Multidisciplinary Management of a Large Fetal Cervical Teratoma

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BACKGROUND

- Teratomas are the most common congenital neoplasms, accounting for 25–35% of all neonatal tumours with an incidence of 1 in 20 000 - 40 000 live births (1).
- Of these, cervical teratomas are reported as around 6% of all congenital teratomas (2).
- The prognosis of cervical teratomas has generally been poor. This depends mainly on the size of the lesion and the involvement of other structures.
- Most neonatal deaths in cases of neck tumours are due to airway obstruction.
- There is an increased risk of polyhydramnios due to oesophageal obstruction, increasing risks of premature labour.

Fig:1-large, left sided mixed cystic solid cervical mass, largely avascular, measuring 29x36mm ,extending to the tragus of the left ear, crossing the midline displacing the carotid vessels. Appearances were consistent with a cervical teratoma.

- The ex-utero intrapartum treatment (EXIT) procedure has improved perinatal outcome (3).
- The fetus is partially delivered from the uterus. Deep maternal anaesthesia is required to maintain uterine relaxation to maintain the utero-placental circulation.
- This allows maintenance of fetal oxygenation whilst an airway is established – from an endotracheal tube, sometimes requiring bronchoscopy, or tracheostomy with or without debulking of the tumour if needed (4).

HISTORY

- We report a case of a cervical neck teratomas managed with an EXIT procedure.
- The woman had suffered a neonatal death in her previous pregnancy with an abruption at 37+6 weeks gestation.
- She was booked for Consultant led care at Hull Royal Infirmary, Hull, UK
- We highlight effective joint care between our nearest tertiary referral unit (Leeds) for fetal medicine, antenatal care and Complex neonatal surgery

SCAN FINDINGS

- At anatomy ultrasound scan in the subsequent pregnancy, a large, left sided mixed cystic sold cervical mass measuring 29x36mm was noted. The mass extended to the tragus of the left ear, crossing the midline slightly but minimal tissue seen to the right of the neck.
- The mass displaced the carotid vessels and extended to the midline involving the thyroid. The mandible bone was noted to be intact. Appearances were consistent with a cervical teratoma.

- The patient was referred to the fetal medicine department at Leeds General Infirmary, Leeds, UK where she was seen at 24+1 weeks.
- Fetal biometry was within normal limits. Liquor volume was noted to be at the upper limits of normal.
- The neck mass was more cystic than previously but remained predominantly avascular, with one major 'feeding' vessel. The mass measured 58x35x49mm.
- The neck was not hyperextended and good views were achieved of the fetal mouth opening and closing. Doppler was also used to assess flow in and out of the nasopharynx during fetal breathing movements.
- There were normal appearances of the stomach.
- An MRI was performed which could not conclusively determine the nature of the mass, therefore management of both cervical teratomas and lymphangiomas were discussed in detail.
- The management discussion focused on an EXIT procedure, which was provisionally planned for 35-36 weeks gestation.
- The patient had weekly scans throughout the rest of the pregnancy. At 29 weeks it was noted that the amniotic fluid index was raised at 30cm. She was given antenatal steroids at this time.
- An extensive plan was put into place should she go into labour before her planned delivery in Leeds, however as an EXIT procedure would not be able to be performed, the patient was aware of the potentially adverse outcome should an airway not be achieved.
- At 30 weeks, the mass measured 9x5x45mm with an Amniotic Fluid Index of 33cms. A date for her EXIT procedure for booked at 34^{+5} weeks.

A MULTIDISCIPLINARY TEAM APPROACH

In the planning of the delivery an MDT comprising of-

- **consultants obstetricians,**
- **Neonatologists**
- **paediatric ENT surgeons**
- **paediatric anaesthetists**
- **obstetric anaesthetists**
- **experienced theatre and midwifery staff was assembled.**

Several planning meetings with all involved took place,.
A full simulated run-through of the procedure was undertaken

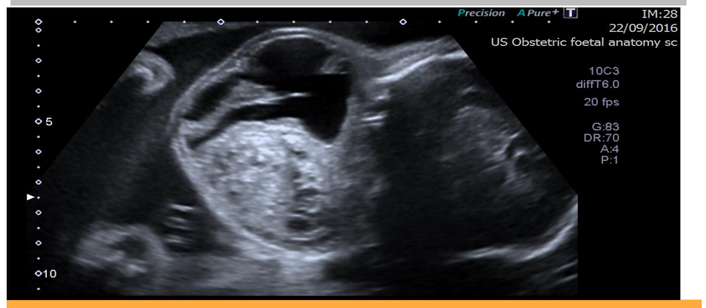

Fig:2- Further imaging of mass highlighting extent and size in third trimester.

- Immediately prior to the procedure, an amniodrainage was performed.
- A low transverse skin incision was used.
- The uterus was noted to have dehisced and then was extended. The fetal head and right arm were delivered.
- Atropine, fentanyl and rocuronium were administered.
- The fetal vocal cords were visualised, and after suctioning of secretions amniotic fluid, an uncomplicated endotracheal intubation was performed.
- After securing the airway, the baby was passed to the neonatal team for ongoing management.
- The mother made an uneventful recovery.

OUTCOME AND SUMMARY

- The baby underwent surgery at three days of age after ex-utero MRI imaging.
- The surgery was largely uncomplicated although post-operatively there were concerns regarding vocal cord function and a tracheostomy was performed.
- The baby has been discharged home and remains under regular outpatient review, which will be ongoing.

Effective multidisciplinary care and EXIT procedure is essential for improved perinatal outcomes in rare cases such as cervical teratomas.
We highlight effect multidisciplinary planning,management,timing of intervention(EXIT procedure) ,effective communication and information sharing with local tertiary unit in our rare.

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