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ORIGINAL ARTICLE

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Head and neck teratomas in children

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Abstract A retrospective review of seven patients with teratomas of the head and neck treated at out center over the past 5 years, which represented 2% of all teratomas (sacrococcygeal, ovarian, and retroperitoneal) seen over the past 20 years, was performed. After investigation to exclude associated anomalies, all but one of the children underwent surgery for removal of the tumour. All excised tumours were subjected to histopathological examination to confirm their teratomatous nature. The patients were followed up at regular intervals for up to 4 years. The patients' ages ranged from newborn to 2.5 years. There were three cervical, two oral, and two skull teratomas. The youngest patient had a cervical teratoma with respiratory compromise, requiring tracheal intubation. All but one patient (skull teratoma) had excision of the tumours with a satisfactory outcome. Histopathological examination of the excised tumours showed mature tissue from the three germinal layers in all specimens. Specific components included glandular epithelium, keratinising epithelium, and muscle fibres. Follow-up did not show any recurrence in the operated children. The three with cervical teratomas had normal levels of thyroid hormone postoperatively. Head and neck teratomas in children are mostly benign lesions amenable to curative excision. In cervical teratomas airway management takes priority.

Key words Oral teratoma · Cervical teratoma
Skull teratoma

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Introduction

The head and neck is an uncommon site for teratomatous tumours, which are composed of tissues from all three germinal layers with varying degrees of differentiation. The tumours arise from pluripotent cells and ectopic embryogenic non-germ cells. They are usually mature in children. This paper reports seven patients with head and neck teratomas seen at our department over the last 5 years. There was only one female. The clinical features, management, histology, and follow-up are presented.

Materials and methods

The patients were investigated to exclude additional anomalies. Imaging studies in patients with cervical and skull teratomas included radiographs and computerised tomography (CT) to determine anatomical relationships. All but one of the patients were operated upon, and all surgical specimens were examined histologically. The children could be followed for up to 4 years.

Results

Oral teratomas

Case 1

A male neonate born by normal vaginal delivery presented at the age of 6 h with an intra-oral mass. There was no antenatal diagnosis. Excision had been attempted elsewhere but was only partially successful (Fig. 1). There were no respiratory problems. The teratoma arose from the lateral pharyngeal wall behind the left tonsillar pillar, and due to small pedunculated attachment was excised uneventfully. Histopathological examination showed mature tissues from all three germ layers, predominantly glandular acini (Fig. 2) and papilliferous components. The child was discharged home and had no further problems during follow-up.

