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Prenatal ultrasound-based diagnosis of umbilical cord torsion in one fetus in a twin pregnancy

Dear Editor,

A 30-year-old female (gravida 1 para 0) presented to our hospital for routine prenatal examination at 34 weeks of gestation. Ultrasound imaging showed a monochorionic diamniotic twin pregnancy. The cerebral arterial circle vessels of fetus 2 were more dilated than those of fetus 1 (Fig. 1A), and the umbilical cord of fetus 2 was slender, tortuous, spiral and dense (Fig. 1B). The middle cerebral artery blood flow indices of fetus 1 were normal (Fig. 1C): systolic/diastolic ratio(S/D) = 2.5, resistance index (RI) = 0.86, pulsatility index (PI) = 1.93, peak systolic velocity (PSV) = 52.52 cm/s (1.05MOM) and end-diastolic velocity (EDV) = 7.32 cm/s. The PSV and EDV of the middle cerebral artery of fetus 2 were increased

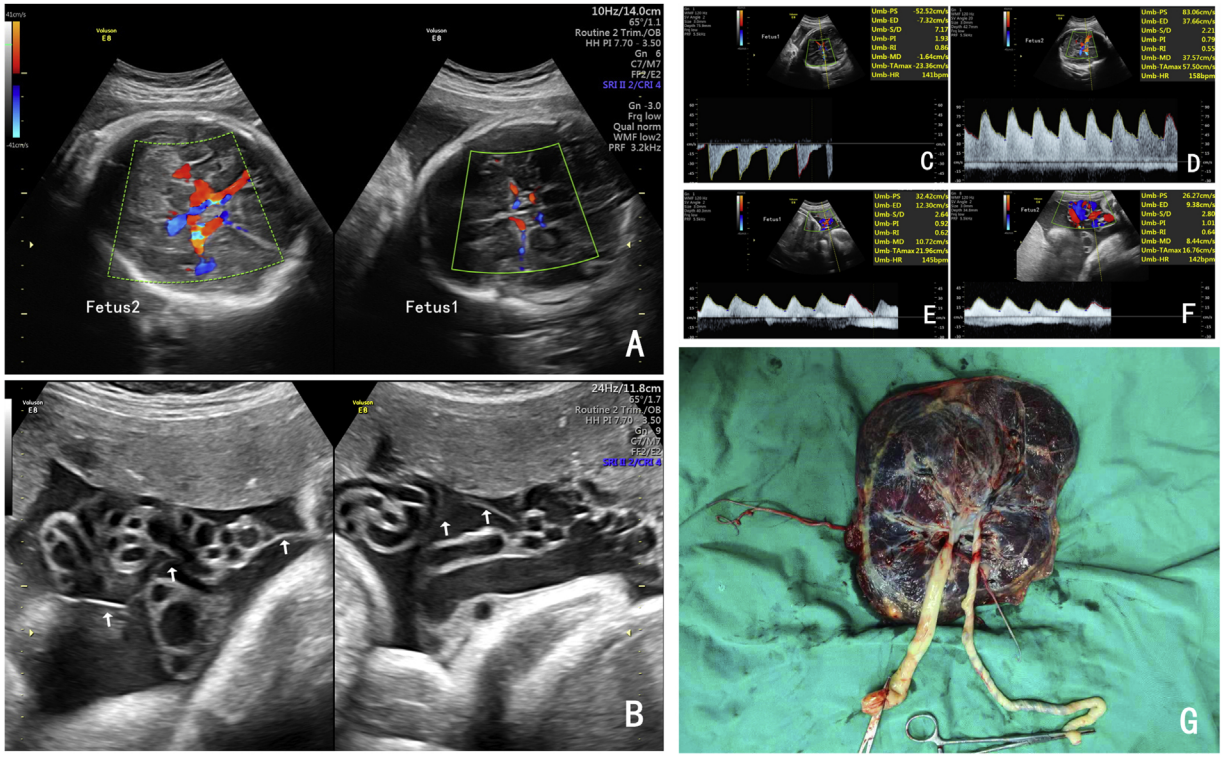

Fig. 1. Ultrasound imaging showed a monochorionic diamniotic twin pregnancy. The cerebral arterial circle vessels of fetus 2 were more dilated than those of fetus 1 (A), and the umbilical cord of fetus 2 was slender, tortuous, spiral and dense (B, arrows: the septum between two fetuses, above the septum: umbilical cord of fetus 2, below the septum: umbilical cord of fetus 1). The middle cerebral artery blood flow indices of fetus 1(C) were normal. Peak systolic velocity (PSV) and end-diastolic velocity (EDV) of the middle cerebral artery of fetus 2 were increased (D).The umbilical artery indices of fetus 1(E)and fetus 2(F)were normal. The umbilical cord of newborn 1 (left) was 1.5 cm in diameter, whereas that of newborn 2 (right) was about 1.0 cm in diameter (G). Both the umbilical cords were attached to the centre of the placenta, however it was twisted 40 times in fetus 2.

