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Bicornuate Uterus Presenting with Recurrent Pregnancy Loss; the Role of Hysterosalpingography in the Diagnosis: A Report of Two Cases

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ABSTRACT

Abnormal fusion of the mesonephric duct (mullerian duct) during embryonic life results in a variety of congenital uterine malformations like septate uterus, unicornuate uterus, bicornuate uterus and uterine didelphys. Bicornuate uterus results from incomplete fusion of the utero-vaginal horns at the level of the fundus. About 15%-25% of women with uterine anomalies have problem with fertility and reproduction. Reproductive outcomes of uterine anomalies can be improved with better management.
Radiodiagnostic imaging such as Ultrasonography, Hysterosalpingography (HSG) and Magnetic Resonance Imaging (MRI) makes accurate detection of these anomalies possible.
The first case is AI, a 35 year old $P1^{+5}1$ alive woman, last child birth 14 years ago who presented with the history of recurrent pregnancy loss. Hysterosalpingography revealed bicornuate uterus with widely separated uterine horns down to a variable distance in the cervical canal and an intercornual distance of 10cm.
The second case is HP, a 27 year old nullipara married for 5 years with history of recurrent pregnancy loss. Hysterosalpingography demonstrated a bicornuate uterus with separated horn down to the lower uterine segment and intercornual distance of 6.1cm.

Key words: Bicornuate uterus, Pregnancy loss, Hysterosalpingography

INTRODUCTION

Abnormal fusion of the mesonephric duct (mullerian duct) during embryonic life result in a variety of congenital uterine malformations like septate uterus, unicornuate uterus, bicornuate uterus and uterine didephys[1,2]. Uterine malformations occur in approximately 1.5% of females[1]. Bicornuate uterus results from incomplete fusion of the utero-vaginal horns at the level of the fundus. It account for 25% of Mullerian ducts anomalies[1]. It could be partial or complete bicornuate with the former being the most frequently encountered. The complete bicornuate uterus is rare. About 15%-25% of women with uterine anomalies have problem with fertility and reproduction[2,3].

Radiodiagnostic imaging such as Ultrasonography, Hysterosalpingography (HSG) and Magnetic Resonance Imaging (MRI) makes accurate detection of these anomalies possible. Reproductive outcomes of uterine anomalies can be improved with better management. We report the role of hysterosalpingography in the management of two cases of bicornuate uterus who presented with history of recurrent pregnancy loss with review of the relevant literature.

CASE REPORT

Case 1: Mrs. AI is a 35 year old $P1^{+5}$ 1 alive, last child birth 14 years ago who was referred from Obstetrics and Gynecology Department of Usmanu Danfodiyo University Teaching Hospital Sokoto for Hysterosalpingography (HSG). She presented with the history of recurrent pregnancy loss. She had spontaneous abortion at 12 weeks and 17weeks during her first and second pregnancies respectively. The third pregnancy was carried to term and had a successful vaginal delivery. Since then, she had recurrent abortions at second trimester for three consecutive times. She is the second wife in a polygamous setting. There was no family history of recurrent pregnancy loss. No history of uterine surgery in the past. No history of trauma, ingestion of quinine or intake of alcohol. She had HSG done in the past in a hospital in Togo, but according to her the result was inconclusive. She is not a known diabetic, hypertensive or sickle cell disease client. Her blood group was O positive.

Physical examination showed an anxious woman. She weighed 75kg. She is not pale and not jaundiced. The abdomen, respiratory, cardiovascular and central nervous systems examination was unremarkable. Pelvic examination revealed a normal vulva, non bulky uterus and free adnexae. Speculum examination showed a longitudinal upper right vaginal wall septum. There was single external cervical opening.

Results of laboratory investigation were normal. Transabdominal ultrasonography done shows a uterine fundal notch with two uterine horns (fig 1). Endometrial complex was noted in each uterine horn. The urinary tract was normal. A suggestion of bicornuate uterus was made and advised for HSG.

At HSG, widely separated uterine horns were demonstrated down to a variable distance in the cervical canal with an angle of 128^0. The intercornual distance was 10cm. There was extravasation of contrast medium at the right cervical canal. Each uterine horn showed a normal fallopian tube. No peritoneal spillage of contrast medium was demonstrated. Conclusion of bicornuate uterus (bicornis bicollis) was made (fig 2).

