

Fetus nasal injury after maternal blunt trauma during pregnancy, a case report

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ABSTRACT

Introduction:

Neonatal period damages occur due to mechanical forces (compression, stretching) during the birth process are classified as birth trauma. Various maternofetal factors, such as maternal diabetes, breech or other noncephalic presentations and birth weight might have been effective in developing prenatal trauma. Shoulder dystocia, which is common in neonates of diabetic mothers, usually occurs in term neonates and associated with birth trauma and complications such as brachial plexus palsy. A higher rate of trauma was reported in neonates with birth weight more than 4500 gram. Recently, incidence of birth trauma was decreased, because of better prenatal care. Fetus face trauma might happen due to maternal blunt trauma. Although this type of fetus injuries are rare, they could be life threatening. In this article we report a neonate with nasal trauma.

Introduction

Multiple international studies published about facial injury and its epidemiology in children, this incidence varies from 1% to 15%, which suggests that facial injuries are uncommon in childhood. Fetal trauma in pregnant woman with blunt abdominal trauma is rare. Fetal skull fracture might happen during pregnancy and leads to intracranial hemorrhage. Although this kind of injuries is rare, most of them are lethal.

Potter suggested 2 mechanisms for birth trauma: injuries due to hypoxia and injuries due to mechanical forces. Most birth trauma is self limited. There are 3 categories of birth trauma: (1) Injuries before birth, (2) Injuries happen in delivery and (3) Injuries occur because of head compression or molding. (3)

Facial injuries in neonates have a wide spectrum. Superficial cranial damages could be related to caput succedaneum and cephalohematoma could be co morbid with sub gleual hemorrhage. Although these kinds of injuries are potent to lead to sever damages such as subarachnoid hemorrhage, subdural hemorrhage or skull fractures with displacement. Fine facial structures might be at the risk of trauma during delivery. Nasal, ophthalmic or vocal cord injuries could happen due to delivery (4).

Although, nowadays with modern developments in medicine and women health, the rate of birth trauma has been reduced, it is still an important issue in neonatology. Regard to recent articles, the risk of birth trauma has been lessened in recent years, and it happens in only 3 percent of birth, and birth trauma is the cause of 2 percent of neonatal mortality (3).

In a study in Finland the birth trauma rate was estimated 3.1 %. In another study in USA the risk of facial injuries during birth was 0.82%. Factors which are associated with birth trauma are; birth weight, gestational age, male neonates, and vacuum or forceps deliveries (5). In a study in ShahidBeheshti University the incidence of birth trauma was estimated 41.1 in 1000 vaginal delivery (2). In this article we report a case of nasal trauma before birth.

Patient introduction

A baby boy was admitted to imam reza hospital NICU due to asphyxia and his birth weight was 1570 grams (HC: 29 cm, Length: 46 cm, Gestational age: 30weeks) and multiple ecchymotic areas in face and limbs. He was the first child of family and his mother was 23 years old. Delivery was performed under the supervision of a gynecologist in Imam Reza hospital,

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and because of good progress there was no need to use supplement devices such as vacuum or forceps. Vitamin K was administered for him right after delivery. Mother did not seek prenatal care. Several traumatic events happened during pregnancy (probably to perform abortion); blows were mainly struck to abdomen. After these traumas mother did not visit a doctor .

In physical examination there was an obvious nasal ecchymosis (figure-1). His first minute apgar was 4-5. He was admitted to our NICU due to asphyxia, in the second day of life pulmonary hemorrhage and in the 12th day seizure happened . His blood gas analysis showed acidosis (PH= 6.96, O₂=39, HCO₃=11.5, CO₂=51). Other blood tests in first day were as below :

WBC: 22900, RBC: 4200000, HB: 13.9, HCT: 41.3, CR: 1.4, BUN: 24 (s), PT: 28(s), PTT: 45 and INR: 3.91 .

PT and PTT rose to more than 60 and 180 respectively in the fourth day. Blood culture result



was negative.

Figure-1: nasal ecchymosis

His parents were healthy and had no history of hemorrhagic disorders. Mother did not use any drugs in pregnancy. Regard to pregnancy history and roll out of different diagnosis such as intrauterine thrombosis or birth trauma, prenatal trauma during pregnancy period was confirmed.

Neonate was carefully examined for other probable injuries, in ENT examination there was no evidence of nasal structural damage, and neonate was breathing normally. Conservative treatment was performed for nasal trauma and ecchymosis disappeared after 18 days but its scar remained (Figure-2). After 30 days, he was discharged with acceptable health status.



Figure-2: scar after 18 days

Discussion

In our presented case maternal blunt trauma led to nasal ecchymosis which is a very rare condition. Facial traumas in fetus due to maternal blunt trauma are very rare but if happen they are mortal. The most common type of facial injuries in fetus is skull fractures and intra cranial hemorrhages. These kinds of injuries happen in the third trimester at the time of engagement. There are a few cases of fetus injury without maternal serious injury and our case is one of them.

Nasal damages in neonates include soft tissue injuries and lead to flat nose (30-60%), fixed nasal deformity (0.5%), anterior septal displacement (2-32%), combined septal deformities (50%). (6)

Bednaríková (5) after reviewing 1000 live birth, showed that the most common type of nasal injuries is flat nose and semi dislocation of nasal cartilage. Quante (6) confirmed that 20% of his samples (982 patients with pulmonary diseases) suffered from nasal trauma during delivery and most of them had the vertex presentation. Melamed (7) in a retrospective study evaluated 411 pregnant women with blunt trauma, and

Showed that 2% of them had preterm labor, and decolman happened in 1.7% of cases. Severity of trauma, hemorrhage and number of fetus are the most important factors for predicting the complication occurrence .

In our case the blunt trauma in mother led to preterm labor in 32 weeks of gestation. This complication might happen due to lack of maternal knowledge or inadequate education, because all types of trauma in pregnancy need close monitoring .

Weintraub (8) showed that blunt trauma led to decreased apgar score to lower than 7 which happened in our patient. Tarvonen (9) confirmed in his study that minor traumas in pregnancy could lead to mortal fetomaternal, severe damage and hypoxia in fetus.

It seemed that all complication in our case (such as low Apgar score, asphyxia, pulmonary hemorrhage) happened due to maternal blunt trauma during pregnancy and lack of appropriate prenatal care .

Conclusion

Maternal trauma during pregnancy needs a close and careful fetomaternal monitoring. Although the rate of nasal trauma is very low in neonates, ENT examination should be done right after birth in delivery room for all types of facial traumas.

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