Thyroid cervico-thoracic teratoma in a 14-month old child

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ABSTRACT

Cervical teratoma (CT) is a rare disease which accounts for approximately three to five per cent of all teratomas in children. Airway compromise is the most serious postnatal complication of cervical teratoma. Prenatal diagnosis is crucial for early recognition of neck masses that could obstruct the airway. We present our experience in the management of a huge cervico-thoracic teratoma in a 14-month old Nigerian child.

Key words: Cervico-thoracic, child, mature teratoma, neonatal teratoma, paediatric teratoma, teratoma.

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INTRODUCTION

Cervical teratomas (CT) are rare tumours of the neck, derived from two or more embryonic germ layers. CT accounts for approximately three per cent of all teratomas in the neonatal period. The incidence of CT ranges from 1.6–9.3% of all teratomas in paediatric ages.[1-3] These tumours are mostly benign with favourable outcomes if diagnosed and surgically extirpated early.[4] We present our experience in the management of a huge cervico-thoracic teratoma in a 14-month old girl, which had been present since birth but presented only at the age of 14 months, with symptoms of upper air ways obstruction.

CASE REPORT

A 14-month old girl presented to our emergency room with a huge cervico-thoracic mass and stridor. She was delivered at term via spontaneous vaginal delivery to a 17-year old primigravida. Although the pregnancy, labour and delivery were unsupervised, there was prenatal history suggestive of polyhydraminous. Apart from febrile illness at eight weeks of pregnancy, for which she ingested herbal preparation, the pregnancy was uneventful. There was no prenatal ultrasonography throughout the pregnancy period.

A huge cervical mass was noticed at birth, but there was no difficulty in breathing or feeding then. Initially, the mass increased in size gradually; in the last three months it increased in size rapidly, resulting in dysphagia and stridor a month prior to presentation. The child was unable to sit or walk due to the weight of the tumour.

Examination revealed a generally preserved child with a huge multinodular cystic-solid mass, occupying the anterior and lateral sides of the neck, more to the right, extending from the chin to the mid chest and maintaining the neck in a hyper-extension position [Figure 1].

Chest examination revealed clinical evidence of lower respiratory tract infection. Neck x-rays showed soft tissue mass with calcification in the centre and tracheal compression; ultrasound showed solid and cystic areas in the mass. The α-fetoprotein was raised three-fold above the upper limit.

During operation, under general anaesthesia (with some difficulty in intubation), the tumour was found to be attached to the right lobe of the thyroid gland [Figure 2]. The tumour was completely extirpated with right thyroid lobectomy. The patient developed respiratory distress due to massive oedema in the immediate postoperative period, which necessitated re-intubation and assisted ventilation until she was weaned off.

The cut surface of the mass showed cystic and solid areas containing, hair, cartilage, fatty tissue and intestinal mucosa [Figure 3]. Histology revealed a matured teratoma with the representation of all the three germ layers [Figure 4].

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Figure 1: Shows the giant cervico-thoracic thyroid teratoma.

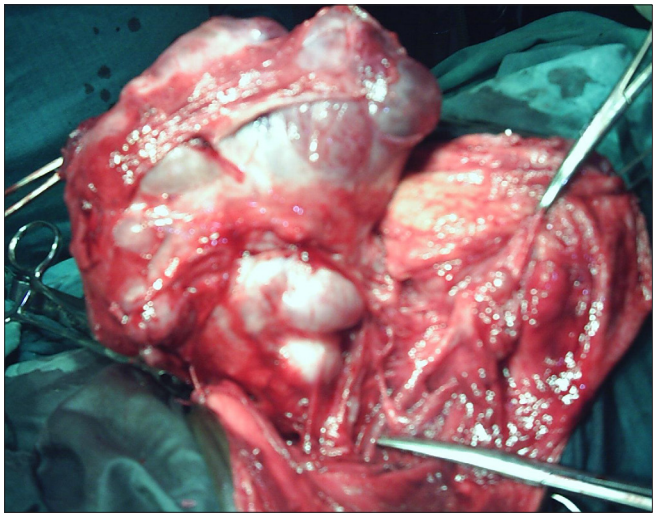


Figure 2: Intraoperative picture of the teratoma attached to the right lobe of thyroid gland.

