Ectopic thymus of the neck—report of three examples in children

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Summary

Three children with ectopic thymic tumours of the neck are described. One solid mass was situated in the midline whilst two were unilateral and cystic. The difficulties of diagnosis and surgical removal are stressed and the question of interference to immunological competence discussed.

Small lobules of aberrant thymus are not infrequently found in the neck, often within the thyroid gland, possibly present in up to 20% of humans (Goldstein and Mackay, 1969; Gilmour, 1941). However, ectopic thymic tissue of size sufficient to produce a palpable swelling of the neck is uncommon. In a review of the forty-six such cases recorded in the English literature, Hinds et al. (1970) found that the majority were diagnosed in childhood.

Case 1

A 7-year-old girl was noticed to have a tumour of the neck from the age of 6 months. It increased in size gradually but produced no symptoms. On examination, there was a midline, apparently fluctuant lump which moved on swallowing but had no superficial fixation. The pre-operative diagnosis lay between a midline epidermoid cyst and a thyroglossal cyst.

At operation a solid mass with no obvious vascular supply lay deep to the infrahyoid muscles and extended inferiorly behind the sternum, its superior pole being the palpable midline swelling (Fig. 1). It proved to be a discrete lobulated structure about 5 cm long and 1·5 cm wide which was shown microscopically to be composed of normal thymic tissue.

A lateral tomogram 4 weeks after surgery demonstrated an apparently normal retrosternal thymus.

Case 2

An 8-year-old boy presented with a swelling of the left side of the neck which had been present for one month. On examination, this clinically euthyroid child had a firm ovoid mass which moved on swallowing and appeared to be an integral part of, if not the entire, left lobe of thyroid. Thyroiditis and carcinoma of the thyroid were considered as possible diagnoses.

Case 3

A 12-year-old boy presented with a 3-month history of a swelling in the right side of his neck which initially had been painful and recently had increased in size.

On examination an indiscrete cystic mass measuring about 3×2 cm was palpable anterior to the sternomastoid muscle. It was diagnosed with confidence as a branchial cyst.

At operation it extended from the angle of the mandible, deep to the sternomastoid muscle and close to the internal jugular vein whilst the vagus nerve coursed through it. It consisted of a number of cysts containing gelatinous yellow fluid and cholesterol crystals. The cysts were lined with cells.
resembling those found normally in Hassell's corpuscles and the solid elements of the mass consisted of degenerate thymic tissue (Fig. 2). A normal parathyroid gland was included.

Discussion
The thymus gland is derived from the third and fourth pharyngeal pouches as paired structures in the fourth week of intra-uterine life which migrate caudally to a position between a sternum and heart and separate from the pharynx whilst the cephalic rudiments disappear (Warkany, 1971; Arey, 1965). Speer (1938) suggested that retention of thymic tissue in the neck could be explained in various ways. These included: a proliferation of isolated remnants of branchial cleft, thymo-pharyngeal ducts or thymic tubules; (b) failure of the cephalic processes of the elongating thymus to involute; (c) neoplastic proliferation of cephalic remnants (Wadas, 1934); (d) overgrowth of the connective tissue stroma involved in the development of the thymus. Hinds et al. (1970) stated that 95% of thymic tumours in the neck were unilateral and that 90% were cystic. The difficulty of pre-operative diagnosis is illustrated by the variety of suggested diagnoses in the three patients presented. These examples, particularly cases 2 and 3, show that the mass may extend widely and deeply in the tissues of the neck and may involve important structures, rendering surgical removal considerably more difficult than is generally reported in the literature.

Interference with the immunological status quo is obviously an important consideration when thymus tissue is removed from a child. In fact, only one case had lateral tomography specifically undertaken and this suggested the remaining presence of normal thymus, as would probably be the usual case. Even if, however, the removed portion was the entire functioning thymus, it is unlikely that this would interfere with immunological competence as man appears to be immunologically more mature at birth than the experimental animals normally used for investigation (Goldstein and Mackay, 1969) and, indeed, total thymectomy has been undertaken in neonates and young children without apparent interference with the mechanism (Gotoff, 1968; Zollinger et al., 1964) although the theoretical risk remains of subsequent predisposition to neoplasia in the long term (Waksman, 1964; Goldstein and Mackay, 1969).

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References
Gilmour, J.R. (1941) Some developmental abnormalities of the thymus and parathyroids. Journal of Pathology and Bacteriology, 52, 213.
Renal failure and suprarenal calcification after secondary haemorrhagic disease in a newborn baby

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Summary

A newborn baby who was severely asphyxiated at birth developed secondary haemorrhagic disease which was treated successfully with intravenous heparin. However, she was later found to have suprarenal calcification, chronic renal insufficiency and hypertension. It is felt that prompt treatment of conditions that predispose to secondary haemorrhagic disease is very important as, once this has occurred, treatment may not prevent permanent damage to vital organs.

Introduction

Secondary haemorrhagic disease of the newborn occurs mainly in association with severe birth asphyxia, hypothymeria and Rhesus haemolytic disease (Chessells and Wigglesworth, 1970) and often results from disseminated intravascular coagulation (Boyd, 1967). Treatment with heparin (Whaun, Ormson and Oski, 1971) or exchange transfusion (Gross and Melhorn, 1971) has been advocated, but the mortality is 60% (Whaun et al., 1971). Although fibrin deposits have been found in many organs at autopsy (Boyd, 1967) we have not found reports of permanent damage to organs other than the brain in the survivors (Bryant et al., 1970).

Case report

This baby girl was born at 42 weeks' gestation after an antepartum haemorrhage by normal vertex delivery in a nearby maternity home and weighed 3.85 kg. She failed to breathe and after 10 min was treated with positive pressure ventilation via an endotracheal tube, regular respiration being estab-
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