She was counsel for corrective surgery which she requested for time to consult her relative but was lost to follow up.

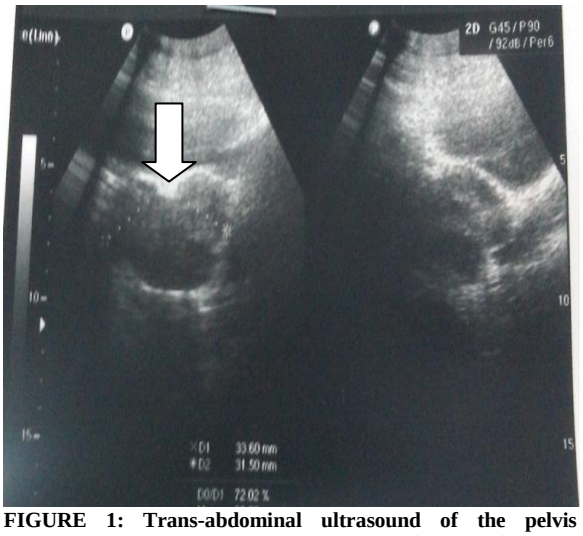

FIGURE 1: Trans-abdominal ultrasound of the pelvis transverse and longitudinal views showing a fundal defect with two cornua of the uterus (arrow).

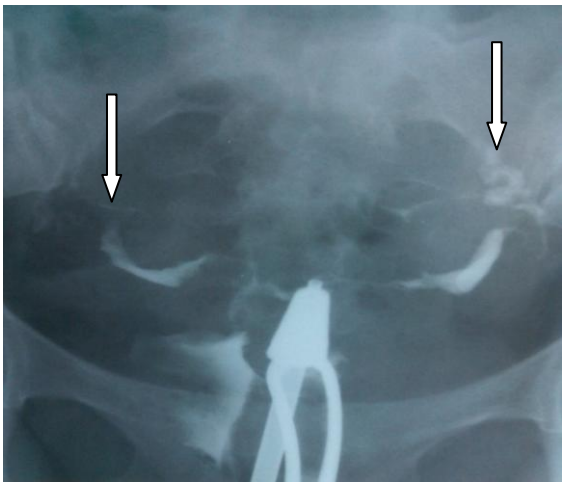

FIGURE 2: Hysterosalpingographic image antero-posterior view showing bicornis bicollis uterus with both fallopian tubes outline (arrows). There is extravasation of contrast medium at the right cervical canal.

Case 2: HP is 27 year old nullipara married for 5 years referred for Hysterosalpingography (HSG) on account of recurrent pregnancy lost. She had spontaneous abortion consecutively on four occasions. The first two abortions were at

10 weeks gestational age, while third and fourth pregnancies were aborted at 13 and 17 weeks respectively. She is the only wife in a monogamous setting. There was no family history of recurrent pregnancy loss. No history of uterine surgery in the past. No history of trauma, ingestion of quinine or intake of alcohol. She is not a known diabetic, hypertensive or sickle cell disease client. Her blood group was O positive.

Physical examination abdominal and pelvic examination revealed normal findings. Speculum examination showed a normal vagina and a single external cervical opening. Results of laboratory investigations were normal.

HSG showed separated uterine horns down to the lower uterine segment with an intercornual distance of 6.5cm. Both fallopian tubes were demonstrated and showed peritoneal spillage of contrast medium. Conclusion of bicornuate uterus (bicornis unicollis) was made (fig 3).

She had corrective surgery with subsequent normal pregnancy and spontaneous vaginal delivery.

