BICORNUATE UTERUS

A REPORT OF FIVE CASES IN LATE PREGNANCY

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It is by no means impossible for a congenitally abnormal uterus to harbour a pregnancy and to sustain it to full term. Indeed this can be seen from the many reports to be found in the literature. Fenton and Singh[1] reported on various types of uterine and vaginal anomalies among pregnant women at the Sloane Hospital for Women, New York, for the 25-year period 1925-49 and found an incidence of 0·15%, or 1 anomaly in every 633 deliveries. More recently, Philpott and Ross[2] reported that among 39,190 patients admitted to the Royal Victoria Montreal Maternity Hospital between 1942 and 1953, 41 were found to have some congenital uterine abnormality—an incidence of 0·1% or 1 uterine anomaly in 960 deliveries.

It is only in the marked cases of arrested development of the uterus, in which the uterus remains rudimentary or, in extreme cases, is actually absent, that pregnancy is impossible. In other types of uterine abnormality, caused by irregularities in the fusion of the two Mullerian ducts, a very large variety of malformations is possible With all these, as Stallworthy[3] has pointed out, the abortion rate is very high.

The bicornuate uterus represents one of the lesser malformations. In this condition the cervix is normally formed, but the body of the uterus above has failed to fuse correctly into one single hollow organ, and is found, to a greater or lesser extent, as two distinct horns meeting and fusing above the cervix. The term 'bicornuate uterus' is used rather loosely, but it should only be used to denote the *uterus arcuatus* (Fig. 1) and the *uterus bicornis unicollis* (Fig. 2), which are the two

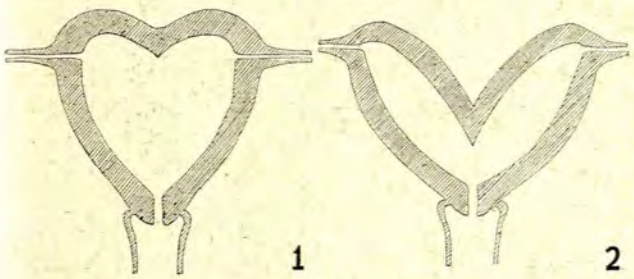

Fig. 1. Uterus Arcuatus. *Fig.* 2. Uterus Bicornis Unicollis.

extreme variants of the same condition. The uterus arcuatus is the simplest variety of bicornuate uterus and is the commonest variety met with. In its slightest degrees the malformation is of no moment and there is no doubt but that very many of these cases are never diagnosed. When the malformation is more marked, however, complications can, and frequently do, arise in late pregnancy, for the condition tends to produce an oblique lie and, it is said, favours retention of the placenta in the third stage of labour.

Five cases are reported here, all with definite uterus arcuatus. Though this is a very small number of cases, they nevertheless serve to illustrate certain features which should aid in the diagnosis of the uterine abnormality during pregnancy. These 5 patients were all delivered within a 3-months period at the Queen Victoria Hospital, Johannesburg. This may be due to a chance 'run' of these cases. On the other hand it may indicate that the condition is not so uncommon as was formerly supposed. As mentioned above, many of these cases give rise to no complications, particularly if the abnormality is minor in degree, and so may easily be missed.

Of the 5 cases 2 were primiparae and 3 multiparae. The primiparae both had vertex presentations when seen. In both, the vertex was centrally situated over the pelvic brim, but the upper pole of the foetus was not in the mid-line, but was found off to one side rather under a costal margin. In spite of attempts at correction, the position persisted. On the opposite side of the abdomen a soft globular swelling could be felt as part of the uterus. In one case this swelling was just above the level of the umbilicus and contained foetal limbs. These limbs could be felt with the greatest ease, as in an abdominal pregnancy. A test with a small dose of pitocin showed that the limbs were encased in myometrium; there was a distinct hardening after the injection.

In my opinion this feature—the upper pole of the foetus persistently being out of the mid-line—is a most important one and should introduce the suspicion of a bicornuate uterus to the examiner's mind. In antenatal examinations the lower portion of the uterus is always carefully palpated to determine the presenting part, but the same care is not usually devoted to the fundus of the uterus—particularly when it is difficult to feel, as when the abdominal wall is tight or in an obese patient.

The other 3 patients were multiparae, and all were found to have a breech presentation. They all gave a similar obstetrical history. Each patient had had one previous full-time pregnancy. In 2 cases the patient had had an oblique lie with her first pregnancy; one was delivered by Caesarean section for shoulder presentation in labour, and the other by a difficult breech extraction. In the 3rd case the patient had had a breech presentation in the later weeks of her first pregnancy and numerous attempts at external version had failed. She was eventually delivered successfully as a breech.

In these 3 cases numerous attempts at external version during their present pregnancy had all failed, and the significant point was that all seemed at first glance to be 'easy' versions, since the abdominal wall was lax and the uterus relaxed, and there appeared to be an adequate amount of liquor present. In all 3 the foetal head was found to be persistently to one side of the mid-line of the abdowaau—a feature stressed above.

