CASE REPORT

Recurrent transverse lie in an Arcuate Uterus: A Case Report and Literature Review

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SUMMARY

Arcuate uterus is a mild form of uterine anomaly that may go unnoticed during a reproductive life of a woman. While it is shrouded in controversy in categorization and diagnosis, studies have shown that arcuate uterus is associated with Endometriosis. Arcuate uterus is rarely associated with reproductive failure. However, malpresentation, preterm birth and miscarriages have been found to be associated with arcuate uterus. Transverse lie is a presentation commonly associated with uterine anomalies. The uterine cavity distortion and reduction in capacity seen in arcuate uterus may explain the increase incidence of Transverse lie as demonstrated in the case report.

Key words: Arcuate uterus, Miscarriages, Malpresentation, Transverse lie

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Introduction

The uterus is responsible for many of the most crucial steps in the process of reproduction. Sperm migration, embryo implantation, fetal nourishment, development and growth, and finally, the process of labor and delivery are all reliant on the existence of a structurally normal and functionally competent uterus[1].Congenital uterine anomalies are strongly associated with adverse effect on fertility and pregnancy outcome. Malformations of the uterus are the most common defects of the female reproductive system. In the general population of women, they occur with an incidence rate of approximately 4% [2]. The anomaly can be a physical abnormal formation of the uterus or could be a more subtle abnormalities within the uterine cavity. Some of these anomalies have been found to be associated with such conditions as pelvic pain, infertility, and endometriosis[3]. Others are increased risk of miscarriage and preterm delivery [2, 4, 5]. For some that may carry the pregnancy to age of viability may have operative delivery. As experienced by the case reported.

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Case Summary

A 34year old female G 3 P2 + 0 who presented to Antenatal clinic for prenatal care at 20 weeks gestation of pregnancy at State Specialist Hospital Maiduguri. Her pregnancy has been uneventful. She had cesarean deliveries in her 2previous pregnancies due to transverse lie. All her routine ANC investigation were within normal limits. Her blood group was O rhesus positive and her genotype was AA. She was

regular on her routine prenatal medication. The only abnormal finding found during her entire prenatal care were on abdominal examination. The lie of the baby remained transverse throughout the pregnancy period. Her first ultrasound scan was at 32 weeks gestation that revealed a live intrauterine fetus at 32 weeks gestation in transverse lie, placenta was posterior but not previa. Estimated fetal weight was 2.0 kg. The liquor was adequate for the gestational age. She was scheduled for elective cesarean section at 39 weeks because of 2 previuos cesarean sections. She had uneventful antenatal period a repeat ultrasound scan upheld the previous findings. She was booked for elective cesarean section at 39 weeks gestation. The preoperative investigations were PCV 36%, Urinalysis negative for protein and Glucose, her electrolytes were within Normal limits.

The operation findings were: Uterus in dextrorotation with well-formed lower segment. The tubes and ovaries were grossly normal. The fetus was transverse lie, in right acromion anterior position. Delivery was conducted by internal Podalic version and breach extraction. A live male baby that weighed 3.8 Kg with Apgar sores 7 in first minute and 9 in fifth minute was delivered. The placenta was delivered by controlled cord traction. A close examination after the delivery of the baby revealed a uterus with an indentation at the fundus into the endometrial cavity measuring 1.5cm. A diagnosis of severe arcuate uterus was made and could be the reason for the recurrent transverse lie.

Discussion

Congenital uterine anomalies are not uncommon. Many are asymptomatic and have been associated with normal or adverse reproductive outcomes. The interference of these anomalies with a patient's fertility is an interestingphenomena but also a debatable issue. Proper management of infertile women with many forms of these anomalies remains controversial[1].Congenital uterine anomalies may affect some or all of these uterine functions, precluding a successful pregnancy. Several studies have shown that uterine congenital anomalies are found present in 1-10% of unselected population, 2-8% of infertile women and 5-10 % of women with the history of miscarriage [7, 9, 10, 12]. The wide range of difference in the prevalence rate is presumably because of use of different classification systems and non-uniformity in diagnostic tests[11, 12].

