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CASE REPORT

Umbilical Artery Aneurysm: Report of a rare case

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ABSTRACT

Aneurysms of the umbilical artery are extremely rare. We report here an interesting case where one of the umbilical arteries in the umbilical cord showed a large aneurysm with an occlusive thrombus.
The foetus was unaffected and completely normal in spite of this severe abnormality.

Key words: Umbilical cord; Umbilical artery, umblical vein, abnormalities; aneurysm.

INTRODUCTION

Umbilical cord disorders can lead to foetal distress because, compromise of these vessels affects foetal well-being. Abnormalities of cord insertion are well known. Apart from this, knots, torsion, stricture, haematoma and thrombosis are other abnormalities that may occur in the umbilical cord and cause foetal distress or demise[1]. The commonest arterial abnormality described in the umbilical cord which is associated with higher incidence of foetal malformation and perinatal mortality is the presence of a single umbilical artery[1].

Aneurysms of the umbilical artery are extremely rare, and very few such cases have been reported in the German and English literature[2,3]. We report a case where a potentially dangerous umbilical artery aneurysm with an occlusive thrombus was an incidental finding in an otherwise normal and uneventful delivery.

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CASE REPORT

A 20 year old primigravida, at 38 weeks of gestation, delivered vaginally, a 3100 g male baby with cephalic presentation, without any complications. The amniotic fluid was clear with no meconium staining. Apgar scores were 7 and 9 at 1 and 5 minutes, respectively. The baby was completely normal with no evidence of any congenital anomaly.

The placenta measured 17 × 15 × 2 cm and weighed 600 g. Gross examination of the placenta showed complete membranes and normal maternal, foetal and cut surfaces. The umbilical cord which was centrally inserted was 58 cm in length and 1.0 cm in diameter. It showed a fusiform, soft swelling measuring 5 × 4 cm, midway along its length. Serial cross sections taken along the length of the cord on either side of this swelling showed the normal three vessels (Figure 1). A cross section through the fusiform swelling revealed a cavity measuring 4 × 3.5 cm completely filled with a dark blackish-red, laminated shaggy thrombus which was adherent to one portion of the inner surface of the wall of the cavity. One umbilical artery and the umbilical vein were seen compressed adjacent to the cavity (Figure 2). On evacuation of the thrombus, arterial openings were found at each pole of the cavity. On passing a fine probe through each of these openings, they were found to be in continuity with one of the umbilical arteries in the cord on either side. This indicated that the cavity was an aneurysmal sac formed as a result of a fusiform aneurysmal dilatation of one of the umbilical arteries. Elsewhere, all the umbilical vessels were patent with no evidence of any thrombosis.

