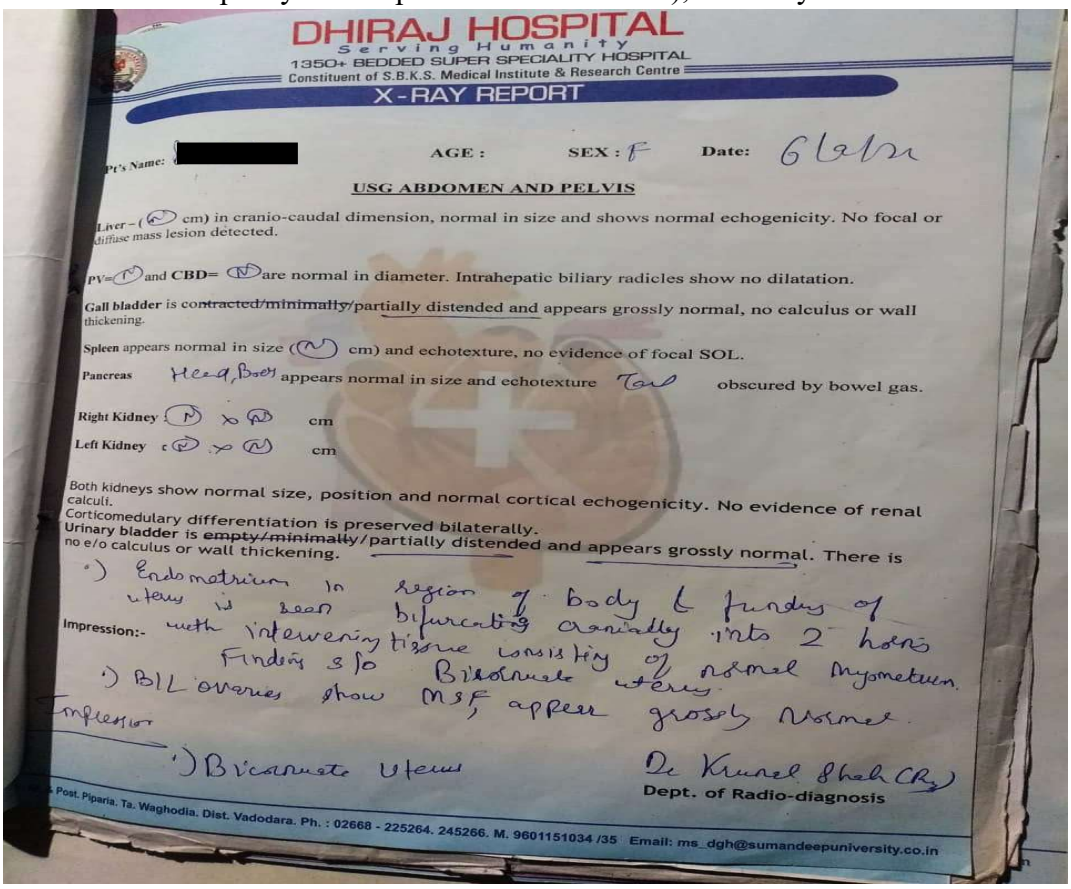
A bicornuate uterus is a uterine anomaly which occurs when the mullerian ducts are not able to fuse together. According to the American Society for Reproductive Medicine (ASRM), that amount of indentation is typically described as 1 cm or more. When