Normal development of the female reproductive tract involves a series of complex processes which includes differentiation, migration, fusion and canalization of the Mullerian system[11 12]. The interruption of these processes results to uterine anomaly.

The reported incidence of congenital uterine anomalies varies from 1.8 - 3.76% [13]. The wide range reflects the differences in the criteria, the population studied and the techniques used for the diagnosis. Saravelos, Cocksedge and Li reported a prevalence of 6.7% in the general population, 7.3 in the infertile population and 16.7% among those with recurrent miscarriages [11]. Similarly Chan et al reported a prevalence of 5.5% among the general population, 8.0% among the infertile women, and 13.3% in those with previous miscarriages and 24.5% among those with previous miscarriages in association with infertility[15]. Żyła et al in their study carried out on "*Pregnancy and Delivery in Women with Uterine Malformations*" concluded that women with uterine defects are subject to an increased risk of complications in pregnancy and delivery. These complications probably

occurring as premature births, low birth weight babies and births by cesarean section[16]. The index case had cesarean birth in all her pregnancies due to recurrent transverse. Zyla et al claimed that newborns of women with uterine defects show a worse birth status, based on their Apgar score and low birth body mass[14]. For this reason, the study recommended that pregnancy in a woman with uterine defects should be regarded as a high-risk pregnancy as such intensive monitoring of such pregnancy, labour and delivery with a well-planned preventive measures is highly indicated [14].

Arcuate Uterus

Arcuate uterus is a Mullerian duct abnormality characterized by a mild indentation of the endometrium at the uterine fundus. This occurs as a failure of complete resorption of the utero-vaginal septum that affects 3.9% of the general population[6]. The endometrial intention has made it classically difficult to define arcuate uterus, as it can be difficult to discern this from the more pronounced septate uterus. In Europe, the term "arcuate uterus" is no longer in use. All uteri are either classified as normal or septate uterus. However, when arcuate uterus is categorized differently from the septate uterus, it was found that arcuate uterus accounts for 70% of uterine abnormalities, of all the uterine anomalies arcuate uterus is the least commonly associated with reproductive failure [17]. While, it may not be associated with obstetrics complications such as infertility or miscarriages, some studies have shown some correlations with other gynecological diseases, such as endometriosis. For this reason, it can be highly beneficial to separate arcuate uterus as a subcategory of a septate uterus[3]. Arcuate uterus can be diagnosed with ultrasound or MRI. Arcuate uterus described by Surrey et al as a perpendicular depth from the interstitial line connecting the cornua ranging from 4 to 10 mm with a myometrial angle >90 degrees[18].

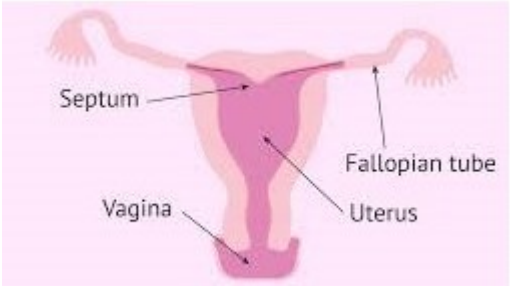

Figure 1: Diagram of Arcuate Uterus

Arcuate Uterus is the most common uterine anomaly in the general population and in women with recurrent miscarriages, while septate uterus is the commonest anomaly in the infertile population[15 19 20]. Braun et al. in their study carried out in Spain reported that arcuate uterus is the most common uterine malformation[16]. Similarly, Seckin study found a relationship between arcuate Uterus and endometriosis. Of the 260 hysteroscopy conducted at the endometriosis center 38% of the patients were found to have arcuate uterus[3]. La Monica et al in their study reported a notable similarity. 37% of endometriosis patients were found to arcuate uterus upon laparoscopic and hysteroscopic procedures[17]. While this in fact, is not a majority, it is significant to note asarcuate uterus is reported to be in less than 5% of females according to recent studies[17].

Żyła et al in their study on "Pregnancy and Delivery in Women with Uterine

Malformations", observed arcuate uterus to have an incident rate of 15%[13]. Likewise, the study on the "*Obstetrical outcome in women with congenital uterine anomalies*" carried out on 32 women in India revealed an incidence rate of 25% (n=8) Arcuate uterus[11].