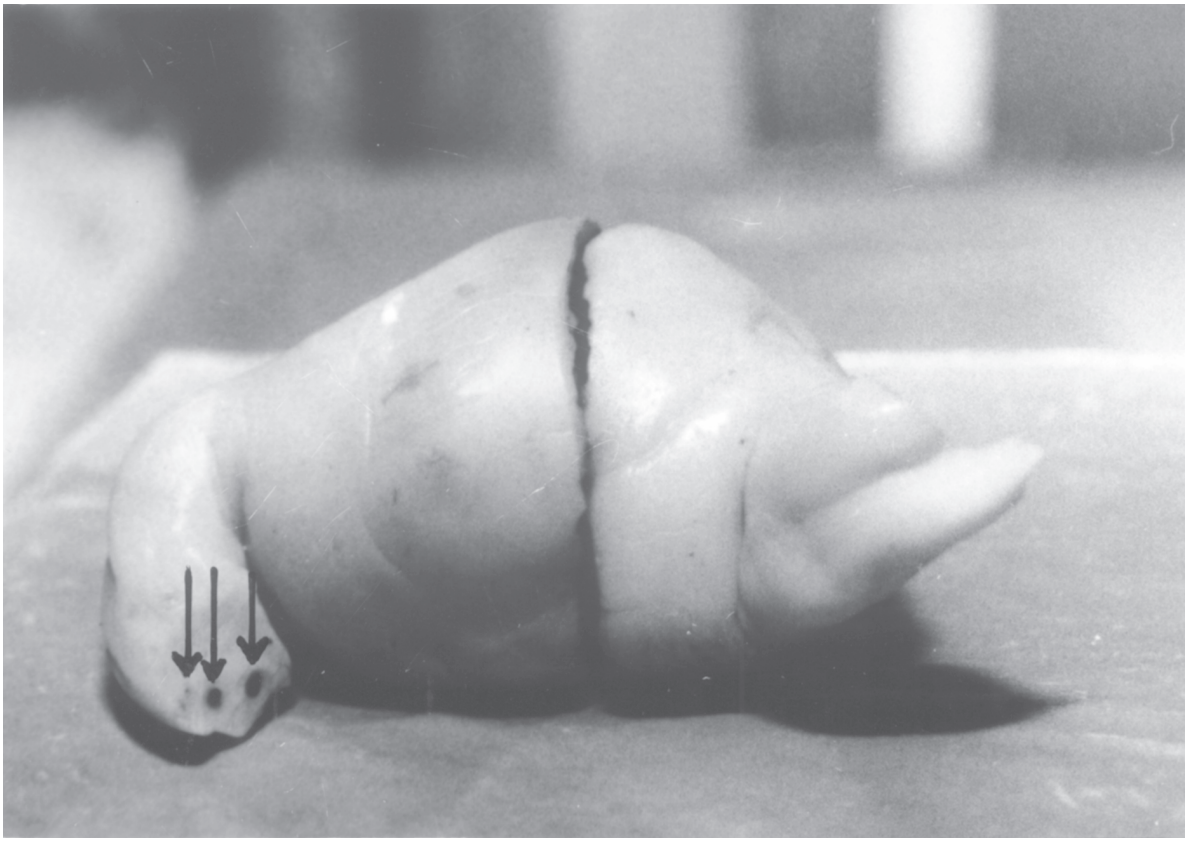

Fig. 1. Fusiform swelling in the umbilical cord. The normal portion of the cord seen on the left shows three vessels (arrows).