there is incomplete fusion of the Mullerian ducts at the level of the fundus, the uterus develops a bicornuate shape. The external contour of the uterine fundus has a cleft that is greater than 1 centimeter wide, which serves as its defining feature. The mullerian ducts also known as Wolffian ducts are present in the embryonic stage that develops into the female reproductive tract. Buttram and Gibbons have classified mullerian duct anomalies into 7 classes. Among these 7 classes, Class IV is termed as bicornuate uterus (IVa is complete, IVb is partial). Thus, the Bicornuate uterus is classified into 2 types, in accordance to the depth of indentation of the septum **[2]**.When the indentation is moderate it is termed as partial bicornuate uterus, while when the indentation is severe, appearing like a shape of a heart, it is termed as a complete bicornuate uterus. The pathophysiology of this anomaly is still unclear, while it may include genetic or environmental factors **[3]**. It has been found that the occurrence of uterine anomalies is 6.7% in the general population while, 16.7 % in the recurrent miscarriage population. Among these, bicornuate uterus accounts for 0.1- 0.6% of incidence. Currently, for Bicornuate Uterus, there is no treatment available except for surgical procedures. The most frequent surgical procedure used in this is the Strassman Metroplasty. In the Strassman Metroplasty, is a unification operation which is used to combine two smaller uterine cavities into a single cavity **[4]**. A complicated uterine and genital deformity may coexist with a bicornuate uterus, or it may be present alone. Significant reproductive issues are linked to an isolated bicornuate uterus. This anomaly presents with significantly higher risk of first- and second-trimester preterm delivery, low birth weight neonates, and delivery malpresentation. Most patients with a bicornuate uterus are asymptomatic during adolescence. Due to the presence of two uterine cavities, some women may visit the clinic with menorrhagia or dysmenorrhea **[5]**. Also, bicornuate uterus poses a burden on the society as it can lead to cervical os insufficiency and reproductive incompetence **[6]**. A considerable number of women are diagnosed when they exhibit obstetric problems, while A physical examination is typically not relevant in isolated aberrations **[7]**.

CASE REPORT

A 22-year-old female came to the gynecology department, with the complaints of dysmenorrhea and pain during menstruation since 4 to 5 years. Her obstetrics history shows that she is a nulliparous woman, with

2 abortions. Her Menstrual cycle is 3-4 days and last menstrual period was 28- 30 days before. She had no history of TB/HTN/T2DM. Her lab investigations were normal. The USG A/P (Ultrasonography-Abdomen and Pelvis) showed that the endometrium is bifurcating cranially into 2 horns with intervening tissue of normal myometrium. B/L ovaries showed MSF, appeared to be normal. Her lab investigations were normal. For confirmed diagnosis hysteroscopy was done. There is no pharmacological treatment except for the surgery, known as Strassman Metroplasty. The Strassman metroplasty attempts to restore the natural anatomical structure by fusing together the two constricting uterine corpora. In addition to reducing intrauterine pressure and increasing blood flow to the endometrium and muscle, abdominal and laparoscopic metroplasty can enhance uterine morphology, increase cavity volume, and decrease intrauterine pressure. Metroplasty was performed on the patient on the 8th day during the duration of admission. Before surgery she was prescribed Tab. Vit. C (1-0-0) (Tablet Vitamin-C), Tab. Multivitamin (0-1-0) (Tablet Multivitamin), Tab. Iron (1-0-0) (Tablet Iron), Tab. Ca+2 (1-0- 0) (Tablet Calcium), for 4 days.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X-RAY REPORT

Pt's Name: [redacted] AGE : SEX : F Date: 6/9/22

USG ABDOMEN AND PELVIS

Liver - (N cm) in cranio-caudal dimension, normal in size and shows normal echogenicity. No focal or diffuse mass lesion detected.

PV=N and CBD= N are normal in diameter. Intrahepatic biliary radicles show no dilatation.

Gall bladder is ~~contracted/minimally~~/partially distended and appears grossly normal, no calculus or wall thickening.

Spleen appears normal in size (N cm) and echotexture, no evidence of focal SOL.

Pancreas Head, Body appears normal in size and echotexture Tail obscured by bowel gas.

Right Kidney : N x N cm

Left Kidney : N x N cm

Both kidneys show normal size, position and normal cortical echogenicity. No evidence of renal calculi.
Corticomedulary differentiation is preserved bilaterally.
Urinary bladder is ~~empty/minimally~~/partially distended and appears grossly normal. There is no e/o calculus or wall thickening.

Impression:-
1) Endometrium in region of body & fundus of uterus is seen bifurcating cranially into 2 horns with intervening tissue consisting of normal myometrium. Findings s/o Bicornuate uterus.
2) B/L ovaries show MSF, appear grossly normal.