In one only, a soft globular swelling was felt to the one side of the 'fundus'.

Thus, the second point of significance is the failure of what originally promises to be an easy external version. The suspicion of a bicornuate uterus should be made stronger by an obstetrical history of an oblique lie or a breech presentation with the previous delivery.

Of these 5 cases of bicornuate uterus, 3 suffered from cardiac disease. One patient had a congenital heart lesion—an inter-auricular septal defect together with pulmonary stenosis. The other 2 patients had rheumatic heart-disease, one being in cardiac failure with active rheumatic carditis at the time of admission. That a congenital anomaly of the heart should exist with a congenital anomaly of the uterus is not surprising, but the fact that the other two patients, in whom no evidence of congenital disease of the heart was found should have cardiac disease is regarded as pure coincidence. The 5 cases gave no evidence of congenital defects of the renal system, which are often reported in association with congenital uterine anomalies.

Three of the 5 patients had unfavourable pelves—one was markedly android and the other two were contracted pelves. As far as I know pelvic deformity has not been reported as a concomitant of bicornuate uterus.

One of the 5 patients was delivered *per vias naturales* as a breech with extended legs. The infant weighed 6 lb. 8 oz. and was alive and well. The uterus was examined under general anaesthesia after the delivery of the placenta and the diagnosis of bicornuate uterus was confirmed. The remaining 4 patients were delivered by Caesarean section for the reasons stated below and the diagnosis of bicornuate uterus was confirmed at operation.

CASE REPORTS

Case 1 (no. 4796) was a primipara aged 29 years, with a history of inability to fall pregnant for the previous 7 years. She was admitted to hospital for investigation of a cardiac condition when she was first seen at the antenatal clinic. She was then already 29 weeks pregnant and the foetus was found to be lying transversely. The cardiac condition was diagnosed as being due to a congenital inter-auricular septal defect together with a pulmonary-valve stenosis (cardiac type 3). Nothing unusual was noted in the shape of the uterus at this stage. She signed herself out of hospital and was not seen again until she had reached the 36th week of her pregnancy.

On readmission her cardiac state was found to be about the same as previously. The foetus was lying as a R.O.L. with the vertex centrally placed over the brim, but not engaged. The upper pole of the foetus was found to be to the right of the mid-line; this feature persisted until the time of delivery. A smooth globular mass was felt to the left of the uterus and first gave the impression of a moderately large ovarian cyst. However, as foetal parts could be felt in it, it became obvious that the mass was a sacculation of the main uterine body. The limbs could be felt exceptionally clearly here, which suggested that the myometrial covering was rather thin. When a small test dose of pitocin was given this area hardened up satisfactorily. X-ray pelvimetry revealed that the patient had a gynaecoid pelvis, the inlet being 112 sq. cm. (average for patients at this hospital 123 sq. cm.) and the outlet 104 sq. cm. (average 103 sq. cm.). The patient remained in hospital until after her delivery.

The expected date of delivery was 17 December 1955. On 23 December the membranes ruptured spontaneously without labour. It was seen that the liquor was meconium-stained and the foetal heart-rate, which had previously been regular and normal in rate, had now become grossly irregular and slow. Caesarean section was immediately proceeded with.

A live but distressed infant weighing 6 lb. 8 oz. was delivered and subsequently did very well. A type-1 posterior placenta praevia was found, together with marked vasa praevia, the membranes having ruptured between two large umbilical vessels. There had been no antepartum haemorrhage. The uterus was found to be a marked uterus arcuatus, and the left horn appeared somewhat thinner than the remainder of the uterus. The patient made an uninterrupted recovery.

Case 2 (no. 544), a primipara aged 25 years, was admitted to hospital in her 34th week of pregnancy. She had fallen and had strained her erector spinae muscles. She also had a mitral stenosis and the physician had classified her on her cardiac reserve as type 2. Abdominal palpation showed the foetus to be in the R.O.A. position, with the vertex centrally over the pelvic brim and the breech to the one side of the mid-line. The fundus of the uterus had a depression to the left side giving on to a rounded globular mass. The provisional diagnosis of arcuate uterus was made. The patient was kept in hospital under observation because of her cardiac state. On three or four occasions she commenced premature labour but each time after sedation the uterus quietened. An X-ray pelvimetry revealed a contracted and most unfavourable pelvis. The inlet was markedly android in shape and its area was only 82 sq. cm. The sacrum was markedly angulated forward in the mid-pelvis.

At 38 weeks she commenced labour. There was a marked overlap of the foetal head on the pelvic brim and an obvious cephalo-pelvic disproportion existed. She was delivered on 11 February 1956, by lower-segment Caesarean section, of a live male infant weighing 5 lb. 7 oz. The uterus was found to be a definite uterus arcuatus.

The patient made an uninterrupted recovery from the operation and signed herself out of hospital on the 12th post-operative day.

Case 3 (no. 5049), a para 2 aged 31 years, was admitted in her 30th week of pregnancy in cardiac failure. Her first pregnancy had been terminated by lower-segment Caesarean section because of a shoulder presentation in labour. This infant had subsequently died at the age of 13 months. The second pregnancy had ended in premature labour at 30 weeks. This infant had weighed 2 lb. 8 oz. and had died on the 7th day after delivery.

