AMNIOGRAPHY AND FETOGRAPHY OLD DIAGNOSTIC AIDS - NEW USES

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Summary: Ultrasonography replaced amniography and fetography as a diagnostic procedure in the antenatal diagnosis of congenital abnormalities in the 1970's, however, a combination with these techniques offers new diagnostic possibilities.

In recent years ultrasonography has contributed substantially to the prenatal diagnosis of many congenital abnormalities ([4]). This in turn has led to the treatment in utero of such conditions as intestinal volvulus ([2]) and urinary tract obstruction ([10]). Typical appearances with bowel obstruction have been reported with duodenal atresia or stenosis, jejunal stenosis, colonic obstruction and meconium peritonitis ([4]).

Foregut anomalies, such as oesophageal atresia, have also been diagnosed by ultrasonography but may be missed if the bypass communicating through the trachea is large ([7]). Caterini *et al.* (1976) suggested that a combination of ultrasonography with amniography offered diagnostic possibilities. Grech (1983) described the technique, indications for, and precautions to avoid the complications of amniography. I report a case where the combination of ultrasonography with amniography confirmed a congenital abnormality.

CASE HISTORY

This 23 year old patient had a vaginal delivery in 1979 at term of a female infant weighing. 3.1 kilogrammes. In 1981 she had a spontaneous miscarriage. Her third pregnancy was uneventful until 36 weeks when she was noted to have polyhydramnios. An ultrasound scan confirmed a foetus of approximately 36 weeks gestation with polyhydramnios. There was a transonic space on the left adjacent to the foetal heart, in the foetal chest.

Amniography was performed and the fluid level in the foetal stomach was seen in the left chest adjacent to the foetal heart.

In view of the above findings labour was induced at term by a prostaglandin vaginal tablet. However, within one hour severe foetal distress developed and the patient was delivered by emergency Caesarean section of a live male infant weighing 3.5 kilogrammes.

At delivery the baby made some spontaneous respirations, but had a low heart rate and needed ventilation. Air entry was markedly decreased on the left side of the chest. The baby was transferred to the Neonatal Surgical Unit and a diaphragmatic hernia was repaired when the baby was 48 hours old.

Within 5 days of the operation the baby was no longer being ventilated and by 8 days postoperatively was being nursed in air.

The baby had other problems: – Hirschsprung's disease, hypospadias, a right inguinal hernia, lactose intolerance, and aortic valve stenosis.

DISCUSSION

High bowel obstruction is usually associated with polyhydramnios and this is the usual reason for further investigation. Ultrasonography may show typical appearances of duodenal atresia or stenosis (double bubble) jejunal stenosis, colonic obstruction or meconium peritonitis ([4]). If a stomach bubble is absent on repeated scans foregut atresia should be suspected. Another cause of an absent stomach bubble is diaphragmatic hernia, which usually occurs on the left side. The displaced abdominal viscera *may be* recognised in the

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chest by ultrasonography, as may the displacement of the mediastinum which may be the means by which fetal swallowing is impaired, so that polydydramnios may be the presenting sign.

Amniography shows the stomach and/or small bowel in the chest also. Congenital diaphragmatic hernia is nearly always fatal because the lungs are hypoplastic, not only on the side displaced by abdominal viscera but also on the other side because of mediastinal displacement. The condition occurs in 0.45 per 1000 births ([6]) has recognisable predisposing factors ([3]) and in utero correction is feasible ([9]).

The first reported case of intra-uterine diagnosis of diaphragmatic hernia by amniography was by Aguero and Zighelboim (1970) also with a successful outcome.

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The obstetric management of the case was probably the easiest part. The outcome would not have been so successful without the vigilance of the radiographer ultrasonographer, and the skill of all who managed the baby at delivery, on the Special Care Baby Unit and at the Regional Paediatric Surgical Unit.

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