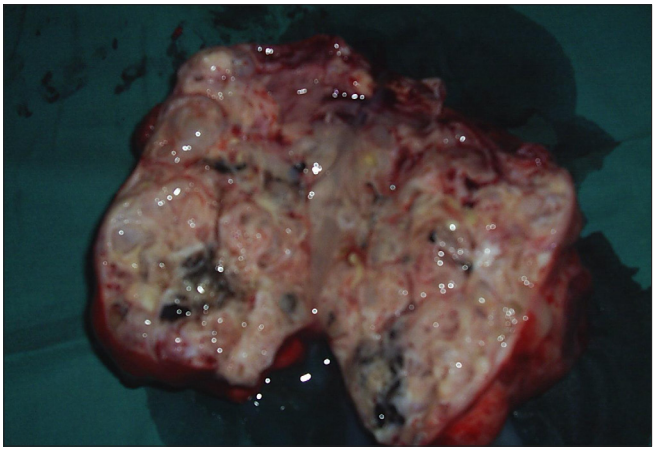


Figure 3: The cut surface of the teratoma, showing tissues derived from ectoderm, mesoderm and endoderm.

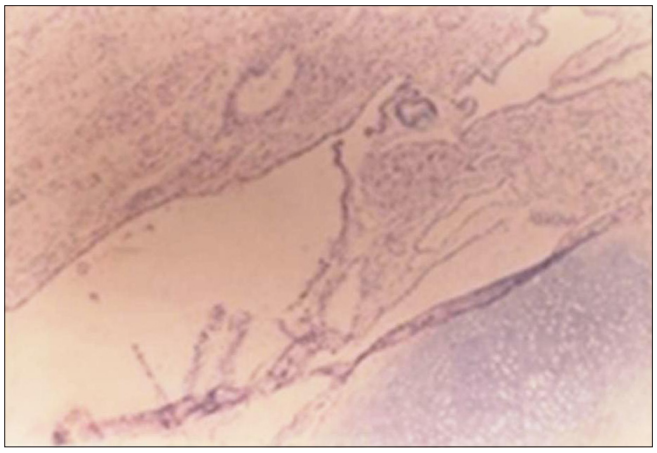


Figure 4: Histology reveals a matured teratoma magnification X100.

DISCUSSION

Cervical teratomas are considered to be very rare. In a series of 254 teratomas at various sites, over a 54-year period, only six (2.4%) were cervical.[5] Two studies each reported five cases of cervical teratoma over a 10-year period at two centres in the Middle East; CT appears to be more common.[5,6] Unlike other reports of left-sided preponderance of CT, the present report presented a case that was predominantly right-sided.

CT may be associated with polyhydraminous and rarely non-immune hydrops. A stillbirth rate of 17% has been reported.[7] The mortality rate of untreated infants varies from 80 to 100%.[7,8] Upper airway obstruction is the major cause of death. Prenatal diagnosis is helpful in planning for delivery and postnatal care in a case of huge CT as this can be life-saving.[3-6] Since CT can attain a large size, leading to severe respiratory distress,[6] it is desirable to diagnose it prenatally (by ultrasound scan) and plan for delivery and early treatment at a designated centre in the neonatal period in order to forestall a greater risk of airway obstruction and malignant transformation. The index case was not diagnosed prenatally probably because of the absence of prenatal ultrasonography as a result of failure to attend antenatal care services (either due to a lack of awareness or availability of such services).

CT in the newborn is almost always benign, unlike later in life when it tends to become malignant and aggressive.[6] It is surprising that the patient in the present report survived up to 14 months of age without severe respiratory compromise or malignant transformation.

Management strategies for giant cervical teratomas include *in utero* resection, resection on placental support during an *ex utero* intrapartum treatment (EXIT)

procedure, intubation and/or tracheostomy during EXIT, and postnatal resection.[2] Operative mortality is 9 to 15%.[7]

Although complete excision was successful in this report, this may not always be feasible. Sometimes the teratoma is so extensive that it may not be possible to excise it completely at one setting. In such a case, a staged approach may be an alternative. A computerized tomography scan is desirable in planning a surgical excision in extensive lesions like the one in this report in order to prevent iatrogenic damage and severe airways compromise. We had to undertake a meticulous and careful dissection of the mass until we achieved complete excision because we lacked a computerized tomography scan service in our centre; fortunately with successful outcome.

In conclusion, the cervical site remains a rare site for teratoma occurrence in children with airway obstruction as an ever-present danger. Prenatal diagnosis is crucial, allowing for early recognition and intervention. Careful and meticulous complete extirpation is the goal of treatment. Postoperative airway obstruction is a serious complication to watch out for after operation.

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