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Antenatal Diagnosis of a Set of Conjoined Twins Presenting with Unusual Ultrasound Findings

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The antenatal diagnosis of conjoined twins remains a diagnostic challenge, but is very important if the mode of delivery is to be successfully planned and undertaken, and if surgical separation of the twins is to be performed. A number of findings on antenatal ultrasound examination have been described as characteristic of the condition and make ultrasonography the most important method for arriving at the diagnosis. A case of conjoined twins is described in which a number of these so-called diagnostic characteristics were absent. This case points out the need to carefully exclude conjunction in all cases in which twins are diagnosed.

CASE REPORT

A 21-year-old, gravida 1 para 0 woman was referred for ultrasound as a late presenter with uncertain dates, but clinically at about her 36th menstrual week. A twin pregnancy had not been diagnosed on clinical examination.

Sonography demonstrated twins, at 32–33 weeks' menstrual age, by biparietal diameter and femoral diaphysis length measurements. One twin presented vertex and the other breech. There was a single placenta. The skin contour of the fetuses could not be identified separately in the lower thoracic and abdominal regions (Figure 1). Two separate fetal hearts were demonstrated. Each twin was shown to possess a liver, but these were joined ventrally by a bridge of liver tissue. One umbilical cord containing five vessels was seen and the umbilical vein was shared. No other fetal anomalies were demonstrated and a normal amount of amniotic fluid was present.

Due to the unusual features, in particular the absence of corresponding fetal parts at the same level, the absence of an en-face position and a vertex presentation of one twin but a breech presentation of the other, the referring clinician requested a further ultrasound examination. The patient was rescanned one week later. This scan confirmed the previous findings and also showed that the relative positions of the two fetuses had not changed. A diagnosis of conjoined twins was therefore confirmed.

At her 34–35th menstrual week by ultrasound the patient went into premature labor and underwent immediate elective cesarian section. The two babies delivered were both female and were joined at the lower thorax and abdomen. They shared a single placenta and single umbilical cord with five vessels. They lay at an angle of almost 180° to each other, having apparently undergone spontaneous torsion around their thoraco-abdominal connection early in the pregnancy. The relative positions of the twins are shown in an X-ray taken shortly after delivery (Figure 2) and in a clinical photograph (Figure 3), which also shows the single cord.

The next day surgical separation of the twins was successfully undertaken. The ultrasound finding of union by a bridge of liver tissue was confirmed. The separated twins weighed 2.3 kg and 2.2 kg. Subsequently they progressed well and no other congenital lesions were detected in either twin.

DISCUSSION

The prenatal diagnosis of conjoined twins is important for several reasons. In particular, it allows planning of the best mode of delivery and

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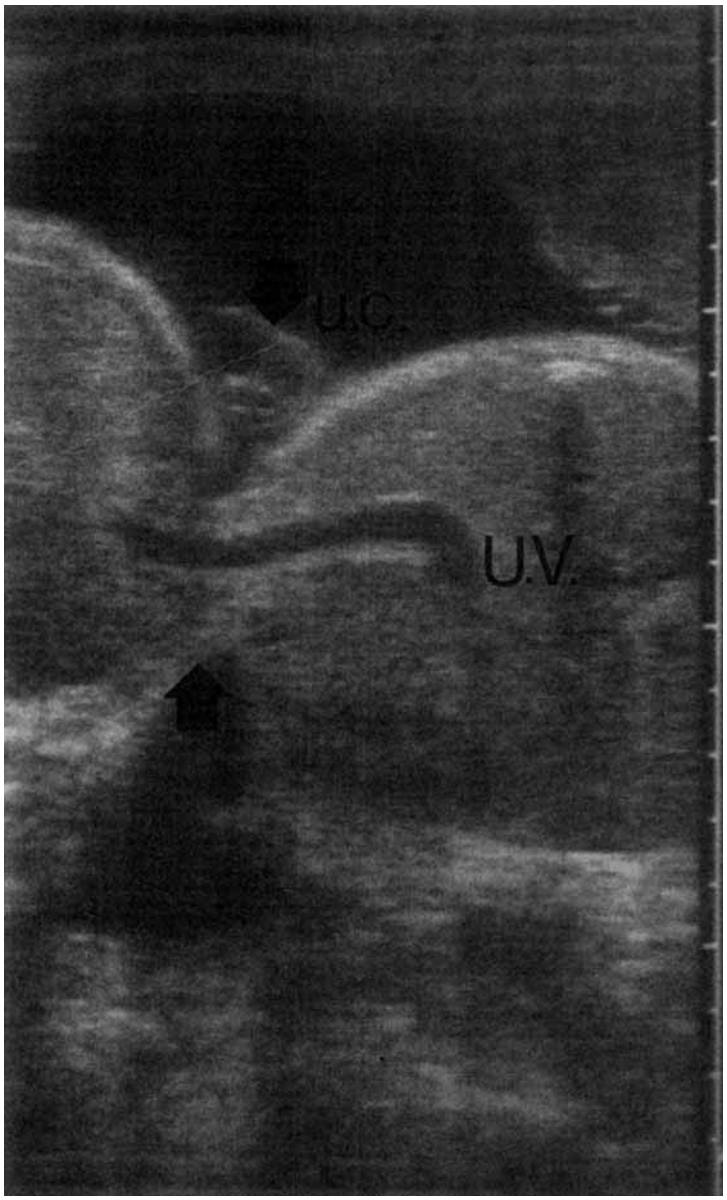