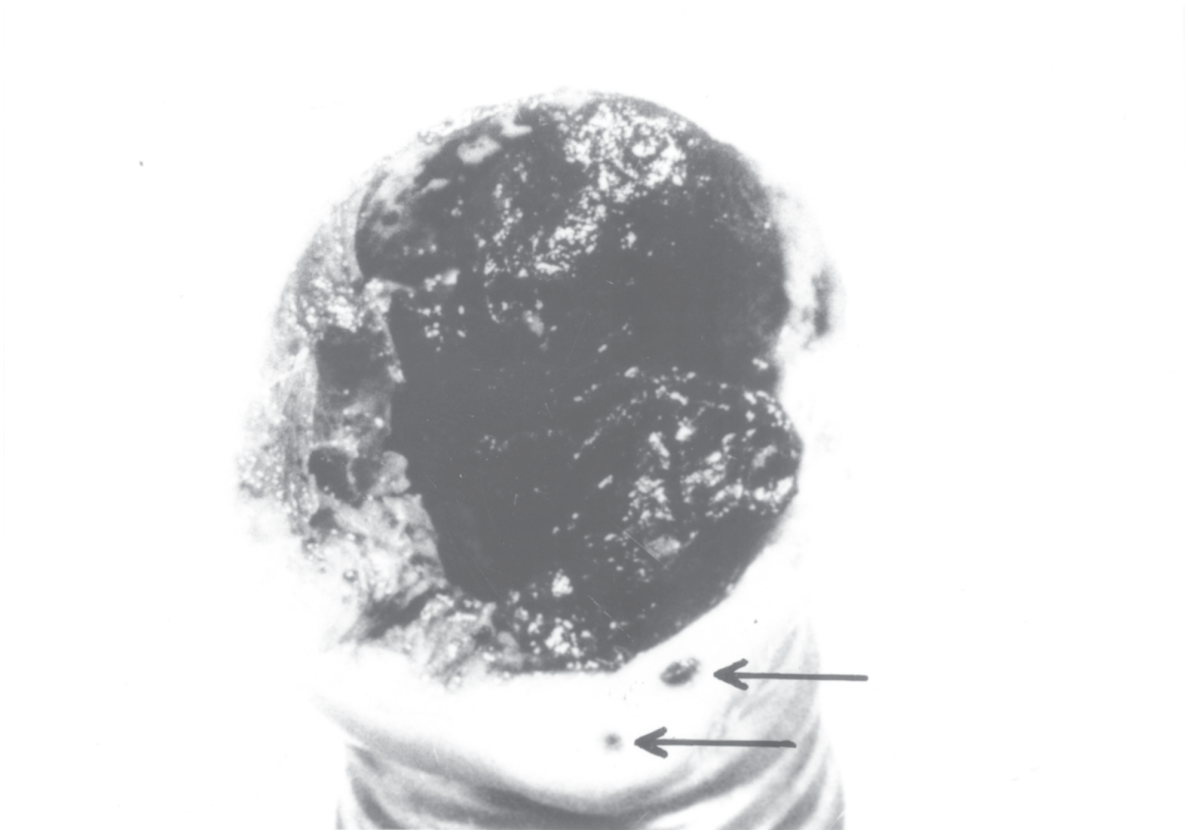

Fig. 2. Cross section of the umbilical cord through the fusiform swelling showing the cavity of the aneurysm filled with a thrombus which was attached on the left. The umbilical vein (upper arrow) and the other umbilical artery (lower arrow) are seen adjacent to the cavity.

Microscopically, the placenta and the portions of the umbilical cord on either side of the aneurysm showed a normal histology. Special stains performed on microscopic sections from the aneurysmal wall highlighted the attenuated inner longitudinal and outer circular smooth muscle coats. The umbilical artery, unlike other arteries, is known to show an absence of elastic membranes[4], and thus elastic stains provided no information in the present case. However, the histological confirmation of the presence of a normal umbilical artery and the umbilical vein adjacent to the aneurysmal wall was sufficient to prove the arterial origin of the aneurysm. There was no evidence of arteritis or any other specific pathology.

DISCUSSION

Although aneurysms of the umbilical cord are especially infrequent findings during routine placental examination, those of the placental surface vessels occur more commonly with a reported frequency of 2.5%[5]. Zhang and Benirschke[5] report two cases of serpentine aneurysms of the placental surface vessels, one of which was associated with vascular thrombosis and consumptive foetal thrombocytopenia, and the other being associated with 'molar transformation' of the placental villi. Lee et al[6] describe a huge placenta weighing 1490 g with an anomaly of the chorionic vessels characterized by arborizing and anastomosing dilated, tortuous vascular channels that were of venous origin. Kristiansen and Nielsen[7] report three cases of dilated and thrombosed foetal placental surface blood vessels resulting in foetal death.

Our case of umbilical artery aneurysm is very similar to the one described by Fortune and Östör[2], the only difference being that the foetus was unaffected in spite of the large size of the aneurysm and the occlusive thrombus in our case. In the case reported by Fortune and Östör[2], there was foetal death in utero at the 36th week of gestation, probably due to the hypoxia resulting from haemodynamically disturbed blood flow in the artery containing the aneurysm together with compression of the other artery and vein. Richards et al[3] report the association of foetal disseminated intravascular coagulation with a large arteriovenous malformation of the umbilical cord.

The aetiology of umbilical artery aneurysm has not been described. One cause could be arteritis, especially of infective origin, causing weakening of the arterial walls with consequent aneurysmal dilatation. However, there was no evidence of arteritis in the present case. It has been proposed that meconium may cause umbilical cord vasospasm with degeneration and necrosis of the smooth muscle of the vessel walls[8]. However, the exact role of meconium in the development of aneurysms of the umbilical vessels has not been proved.

REFERENCES

1. Fox H. Pathology of the umbilical cord. In: VII Bennington JL editor. Pathology of the Placenta. Volume VII in the series, Major problems in Pathology. London: WB Saunders, 1978: 426–57.

2. Fortune DW, Östör AG. Umbilical artery aneurysm. Am J Obstet Gynecol 1978;131: 339–40.

3. Richards DS, Lufti E, Mullins D, Sandler DL, Raynor BD. Prenatal diagnosis of fetal disseminated intravascular coagulation associated with umbilical cord arteriovenous malformation. Obstet Gynecol 1995; 85: 860–2.

4. Ross MH, Reith EJ. Histology. A Text and atlas. New York: JB Lippincot, 1985; 722.

5. Zhang P, Benirschke K. Placental Pathology casebook. J Perinatol 2000; 1: 63–5.

6. Lee GK, Chi JG, Cha KS. An unusual venous anomaly of the placenta. Am J Clin Pathol 1991; 95: 48–51.

7. Kristiansen FV, Nielsen VT. Intra-uterine fetal death and thrombosis of the umbilical vessels. Acta Obstet Gynecol Scand 1985; 64: 331–4.

8. Altshuler G, Arizawa M, Molnar-Nadasdy G: Meconium-induced umbilical cord vascular necrosis and ulceration: a potential link between the placenta and poor pregnancy outcome. Obstet Gynecol 1992; 79: 760–6.