

UNCOMMON ANOMALIES OF THE UMBILICAL CORD

by

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More and more is being realized that the placenta and umbilical cord play an important part in assuring a mother of a normal healthy infant. Much remains to be learned about the physiology of both the umbilical cord and placenta. The umbilical cord links the infant to the mother and through it passes vital fluids necessary for foetal survival. Any disturbance in the umbilical cord results in rapid death of the foetus (Love and Bucklin, 1958).

Javert (1957) called the umbilical cord the life line of the foetus. It is vulnerable and sometimes the site of developmental abnormalities and acquired changes interfering with its function and thereby threatening the life of the foetus.

Torsion and Constriction of the Umbilical Cord

Localized constriction of the umbilical cord, occasionally associated with torsion, was reported in various publications in the nineteenth century. Ruysch (1961) was the first to report a case of torsion of the cord, while Burdach (1758) first described

the combination of torsion and constriction. Gallagher and Malone (1956) described a case of torsion amputation of the cord in the constricted area near the foetus.

According to Edmonds (1954) torsion was reported as a cause of foetal death by the older pathologists. He claimed that both constriction and torsion of the cord occur after the death and maceration of the foetus. Weber (1963) states that the above theory is erroneous because constriction of the cord has been reported in living infants and most cases of maceration of the cord are not accompanied by constriction. Lack of Wharton's jelly in a segment of the cord will expose it to torsion caused by the foetal movements. In this way, the blood circulation probably already reduced by the stricture, will be completely interrupted. The cause of constriction is unknown. It may be a maldevelopment or degeneration of Wharton's jelly.

Case Report

Case 1

Mrs. K. D., 32 year old, P2 + 0, 39 weeks' pregnant, was admitted to the labour room. She had a spontaneous vaginal delivery. The cord broke off spontaneously during the delivery of the baby. A female child weighing 2860 gms was delivered. Apgar scoring was 8/10. The cord length was 25 cms. The cord

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was constricted at the foetal end. Placental weight was 460 gms. The duration of labour was 3 hours. Baby died suddenly on the 7th day. Post mortem was not done.

Haematoma of the umbilical cord

Haematoma of the umbilical cord is a rare complications of pregnancy and labour, occurring about once in 5,505 deliveries at or near term. The haematoma usually arises from rupture of the wall of the umbilical vein, though occasionally the wall of an umbilical artery ruptures, and rarely does haemorrhage arise from the capillaries of the foetal end of the funis. Rupture of the cord may be classified as partial or complete. Partial rupture involving a vessel in the cord will cause bleeding in Wharton's jelly and formation of haematoma, resulting in obstructive anoxia if the amniotic covering of the cord remains intact. If this amniotic covering of the cord ruptures, unrestrained bleeding of the cord vessels may cause rapid foetal death (Baden 1955). In most cases the cause is believed to lie in congenital weakness of the vessel walls. Trauma to the cord has been suggested as an ancillary cause of rupture (Gardner and Trussell, 1964). Rupture of the placental vessel after the membranes have ruptured produces painless vaginal bleeding, either prior to the onset of labour or in the first or second stage of labour.

Haematomas have been reported in about 100 cases, and of these rupture has occurred in 20 per cent (Bret and Bardiaux, 1960). In many reported cases the baby did not seem in any way affected by the presence of cord haematoma (Breen *et al* 1958, Tolan *et al* 1959). Dippel

(1940) states that one half of the fetuses whose umbilical cords contain haemorrhagic areas are still-born. In his series the perinatal mortality was 53 per cent while Bret and Bardiaux (1960) reported a 40 per cent mortality.

Case 2

A 26 year old PO + 0, 39 weeks' pregnant, was admitted to the labour room. She had a spontaneous vaginal delivery. A male macerated child, weighing 2070 gms, was delivered. Liquor was meconium-stained. The cord had coiled twice around the neck. A haematoma of the cord extending over a distance of 4 cms. was situated in the middle of the cord. On cross section of the cord a haematoma was found encircling the umbilical vein and there was a thrombus in the vein. Cord length was 47 cms. The cord had battle-dore insertion of the placenta. Weight of the placenta was 330 gms.

Case 3

A 29 year old P5 + 0, 37 weeks' pregnant, was admitted to the labour room with a history of slight bleeding per vaginam. She had a spontaneous vaginal delivery. A macerated female baby, weighing 3400 gms, was delivered. There was a haematoma over the foetal surface of the placenta due to involvement of the placental vessel. (Fig. 1). There was a small haematoma of the cord extending over a distance of 1½ cms., situated near the foetal end. (Figs 2 and Fig. 3). Cord length was 83 cms, with central insertion to the placenta. Liquor was mixed with meconium and blood.

Case 4

A 32 year old P6 + 0, 40 weeks' pregnant, was admitted to the labour room. A fresh stillborn female baby, weighing 2900 gms, was delivered. Cord length was 44 cms. It had central insertion to the placenta. The haematoma was situated near the foetal end of the cord which was only slightly enlarged by it. It had extended over a distance of 6 cms. A cross section through the haematoma revealed that the vein was dilated with blood clot

and there was a small thrombus in the vein about 2 cms. away from the blood clot.

Rupture of the umbilical cord

A complete rupture of a cord or a placental vessel is rare. The predisposing factors in rupture of the umbilical cord are short cord, inflammation, trauma, sudden escape of excessive amniotic fluid, velamentous insertion, aneurysms, varicosities and degeneration. - Rupture of the umbilical cord may be associated with signs of rapidly increasing foetal distress. If the infant is extremely pallid and flaccid, and there is no other cause of asphyxia pallida, haemorrhagic foetal shock should be considered and prompt therapy instituted.

Case 5

Mrs. D., 19 year old P1 + 0, 40 weeks' pregnant was admitted to the labour room. She delivered normally within 5 minutes of rupture of the membranes. A male child, weighing 1600 gms., was delivered. Apgar scoring was 7/10. Liquor was clear. Cord broke off with the sudden rupture of the membranes. There was no bleeding from the cut end of the cord which was clamped and ligated. Cord length was 44 cms. with central insertion to the placenta. Examination of the placenta and membranes revealed no abnormality. Total duration of labour was 5 hours.

Three cases of complete rupture of the umbilical cord have been observed. In one case the cord ruptured when patient ruptured her membranes. In the second case there was a constriction in the umbilical cord ruptured during labour. Both the babies cried immediately and were not asphyxiated at birth. In the third case the foetus was macerated

and the cord ruptured during the second stage of labour.

Although the anomalies (constriction and torsion, haematoma and rupture of the cord) obviously are not amenable to antenatal diagnosis or therapeutic measures, it is of interest to elucidate the cause of foetal hypoxia or perinatal death in such cases.

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See Figs. on Art Paper IV