Section: Obstetrics and Gynaecology

Case Series

UMBILICAL CORD ABNORMALITIES LEADING TO FETAL DEMISE: A CASE SERIES IN TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Aim: To understand the need for implementation of routine evaluation of umbilical cord in antenatal scans to prevent mishappenings.
Materials and Methods: An observational study of all the cases with fetal demise in the department of Obstetrics and Gynecology in tertiary care hospital in Koppal from Jan 2024 to Dec 2024, to evaluate for umbilical cord abnormalities. A total of 92 cases were studied.
Results: Out of 92 IUFD observed in a span of 12 months (Jan 2024 to Dec 2024) 6 cases were found to have structural abnormalities of umbilical cord which accounts to 6.5 %.
Conclusion: It would be prudent to evaluate umbilical cord in antenatal scans to try and prevent such mishappenings
Key words: Stricture, Knots, Velamentous Insertion

INTRODUCTION

Infant mortality is considered to be one of the pillars for planning and programming health related activities. It is considered to be a universal indicator for both living conditions and the level of quality and access to health services in any country.[1] Neonatal mortality greatly influences infant mortality. Moreover, many handicaps of neurological origin are attributable to complications during birth. According to literature 10% of still births are due to umbilical cord disorders.[2]

Fetal death means death prior to complete expulsion or extraction from the mother of a product of conception irrespective of duration of pregnancy and which is not induced termination of pregnancy.[3]

Although the umbilical cord is most probably the only organ that dies when life begins, it is one of the most important parts of the feto-placental unit, playing a role in determining the manner in which extrauterine life will begin.[4] Umbilical cord disorders account to lesser proportion of still births.[5] According to literature 10% of still births are due to umbilical cord disorders. It includes cord prolapse and other structural disorders such as stricture, true knots, thrombosis etc.[6]

MATERIALS AND METHODS

All the cases with Intrauterine Fetal Demise admitted to labour room of Koppal Institute of Medical Sciences from Jan 24 to Dec 24 were studied post expulsion to find out any abnormality in umbilical cord.

A total of 92 cases were studied, out of which 6 cases were found to have abnormality in umbilical cord

Case 1

A 28-year-old G3P2L1D1 30 weeks 4 days previous 2 LSCS with NSPE with complaints of non-perception of fetal movements since 2 days. Bed side Scan done - FHR could not be localised. Patient taken up for LSCS i/v/o previous 2 LSCS. Intraop - velamentous insertion of cord seen.

Case 2

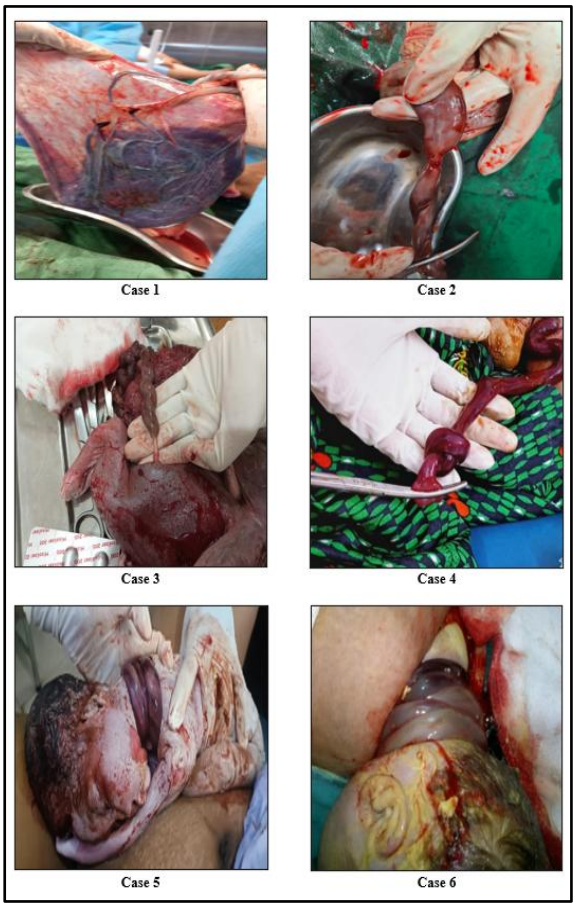
26-year-old G2P1L1 34 weeks gestation age with previous 1 LSCS came with a scan showing documented IUD. Patient was taken up for section i/v/o previous 1 LSCS and short interpregnancy interval intraop- umbilical cord stricture noted.

Case 3
26-year-old G3P2L2 with 28 weeks gestational age with IUFD. Induction of labour done
Expelled a dead fetus, umbilical cord stricture near fetal end noted.

Case 4
25-year-old Primigravida with 32 weeks 2 days gestational age with NSPE with IUD. Induction of labour done. A dead fetus expelled. Umbilical cord had a true knot.

Case 5
29-year-old Primigravida with 37 weeks 2 days gestational age with IUD. Induction of labour done. A dead fetus expelled. 3 tight loops of cord around neck seen.

Case 6
G2P1L1 with 37 weeks and 3 days gestational age with IUD. Induction of labour done. A dead fetus expelled. 4 loops of cord around neck found.



RESULTS

Structural umbilical cord abnormalities, though rare (approximately 10% of stillbirths), can contribute to fetal demise. Stricture, true knots, and velamentous insertion are particularly uncommon. Out of 92 IUFD observed in a span of 12 months (Jan 2024 to Dec 2024) 6 cases were found to have structural abnormalities of umbilical cord which accounts to 6.5 %.

DISCUSSION

At birth, the mature cord is about 50–60 cm in length and 12 mm in diameter. A long cord is defined as >100 cm and a short cord as <30 cm. Short and long cord cases had higher incidence of cord complications, increased incidence of operative interference, intrapartum complications, increased fetal heart rate abnormalities and more chances of birth asphyxia. In velamentous insertion of the cord, the cord enters the membranes and branching vessels traverse a distance to the placental disc and can be ruptured or compressed. True knot occurs due to active fetal movements with a rare incidence of 1%. Risk of still birth is seen in upto 6% due to venous stasis causing thrombosis, fetal hypoxia, fetal neurological morbidity and death. Umbilical cord stricture is characterized by a localized deficiency of Wharton's jelly and replacement of the stroma by dense hyaline collagenous tissue. The cord vessels are usually constricted and compressed and may occasionally show thrombosis. Traditionally, the prenatal assessment of the umbilical cord is limited to the ultrasonographic evaluation of the vessels' number and to the investigation of the resistance to blood flow in the umbilical arteries by Doppler analysis. However, an increasing body of clinical and experimental evidence shows that the morphology and constitution of the umbilical cord can influence the pregnancy course and the neonatal outcome.

CONCLUSION

It would be prudent to evaluate umbilical cord in antenatal scans to try and prevent such mishappenings.

Recommendations

- The 18–20 week ultrasound review should include the umbilical cord, its characteristics, and a description of its placental and fetal attachments.
- The American Association of Ultrasound Technologists has defined these parameters for umbilical cord abnormalities:

1. Abnormal insertion
2. Vasa previa
3. Abnormal composition
4. Cysts, hematomas and masses
5. Umbilical cord thrombosis
6. Coiling, collapse, knotting and prolapse.

- It may be prudent to evaluate the umbilical cord following even minor maternal complaints
- Further research on prevention and management strategies.

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