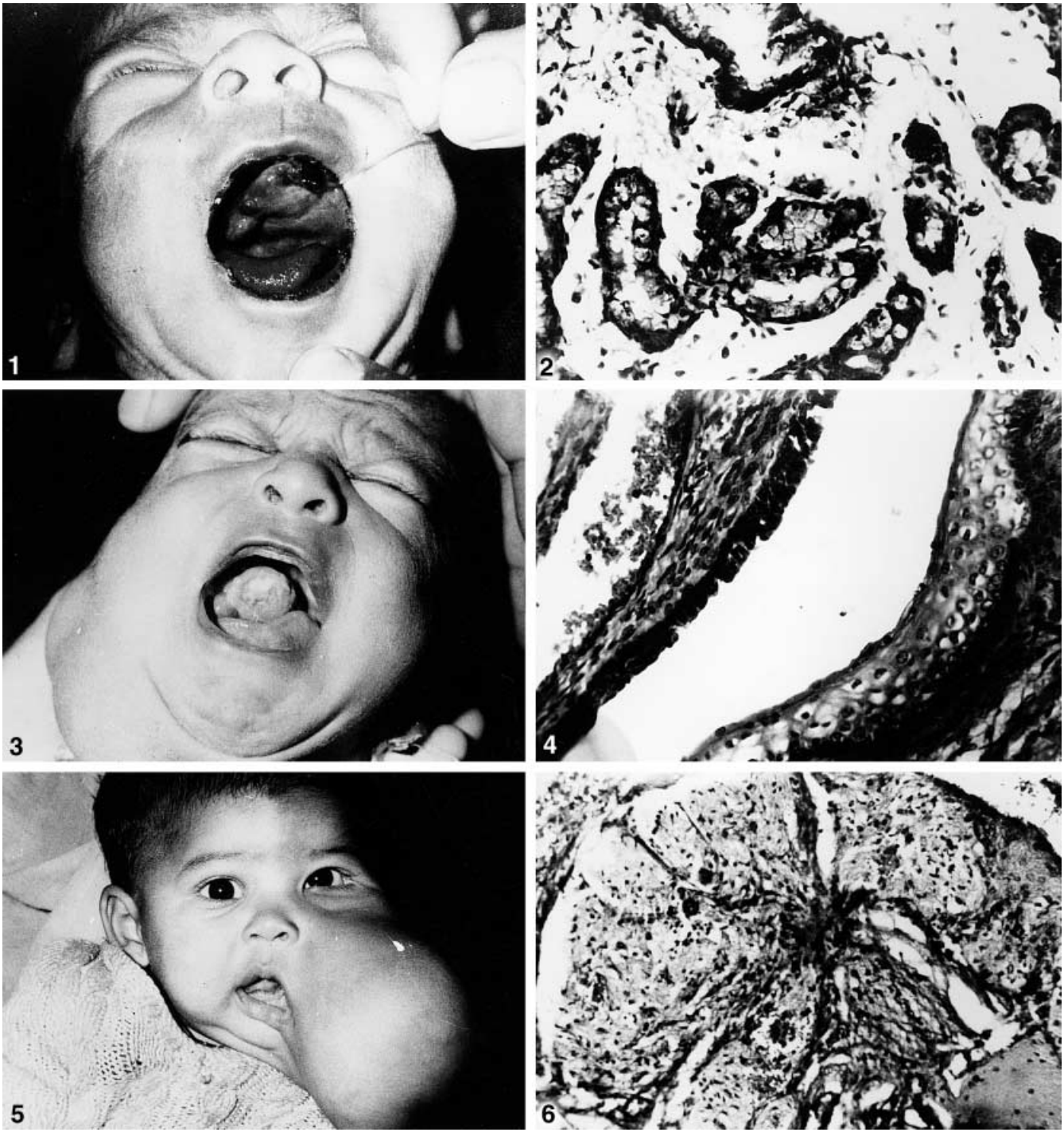

Fig. 1 Partially excised oral teratoma

Fig. 2 Histology of tumour from patient 1 showing glandular acini

Fig. 3 Neonate with oral teratoma and right-sided cystic hygroma

Fig. 4 Histology of tumour from patient 2: respiratory and keratinised epithelium in same specimen

Fig. 5 Female infant with left facial teratoma

Fig. 6 Histology of tumour from patient 3: lobule of neural tissue

Case 2

A male infant born by normal vaginal delivery presented at 8 h of age with an intra-oral mass and right cervical cystic hygroma (Fig. 3). There were no airway problems. The baby was operated upon electively. The tumour arose from the right posterior hard palate and was completely excised. The cystic hygroma was operated upon in a subsequent procedure. Histological examination showed mature elements from all three germ layers, including keratinised and respiratory epithelium in the same section (Fig. 4).

Skull/facial teratomas

Case 1

An 8-month-old female presented with a large, left-sided facial mass that was growing progressively (Fig. 5). X-ray films showed the mass elevating the left zygomatic arch and CT showed it to be entirely extra-cranial. At operation, the tumour occupied the left infratemporal fossa; it was well-defined and easily excised. Histological examination showed mature tissues from all three germ layers including lobules of neural tissue (Fig. 6) and striated muscle.

Case 2

An 4-month-old male had a large, solid/cystic mass attached to the left temporal bone displacing the left ear downwards (partial conjoint twin/teratoma) (Fig. 7). X-ray films showed the mass to be entirely extracranial with bony components. Unfortunately, the parents refused surgery.

Cervical teratomas

Case 1

A male neonate presented immediately after birth with a large anterior cervical mass and respiratory distress (Fig. 8). He was born by normal vaginal delivery; there was no antenatal diagnosis. Airway obstruction required tracheal intubation and urgent surgery was undertaken. At operation, a large mass was found in close relation to the thyroid and was excised completely. The baby made a good post-operative recovery. Histology showed a teratomatous tumour with mature elements from all three germ layers; glandular acini (Fig. 9) and neuroglia predominated.