She was found to have mitral stenosis and incompetence, together with aortic stenosis and incompetence. In addition she was suffering from active rheumatic carditis, which had precipitated cardiac failure. The foetus was presenting as a breech. Palpation of the fundus was difficult because of obesity. She remained in hospital until after delivery.

Between 34 and 36 weeks several attempts were made at external version and all failed, in spite of the fact that the abdomen was lax and the uterus relaxed, and there was apparently an adequate amount of liquor present. On several occasions the foetal lie was oblique, but later it became stabilized with the breech presenting centrally over the pelvic brim and the head lying to the right of the mid-line towards the right costal margin. An X-ray pelvimetry revealed a pelvis of apparently adequate dimensions (inlet 121 sq. cm., outlet 104 sq. cm.). but the shape was unfavourable, there being an android inlet and a 6-piece sacrum.

On 6 February 1956, at 38 weeks, she commenced labour. In view of her poor obstetrical history, the previous Caesarean section, and the unfavourable pelvis, it was decided to deliver by Caesarean section. Her cardiac state had improved to the optimum that could be expected. At Caesarean section a marked uterus arcuatus was found. The infant was alive and well, and it weighed 5lb. 5oz. The mother took the operation remarkably well and she made an uninterrupted recovery. She was discharged on the 20th post-operative day.

Case 4 (no. 795), a para 1 aged 25 years, was admitted in the 37th week of her pregnancy with a mild pre-eclamptic toxaemia. Her obstetrical history revealed that she had a pre-eclamptic toxaemia with her last pregnancy, for which labour was eventually induced. Her infant was delivered successfully as a breech, and she volunteered the information that numerous attempts had been made unsuccessfully during that pregnancy to perform external version.

On this occasion the foetus was found to be lying as a L.S.A. with the head to the right of the mid-line, tending to drift under the right costal margin. Attempts had previously been made at the antenatal clinic to perform external version, but these had

failed. Once the pre-eclampsia had subsided, further attempts were made in the ward, but they also failed, in spite of the fact that the abdominal wall was lax and the uterus relaxed, and an adequate amount of liquor was present. The foetal head persisted in lying to the right of the mid-line. On the left of the fundus a soft globular mass was felt. The diagnosis of bicornuate uterus was made. X-ray pelvimetry revealed an adequate pelvis with a gynaecoid inlet 118 sq. cm. in area, and an outlet of 114 sq. cm.

Labour commenced at 39 weeks, on 7 March 1956, and the patient had a normal breech delivery. Labour was rapid, lasting only 2 hours 9 minutes. The blood loss amounted to 8 oz. and the third stage lasted 12 minutes. The infant weighed 6 lb. 8 oz. and was alive and well. An examination of the uterus under general anaesthesia was made after the third stage and the diagnosis of uterus arcuatus was confirmed.

Case 5 (no. 1291), a para 1 aged 21 years, was admitted on 26 March 1956, 7 days after her expected date of delivery, in labour. Her first infant had been delivered by means of a difficult breech extraction after a labour which lasted 64 hours. At this delivery she also suffered a post-partum haemorrhage of 40 oz. and she received a blood transfusion. With this first pregnancy the foetus had been found lying obliquely and transversely at the 34th week and the 36th week, but when she commenced labour it was lying as a breech. This first infant had weighed 5 lb. 10 oz. at birth and was now alive and well.

On this occasion abdominal palpation showed the foetus to be in the L.S.A. position. The presenting breech was centrally placed over the pelvic brim and the foetal head was found off the mid-line towards the right hypochondrium. Attempts to move the head to the mid-line always resulted in its coming back towards the right hypochondrium. No globular mass could be felt to the left of the fundus: nevertheless, a provisional diagnosis of bicornuate uterus was made.

The membranes had ruptured prematurely, but the uterine action was that of normal labour. X-ray pelvimetry revealed a contracted pelvis with a gynaecoid inlet. The area of the inlet was 105 sq. cm. and of the outlet 97 sq. cm. As this foetus was judged to be considerably larger than her last infant disproportion was expected. A vaginal examination showed the cervix to be almost fully taken up and the breech had not yet engaged. On this it was decided to proceed with Caesarean section. At operation a definite and well-marked uterus arcuatus was found. The infant weighed 7 lb. 1 oz. and was alive and well.

CONCLUSIONS

1. Bicornuate uterus, particularly the minor types, may be more common in association with pregnancy than has previously been thought to be the case.

2. During antenatal examinations more attention should be paid to the upper pole of the foetus than is generally done. Where the upper pole of the foetus is found persistently to the one side of the mid-line, the possibility of bicornuate uterus should be kept in mind. It should be noted that the lower or presenting pole of the foetus may be centrally placed over the pelvic brim.

3. Where external version for breech presentation has failed in an apparently easy case, uterine abnormality should be kept in mind as a possible cause for the failure.

REFERENCES

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