Impression
1) Bicornuate Uterus

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Figure 1: USG report of the patient

PROCEDURE OF SURGERY:

- After all pre-operative (pre-op) preparation, the patient was shifted to OT (Operation Theater) table.
- The anesthesia was given in the sitting position into the subarachnoid space.
- Painting and draping were done.
- A Pfannenstiel incision of about 6 cm was kept 2 finger breadth above pubic symphysis.
- Dissection was done till rectus sheath. The rectus sheath was separated from rectus muscle bluntly and rectus sheath was divided transversely. The rectus muscles were split longitudinally.
- The abdominal cavity was opened.
- Doyen's refractor was introduced. And Bicornuate uterus was noted.
- The uterus was held with uterus holding forceps.
- Between the two uterine horns, an adhesion band was visible running from the bladder to the rectum. The ovaries and fallopian tubes were both healthy. The ovarian fossa was free of adhesions. In the Douglas pouch, there were superficial endometriotic deposits that were fulgurated using bipolar cautery. The adhesion band was cauterized with bipolar current and then severed with scissors. An incision deep enough to sever the myometrium was made using a monopolar cautery operating at 120 W pure cutting current. This incision was made along the medial aspect of each uterine horn, from the supero-medial aspect to the base, about 2 cm medial and caudal to the origin of the fallopian tube.
- Intermittent layers were sutured with vicryl 2.0 round body in figure of 8 manner. Then outer layer was sutured in continuous running interlocking manner with vicryl 2.0 round-body.

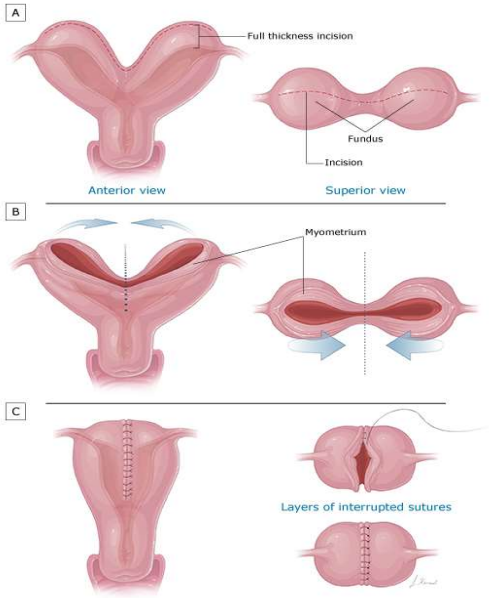

Figure 2: Strassman Metroplasty (Source: UpTODate.com)

Table 1: treatment chart shows the drugs prescribed before and after surgery

Sr No	NAME	Dose/frequency	9	10	11 pre-op	12 post-op	13	14	15	16	17	18	19
1.	Tab. Vitamin C	100mg/1-0-0	✓	✓	-	-	-	-	-	-	-	✓	✓
2.	Tab. Ferrous Sulphate	200mg/ 1-0-0	✓	✓	-	-	-	-	-	-	-	✓	✓
3.	Tab. Multivitamin B-complex	1-0-0	✓	✓	-	✓	-	-	-	-	-	✓	✓
4.	Tab. Calcium + Vitamin D3	500mg/ 0-1-0	✓	✓	-	-	-	-	-	-	-	✓	✓
5.	Inj. Diclofenac/PCM	75mg/8hourly	-	-	-	✓	✓	✓	✓	-	-	-	-
6.	Enema at 10 pm and 6 am	-	-	-	✓	✓	✓	✓	✓	-	-	✓	✓
7.	Betadine wash at 10 and 6 am	-	-	-	✓	-	-	-	-	-	-	-	-
8.	Alprazolam (PO)	0.25 mg	-	-	✓	-	-	-	-	-	-	-	✓
9.	Ringer Lactate (iv slowly)	1 pint 4 hourly	-	✓	✓	✓	✓	✓	-	-	-	-	-
10.	Inj. Promethazine Hydrochloride	8 hourly/ 1-1-1	-	-	-	✓	✓	✓	✓	-	-	-	-
11.	Inj. Tranexamic acid	500mg/5ml 8hourly	-	-	-	✓	✓	✓	✓	✓	-	-	-
12.	Inj. Hydrocortisone	100mg/ 8hourly	-	-	-	✓	✓	✓	✓	✓	-	-	-
13.	Inj. Ranitidine	150 mg/10 hourly	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
14.	Inj. Ceftriaxone	1 g/8 hourly	-	-	-	✓	✓	✓	✓	12 hourly	✓	✓	✓
15.	Inj. Metronidazole	500 mg/8 hourly	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
16.	Tab. Aceclofenac + Paracetamol + serratiopeptidase	500 mg/1-0-1	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
17.	Inj. Ceftriaxone + Salbactum	2g/12 hourly	-	-	-	✓	✓	✓	-	-	-	✓	✓
18.	Inj. Amikacin	500mg/ 12 hourly	-	-	-	✓	✓	✓	-	✓	-	✓	✓
19.	Tab. Azithromycin	500mg/1-0-1	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
20.	Inj. Placentrex	IV stat at night	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