Case 2

A 22-month-old male presented with a symmetrical anterior-cervical mass without airway obstruction. The mass was thyroid-shaped (Fig. 10) and was closely related to the gland on preoperative CT. The tumour was completely excised at operation with good recovery. Histology showed a teratomatous tumour with mature elements from all three germ layers including neural tissue and glomeruloid structures (Fig. 11).

Case 3

A male neonate presented at 2 days of age with a large anterior-cervical mass but no airway problems. CT was suggestive of a teratoma. The tumour was completely excised at operation (Fig. 12), and histology showed mature elements from all three germ layers including neuroectoderm, dermal components (Fig. 13), and smooth muscle.

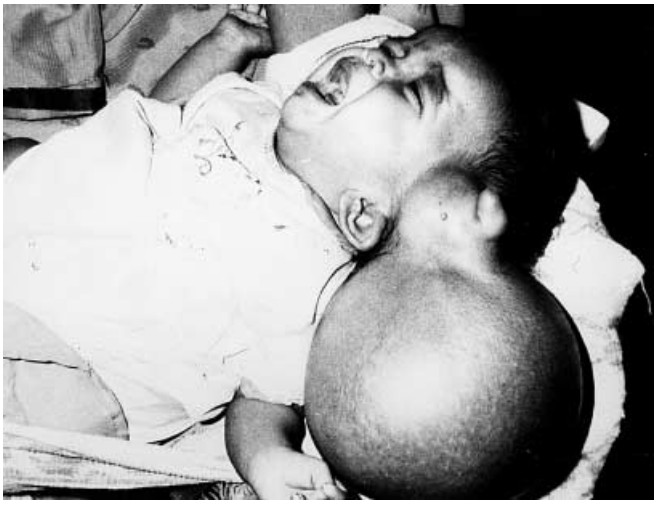

Fig. 7 Infant with skull teratoma

Follow-up ranged between 6 months and 4 years. There was no recurrence of the tumour in any case. The patients showed normal growth and weight gain. Estimation of thyroid function and serum calcium levels done post-operatively in the three children with cervical teratomas were normal in all instances.

Discussion

Teratomas of the head and neck are usually mature tumours in children, though malignant lesions and recurrence have been described [3]. Oral teratomas can cause diagnostic confusion with choristomas, which do not have components of all three germinal layers [4]. In smaller lesions there is no residual deformity after surgical excision. The prognosis is good if there is no respiratory compromise, as in our patients. Planned caesarian delivery and care by a multi-disciplinary team have been recommended and are desirable objectives [2]. In developing countries there is usually no antenatal diagnosis, and urgent surgery is the only lifesaving alternative available.

Facial and skull teratomas are very rare tumours [1]; cosmesis is an important consideration during surgical excision. CT helps to define precise anatomic relationships. The tumours are usually well-differentiated and recurrence is uncommon. Cervical teratomas most commonly present as neck masses in the neonate [3]. Antenatal diagnosis is the rule with routine US, but this may not always be available in the developing world. The paramount concern is protection of the airway. We resorted to early surgery in our first patient as adequate ventilatory support was not available.

If the airway has been secured and ventilatory support is available, preoperative imaging by plain radiograph can show calcification (virtually diagnostic) [2] and CT

