

A rare non-hypoxic cause of changes in the fetal heart rate pattern

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Objective

The routine intrapartum electronic fetal monitoring is based on external cardiotocography (CTG), particularly. Unfortunately, CTG has a limited value for the prediction of intrauterine fetal hypoxia leading to its misdiagnose and/or unnecessary operative deliveries for fetal distress. Changes in the CTG pattern can be caused by intrauterine hypoxic events or by different non-hypoxic conditions. The authors present a case of the rare non-hypoxic cause of changes in CTG pattern.

Methods

We present a case of 23-years-old primipara with uncomplicated pregnancy, and with finding of arteriovenous malformation (AVM) of vein of Galen, which represents less than 1% of all intracranial AVMs.

Results

A 23-years-old primipara with uncomplicated pregnancy and with negative biochemical screening for chromosomal abnormalities and with normal 1st and 2nd trimester ultrasound (US) screening was referred to our perinatal center with the diagnosis of suspicious hydrocephalus in the 3rd trimester US screening. We detected AVM of vein of Galen with signs of cardiomegaly, hyper-kinetic circulation, intracardiac calcification, and incipient cardiac decompensation by two-dimensional US, Doppler ultrasound and three-dimensional color flow mapping. Patient was admitted to hospital at 37+5 gestational week. An admission CTG had normal pattern. Three days later, almost four hours after the onset of the 1st stage of labor, pathological CTG pattern with fetal heart rate of 130 beats per minute, loss of variability and reactivity, and with late decelerations was present. Caesarean section was performed because of signs of imminent fetal hypoxia and according to patient's wish for potential post-partum resuscitation of neonate. A live male newborn was born with normal acid base status (umbilical artery: pH=7, 269, BE(ecf)=0, 0 mmol/L). Birth weight: 3100g, birth length: 51cm, Apgar scores: 5/8. Postpartum cardiac examination confirmed cardiac decompensation with extremely dilated right heart, patent ductus arteriosus Botalli, pericardial effusion; and neurosurgical examination confirmed extreme AVM of vein of Galen. The newborn died 31 hours after delivery because of progressive cardiac decompensation, hypotension and multi-organ failure.

Conclusion

The loss of reactivity and variability, as the pre-terminal CTG pattern, is usually caused by intensive or prolonged hypoxic event. In the differential diagnosis, the non-hypoxic conditions leading to the deterioration of fetal heart rate should be considered. One of them is AVM of vein of Galen with often poor intrauterine and postnatal prognosis, if combined with cardiac failure. This finding influences intrauterine monitoring and postnatal management, essentially. Acknowledgement: This work was supported by the project APVV-0315-11.