FIGURE 1. Transverse sonogram of the upper abdomens of the conjoined twins showing skin and liver fusion between the arrows. The common umbilical vein (UV) is also seen, as is the single umbilical cord (UC).

ensures that delivery occurs at a center where appropriate pediatric and surgical services are available for the initial support and the later separation of the twins, if the latter is feasible. It also permits a careful evaluation of the organs shared and a search for other abnormalities. As Smith[1] suggests, there is a 10% to 20% incidence of defects not related to the point of conjunction in conjoined twins.

Antenatal ultrasound has become the most useful tool in making the diagnosis. The antepartum ultrasound diagnosis of this abnormality was first described in 1977 by Wilson et al.[2]

The characteristic sonographic findings associated with ventrally fused conjoined twins have been summarized by Gore et al.[3] and Koots et al.[4] These are (1) fetal heads and body parts at the same level; (2) constant relative fetal positions; (3) en-face fetal position; (4) bibreech, or less commonly, bivertex presentations; (5) fetal extremities in unusual proximity; (6) hyperextension of one or both cervical spines; (7) solitary umbilical cord with more than three vessels, and (8) nonseparable skin contour.

In this case several of these characteristic features were absent, particularly the following: (1) the fetal heads and body parts were at different levels, (2) the en-face fetal position was not present, and (3) the presentations were breech and vertex. However, careful examination revealed

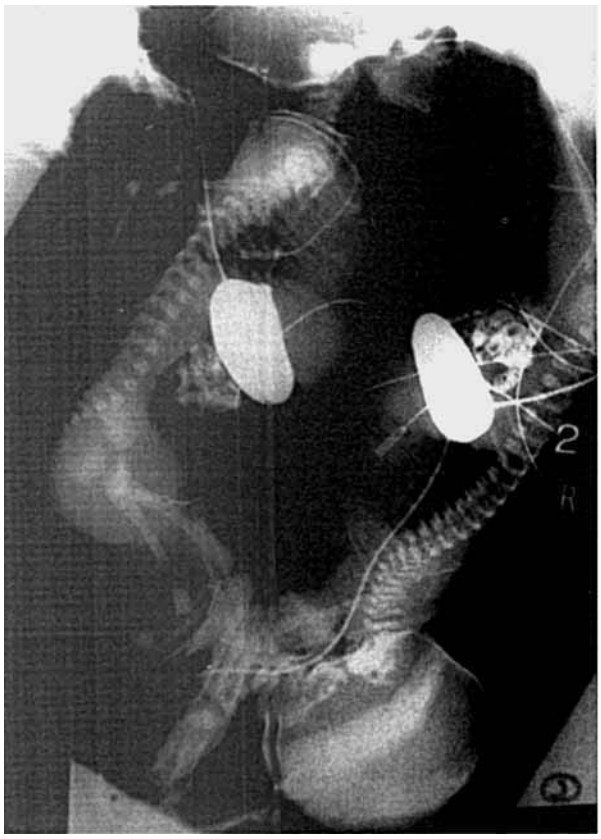

FIGURE 2. Radiograph of the twins after delivery, showing relative positions.

FIGURE 3. Clinical photograph of the twins after delivery.

other features, which allowed the correct diagnosis to be made.

This report shows that all sets of twins should be carefully examined for evidence of conjunction, even when the features said to be characteristic of the condition are absent, and fetal separation always definitely confirmed.

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