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Case Report

Airway Management in a Giant Neonatal Cervical Teratoma by OOPS (Operation on Placental Support) Procedure

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ABSTRACT

Congenital cervical teratomas are rare tumors constituting 1.5-5.5 % of all teratomas. Large teratomas in neck can cause airway compromise at birth thus leading to high perinatal mortality and morbidity. The size of teratoma and its relation to airway can be determined prenatally by ultrasonography and magnetic resonance imaging (MRI). Any fetus with a prenatal diagnosis of a giant cervical teratoma requires a multidisciplinary approach at the time of delivery so that the outcome is favourable. We present a case of a neonate in which a prenatal diagnosis of a giant cervicofacial teratoma was made using ultrasonography and MRI. A successful OOPS (operation on placental support) procedure was performed at the time of birth.

Keywords: neonatal, cervical teratoma, airway management.

INTRODUCTION

Teratomas are tumors composed of tissues originating from all the three germ cell layers namely ectoderm, endoderm and mesoderm. They are most commonly found in the sacrococcygeal region. [1] Cervicofacial teratomas are a rare anomaly constituting 1 in 20,000-40,000 live births. [2] They are usually benign in nature. Giant cervical teratomas can cause airway obstruction leading to anoxia and secondary brain damage. Ultrasonography is a helpful investigation in the prenatal diagnosis of teratoma. MRI further helps in determining the relation of the teratoma to the airway. [3] Antenatal diagnosis is helpful in preparing for the management of airway at birth and improving the fetal outcome. OOPS (operation on placental support) involves placing the child next to the mother soon after delivery without clamping the umbilical cord. This helps in maintaining the uteroplacental circulation. Cord is clamped only after the airway has been secured. We present a case of a giant cervicofacial teratoma in a neonate. OOPS procedure was performed and the airway was secured.

CASE REPORT

A 26 year old primi gravida presented to obstetrics OPD at 26 weeks of gestation. This was her first antenatal visit. A Level II ultrasonography was carried out. It revealed an approximately 3 X 3 cm mass on right side of the neck of the fetus. The mass had both solid and cystic components with areas of calcification in between. A provisional diagnosis of a cervical teratoma was made. An antenatal MRI was then carried out which was suggestive of an altered signal intensity in the neck of the fetus measuring approximately 4 X 4 cm in size with hyperechoic areas in between

suggestive of cystic changes. These features were suggestive of a giant cervical teratoma. (Fig 1)

Owing to the presence of a giant cervical mass, airway obstruction at birth was anticipated and the patient was planned for an elective caesarean section at 37 weeks of gestation. Guarded prognosis of the fetus was explained to the parents and the patient was put on regular follow up visits. The patient went into spontaneous labour at 35 weeks of gestation. An emergency lower segment caesarean section was planned. A team of obstetricians, anesthetists, otolaryngologists, pediatric surgeons and neonatologists were present at the time of delivery. General anesthesia was induced using sevoflurane. A lower segment caesarean section was then carried out. After the baby was delivered, he was placed on an adjacent table without clamping the umbilical cord. A large teratoma was present on the right side of the neck of the neonate extending to the lower half of the face on the right side and displacing the trachea to the left. Direct laryngoscopy was done and a trial of intubation was given but it was unsuccessful. Tracheostomy was carried out under local anesthesia and a 2.5 mm cuffed tracheostomy tube was inserted. After securing the airway, the cord was clamped and the child was shifted to neonatal ICU. The child was maintaining oxygen saturation post tracheostomy.

Due to associated co morbidities including pre maturity and early onset neonatal sepsis, the condition of the child deteriorated and the child died on the second day after birth. Consent was taken from the parents for carrying out an autopsy. On gross examination, the mass was 18 X 14 X 10 cm in size with solid and cystic areas in between filled with yellowish fluid. Histopathological examination was suggestive of an immature teratoma with neuroepithelium, fibroelastic connective tissue and cystic areas.

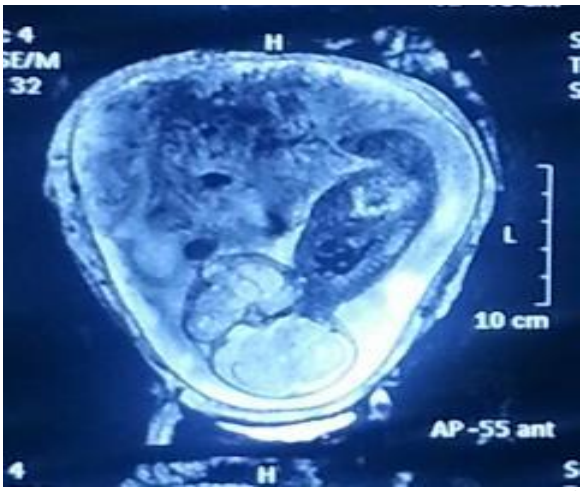

Fig 1: Antenatal MRI showing a mass in the cervical region of the fetus with cystic areas in between suggestive of cervical teratoma

Fig 2: A giant cervical teratoma on right side of the neck of the neonate extending to the face with tracheostomy tube in situ

DISCUSSION

Congenital cervical teratomas are a rare anomaly. They are mostly benign. Signs and symptoms usually occur due to a mass effect of these lesions. They may lead to life threatening situations after birth due to airway obstruction which may cause hypoxia, acidosis and secondary brain damage. Teratomas can be diagnosed prenatally with the help of ultrasonography and MRI. MRI also gives information about the size and relation of the teratoma to the airway. [3] If a giant cervical teratoma is diagnosed before 20 weeks of gestation, a termination of pregnancy can be carried out due to an anticipated airway obstruction and poor prognosis of the fetus. If the pregnancy has to be continued then an elective caesarean section should be planned in such

cases. A multidisciplinary approach has to be planned which means making a team of obstetricians, anesthetists, otolaryngologists, neonatologists and pediatric surgeons available at the time of delivery. [4] Delivery of the fetus can be carried out using two procedures - EXIT (Extrauterine intrapartum treatment) and OOPS (operation on placental support). In both the procedures, a deep maternal-fetal anesthesia is given to facilitate uterine relaxation and maintain placental circulation. [1] EXIT procedure involves securing the airway after the head and at least one hand of the fetus has been delivered. The airway is examined and secured by either intubation or tracheostomy while the infant is still on placental support. In OOPS procedure, after the child has been delivered, he is kept on a table adjacent to the mother but the cord is not clamped. Airway is secured first and then the cord is clamped. Both these procedures help in maintaining the feto maternal circulation until the airway of the neonate has been secured. This reduces perinatal mortality and morbidity and prevents hypoxic injury to the fetus. This report highlights the importance of multidisciplinary approach at the time of delivery and the efficacy of OOPS procedure for airway management in prenatally diagnosed large cervical masses.

Abbreviations:

MRI- Magnetic Resonance Imaging
OOPS-Operation on placental support
OPD- Out patient department
ICU-Intensive care unit
EXIT- Ex utero Intrapartum treatment

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