(Fig. 1D): S/D = 2.2, RI = 0.55, PI = 0.79, PSV = 83.06 cm/s (1.66MOM), EDV = 37.66 cm/s. The umbilical artery indices of fetus 1 (S/D = 2.6, PI = 0.9) and fetus 2 (S/D = 2.8, PI = 1.0) were normal (Fig. 1E,F). No obvious abnormality was found in the venous catheter spectra of the fetuses. The diagnosis was umbilical cord torsion of fetus 2 with the possibility of acute fetal distress. The patient recalled frequent fetal movements in the two days before admission. An emergency caesarean section was performed immediately. Newborn 1 weighed 1880 g with an Apgar score of 8-9-10. Newborn 2 weighed 1550 g with an Apgar score of 9-10-10. The placenta was 30 × 25 × 2.5 cm in size and 1025 g in weight. The placentae of newborns 1 and 2 accounted for 3/5 and 2/5 to the proportion, respectively. The umbilical cord of newborn 1 was about 60 cm in length and 1.5 cm in diameter, whereas that of newborn 2 was about 55 cm in length and 1.0 cm in diameter (Fig. 1G). Both the umbilical cords were attached to the centre of the placenta, however it was twisted 40 times in fetus 2.

Umbilical cord complications are the most common cause for fetal demise in the third trimester [1]. Incomplete umbilical torsion can lead to chronic hypoxia with critically reduced blood flow, oligohydramnios and fetal growth retardation [2]. Complete umbilical torsion manifested as complete constriction occurring at any site of the umbilical cord can acutely obstruct fetal-placental circulation with subsequent death [3]. Before this routine examination, the patient did not feel any discomfort, and only after being admitted to the emergency room did her recall that the fetuses seemed to move more frequently in the previous two days. Although the umbilical vessels of fetus 2 appeared tortuous and dense, umbilical blood flow was not abnormal, which could have given the ultrasonologist the impression of normal fetal blood supply. If the routine examination (in which the cerebral vascular compensatory dilatation due to insufficient blood volume was detected in fetus 2) had not been scheduled to measure the middle cerebral artery blood flow, the detection of umbilical cord torsion in fetus 2 would have been missed.

In this case, we found that the umbilical cord of fetus 2 was thinner than that of fetus 1, which was consistent with previous studies that the shorter the umbilical cord and the smaller the inner diameter, the fewer twisting circles would be needed to completely block umbilical blood flow [4]. This sign was ignored during the previous examinations. The shorter and thinner the fetal umbilical cord, the less tolerant the fetus is of umbilical cord torsion, despite the mother not experiencing any symptoms. We should, therefore, closely observe the shape of the umbilical cord, umbilical blood flow and the middle cerebral artery in late pregnancy so that delivery may be initiated in a timely manner if signs of umbilical cord torsion arise.

Declaration of Competing Interest

The authors report no declarations of interest.

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Uterus-sparing surgery and mesh implantation: New insights

Dear editor,

We read with interest Dr. Barba and colleagues' article in the January 2021 issue of the journal [1]. We esteemed the authors for their interesting and complete review about obstetric outcomes of uterus-sparing surgery for prolapse. We would like to make a comment in light of our experience about a vaginal spontaneous delivery after laparoscopic lateral suspension with the technique described by Dubuisson [2]. A multiparous woman, diagnosed stage III pelvic prolapse according to POP-Q system, underwent laparoscopic uterine suspension to the fascia of the external oblique muscle using a tetanized polypropylene mesh. The synthetic mesh T-shaped was positioned in the vescico-vaginal septum with permanent prolene sutures and suspended to the abdominal wall, bilaterally and posteriorly to the anterior superior iliac spine. The patient became pregnant three months after the procedure and delivered spontaneously a 3115-grams baby at term. The uterine volume modifications during pregnancy and the Valsalva maneuvers during delivery apparently did not affect mesh location. At 5 years follow-up, no evidence of prolapse recurrence, pelvic floor disorders, mesh dislocation or erosion were observed. In women of childbearing age, the uterus-spearing procedures aim to maintain fertility, and reduce the negative impact of prolapse on body self-confidence and quality of life.

Several procedures have been described during the years with different success rates and pregnancy outcomes, based on vaginal, abdominal, or laparoscopic procedures with or without the use of mesh. However, as Barba and colleagues have described in their works, the use of native tissue repair surgery could be associated with lower obstetrical complications when compared to cases using mesh repair [1].

In our opinion, in agreement with literature data, the use of mesh in patients of childbearing age should be very cautious for the possible increased risk of damage to the pelvic floor even in the long term, and the onset of pelvic adhesions, which