Ugboaja et al in their study on "*Abnormal hysteroscopy findings among a cross section of infertile Nigerian women*" reported a low prevalence rate of congenital uterine anomalies among infertile women, with 10.7% (n=17) observed among the 159 women sampled[18]. However, the main form of abnormality found was arcuate uterus with a prevalent rate of 41.2% n=7 [18]. This report is in contrast to the report of Eduwem, et al who in their study on "*Hysterosalpingographic patterns and relevance in the management of infertility in a Nigerian tertiary health Institution*", carried out at Calabar, South-South region of Nigeria, reported the main congenital abnormalities observed in their studies as bicornuate uterus, 2.43% (four mild cases in arcuate form, and one case of uterinebicornisunicollis[19]. Botwe et al studyon the "Hysterosalpingographic findings among Ghanaian women undergoing infertility work-up: a study at the Korle-Bu Teaching Hospital (KBTH)" showed that out of the many congenital uterine anomalies, only 3 (0.2 %) arcuate uteri were diagnosed[20]. This is lesser than all the rates reported for these anomalies in all reviewed works. The closest was 1.6 % reported in Uganda, which was 8 times higher than that recorded in their study, suggesting a lower incidence at KBTH, and probably in the country[21].

Effect of Arcuate Uterus on Obstetrics.

Several theories have been postulated to explain the potential adverse effects of congenital uterine anomalies on fertility and reproductive outcome. The evidence to support these theories, particularly with the milder anomalies (e.g., arcuate and subseptate uteri) is deficient and lacking[1]. This is compounded by the fact that Müllerian defects can permit an absolutely normal obstetric outcome[2].

Figure 2: Arcuate uterus

Many authors consider the arcuate uterus a normal variant rather than a true anatomical or developmental anomaly[12]. Therefore, many women with arcuate uterus may not experience any reproductive problems nor require any surgery[19]. However, this can only be properly evaluated if the true prevalence of the anomaly can be defined and appropriate associations with relevant outcome measures assessed. Furthermore, there is no consensus on the relationship between arcuate uterus and recurrent miscarriage[19]. However, some researchers maintain a point of view that arcuate uterine condition is associated with a higher risk for miscarriage, premature birth, and malpresentation. The case reported on had persistent transverse lie in all her three

pregnancies for which she had elective cesarean section at term.

Surrey et al reported their findings on a group of 432 women undergoing IVF, where 354 women are with a normal uterine cavity and 78 patients with an arcuate uterus. Implantation rates were 63.7% in women with an arcuate uterus and 65.4% in those with a normal uterus, and the live-birth rate was 68.7% in both groups. Rates of spontaneous miscarriage after ultrasound visualization of a gestational sac also did not differ between the two groups (4.8% [arcuate] and 4.3% [normal]) [14].

Raga et al observed that women with arcuate uterus had a live birth rate of 82.7% and they concluded that arcuate uterus has no impact on reproduction[2]. Saravelos et al considered the arcuate uterus not to have a role in infertility since they found its prevalence among infertile and general populations to be comparable (2.1 vs 2.4%, respectively) [11]. On the other hand, other studies implied associations between the arcuate uterus and recurrent miscarriage and concluded that its impact on reproductive outcome should not be underestimated[6].

The study on the *"Obstetrical outcome in women with congenital uterine anomalies"* carried out on 32 women conducted in India revealed an incidence rate of 25% (n=8) for arcuate uterus [8]. The same study showed that women with arcuate uterus had malpresentation of which breech and Transverse lie were the commonest[8]. Additionally the report corroborated the claim that of all the anomalies, arcuate uterus seemed to always have the most favourable outcome[11].

Figure 3: Arcuate uterus (After cesarean section)

Conclusion

The arcuate uterus is considered by many as a 'normal variant', of the uterine anatomical structure, with no or little implication on pregnancy implantation, miscarriages and preterm birth and live birth, while others consider it to have an adverse effect on reproductive outcome. Thus, until the effect of an arcuate uterus (especially on live birth) is further clarified, the incidence of arcuate uterine anomalies among different populations should be properly diagnosed and regarded as highrosk pregnancies that will be treated with special attention.

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