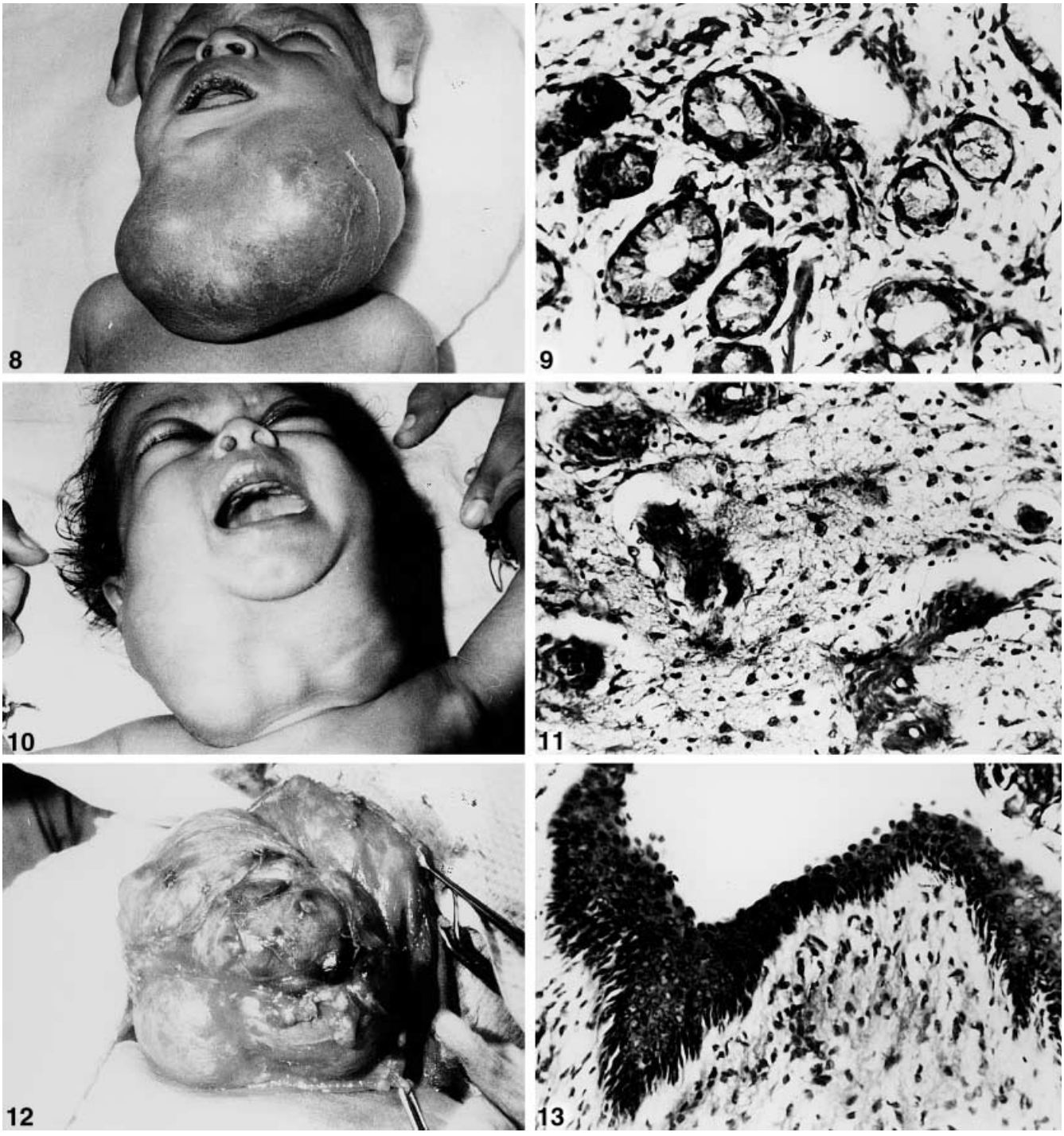

Fig. 8 Neonate with cervical teratoma

Fig. 9 Histology of tumour from patient 5 showing glandular acini

Fig. 10 Cervical teratoma

Fig. 11 Histology of tumour in patient 6 showing glomeruloid structures

Fig. 12 Operative photograph showing large anterior-cervical tumour

Fig. 13 Histology of tumour in patient 7: epidermal epithelium

will delineate the anatomical extent of the lesion [1]. The proximity to vital structures makes surgery technically demanding, especially in small babies. However, complete excision of the tumour is usually possible as it is well-defined. No tracheostomy was required in any of our patients with cervical teratomas. Post-operative estimation of thyroid and parathyroid function was normal. In conclusion, teratomas of the head and neck are unusual tumours but are amenable to complete surgical excision with cure.

References

1. Carr MM, Thorner P, Phillips JH (1997) Congenital teratomas of the head and neck. J Otolaryngol 26: 246–252
2. Dykes EH (1994) Teratomas in the newborn. In: Freeman NV, Burge DM, Griffiths MG, Malone PSJ (eds) Surgery of the newborn. Churchill Livingstone, Edinburgh London New York, pp 508–511
3. Jordan RB, Gaudere, MWL (1988) Cervical teratomas: an analysis. Literature review and proposed classification. J Pediatr Surg 23: 583–591
4. Sharma AK, Sarin YK, Wakhlu A (1994) Unusual trigeminal nasopharyngeal teratoma in a neonate. J Pediatr Surg 29: 1526–1527