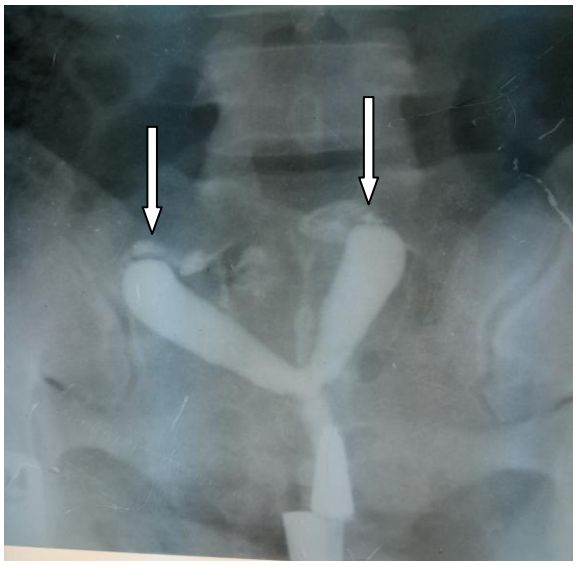

FIGURE 3: Hysterosalpingographic image antero-posterior view showing bicornis unicollis uterus with both fallopian tubes outline (arrows).

DISCUSSION

Bicornuate uterus results from incomplete fusion of the utero-vaginal horns at the level of the fundus. It is a class IV anomaly according to the American Society classification of mullerian duct anomalies[1,4]. Bicornuate uterus is classified according to the involvement of cervical canal as bicornis unicollis (partial bicornuate) and bicornis bicollis (complete bicornuate). In the former, there is a single cervical canal with the central myometrium extending to a varying distance from the internal os as in second case here presented (fig 3). The later has two cervical canal with the central myometrium extending to the external cervical os as demonstrated in our first case[1] (fig 2).

Longitudinal upper vaginal septum is reported to coexist in 25% of bicornuate uterus[5]. Nepal department of obstetrics and gynecology presented a woman with term pregnancy with complete bicornuate uterus and with longitudinal vaginal septum[6]. Longitudinal vaginal septum was present in our first patient. There is high incidence of association of mullerian duct anomalies with urinary tract anomalies such as renal agenesis.

About 15%-25% of women with uterine anomalies have problem with fertility and reproduction. They have increase incidence of abortion, poor fetal growth, malpresentation and abnormal placental and ectopic pregnancies[2, 3]. The most common clinical presentation of women with bicornuate uterus is recurrent pregnancy loss usually in first trimester. Saidu SA reported a case of habitual abortion in a 36 year old woman with bicornuate uterus in Sokoto Nigeria[3].

Relevant imaging modalities in the diagnosis of Mullerian duct anomalies are Ultrasonography, Hysterosalpingography (HSG) and Magnetic Resonance Imaging (MRI). The role of imaging is to help detect, diagnose and distinguish surgically correctable forms of Mullerian duct anomalies from inoperable forms. Pelvic ultrasound (US) is the first radiological investigation ordered in evaluation of Mullerian duct anomalies. Pelvic and transvaginal US may suggest anomaly but negative US finding does not exclude it. On US, bicornuate uterus show a concave or

heart-shaped external uterine contour at the fundus and the uterine horns are divergent. The fundal cleft is typically more than 1cm deep. These features were demonstrated on our first case (fig.1)[1,7].

Hysterosalpingography allows evaluation of the uterine cavity and tubal patency. However unlike with US, in HSG evaluation of fundal defect cannot be perform and therefore differentiation between septed, and bicornuate uteri is not possible. On HSG bicornuate uterus appear as two horns of endometrial cavity which form an angle that is usually greater than 105^{o}. The intercornual distance is widened. Each horn has a fusiform appearance with apices that tapers and ends in a single fallopian tube[1,7].

Magnetic Resonance Imaging is considered the criterion standard for imaging uterine anomalies. It provides high resolution images of the uterine body, fundus and internal structures. In bicornuate uterus MRI shows a deep fundal cleft greater than 1cm and an intercornual distance of greater than 4cm. The uterus demonstrate normal uterine zonal anatomy[1,2,7].

Management of women with bicornuate uterus is usually surgical. In women with history of recurrent pregnancy loss, a Strassman metroplasty can be considered. In patients with cervical incompetence, placement of cervical cerclage may increase fetal survival rate[8].

CONCLUSION

Bicornuate uterus is a cause of recurrent pregnancy loss in fertile women. Imaging such as HSG plays a vital role in its diagnosis and management with subsequent improvement in reproductive outcome.

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