(PO- Per Oral, Tab.- Tablet, Inj.- Injection, IV-Intravenous, PCM-Paracetamol)

The patient was discharged on the 6th day of metroplasty and was called for follow-up after 15 days. The **Table 2** shows the discharge medications:

Table 2

Discharge medicines	Frequency	Duration
Tab. Vitamin C	1-0-0	10 days
Tab. Ferrous Sulphate	1-0-0	10 days
Tab. Calcium + Vitamin D3	0-0-1	10 days
Tab. Multivitamin B-complex	0-1-0	10 days
Tab. Cefixime	1-0-1	3 days
Tab. Estradiol	2 mg 1-0-1	For 3 weeks

DISCUSSION

To compare the prevalence of congenital malformations in the general population to women with a history of infertility or losses, a review of 94 observational studies was conducted. According to the study, uterine anomalies are 8.0% more common in infertile women, 13.3% more common in women with a history of miscarriage, and 24.5% more common in women with both infertility and miscarriage. The most common aberration in the general population is an arcuate uterus, whereas septate uteri are more common in people who have infertility and miscarriage. Bicornuate uteruses are 0.4% common in the general population, 1.1% in infertile women, 2.1% in women who have had miscarriages, and 4.7% in those who have experienced both infertility and miscarriage. There is no pharmacological treatment except for the surgery, known as Strassman Metroplasty **[8]**. The Strassman metroplasty attempts to restore the natural anatomical structure by fusing together the two constricting uterine corpora, in addition to reducing intrauterine pressure and increasing blood flow to the endometrium and muscle, abdominal and laparoscopic metroplasty can enhance uterine morphology, increase cavity volume, and decrease intrauterine pressure. However laparoscopic metroplasty is preferred due to lesser complications like bleeding, adhesions, hospitalization etc. Compared to women with normal uteruses, those with uterine anomalies experience worse reproductive outcomes like pre-term labor, first trimester miscarriages. A higher rate of accurate diagnosis is now feasible due to the development of MRI (Magnetic Resonance Imaging), hysteroscopy and 2D-ultrasonography (Two-Dimensional Ultrasonography) **[9]** .

CONCLUSION

The female patient came with complaints of dysmenorrhea and pain during menstruation. Her history showed that she is a nulliparous lady who has had two abortions due to preterm death of foetus. The ultrasonography examination revealed that the endometrium is

splitting cranially into 2 horns, with intervening tissue of healthy myometrium. A hysteroscopy confirmed the diagnosis of Bicornuate Uterus. The Bicornuate uterus can lead to frequent miscarriages, early birth defects, premature deaths and malpresentation. To avoid these kinds of complications, early detection through signs and symptoms can help to reduce the chances of pre-term labor and birth-defects by surgery **[10]**.

Through this case, insights for the early detection of the anomaly, explicit diagnosis along with other management, which can be a helpful way to overcome foetus abnormalities or premature deaths, ultimately leading to a better reproductive outcome. The complexity of this aberration highlights the demand for multidisciplinary care that includes obstetric teams, reproductive specialists, and gynecologists. The prognosis for people with a bicornuate uterine defect is increasing as improvements in medical imaging and surgical methods develop. Each situation, however, continues to be distinct, demanding customized interventions to meet the demands of each patient. A greater comprehension of the underlying mechanisms and ideal management strategies for this unique abnormality will be attained by additional study and case reporting, ultimately improving the care provided to those who are impacted.

DECLARATION OF PATIENT CONSENT

The author certifies that they have obtained all appropriate patient consent forms. The patient has given her consent for her images and other clinical information to be reported in journal. The patient understands that her name and initial will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

ACKNOWLEDGEMENT

We are grateful for the support provided by Department of Pharmacy Practice, Sumandeep Vidyapeeth Deemed To Be University.

FINANCIAL SUPPORT AND SPONSORSHIPS

Nil

CONFLICTS OF INTEREST

There are no conflicts of interest.

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relationships with ineligible companies.: StatPearls Publishing

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