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# A Rare Case of Intrathyroid Dermoid Cyst in a Middle-aged Female

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## ABSTRACT

**Introduction:** The term 'dermoid cyst' describes a cystic lesion comprising of stratified squamous epithelium with epidermal appendages. **Presentation of case:** A dermoid cyst arising in the left lobe of the thyroid gland in a 35-year-old female was managed with a left hemithyroidectomy. **Discussion:** While congenital lesions feature frequently in the differential diagnosis of childhood neck masses, dermoid cysts presenting as a unilateral neck mass are rare. **Conclusion:** When dermoid cysts are found within the thyroid, their pathogenesis may be explained by a disruption of normal thyroid development. Excision appears the treatment of choice.


**Keywords:** Dermoid cyst, stratified squamous epithelium, thyroid gland, congenital lesions, excision

The term 'dermoid cyst' describes a cystic lesion comprising of stratified squamous epithelium with epidermal appendages. DeMello referred to midline cervical lesions of the above morphology, originally classified as thyroglossal duct cysts, as dermoids. This classification remains controversial, but true midline dermoids in the cervical region are not uncommon. Clearly, these lesions remain clinically distinct from cervical teratoma which represents a tumor of germ cell origin containing all three layers of the trilaminar embryo.

Dermoids located within or immediately adjacent to the thyroid gland appear rare. A dermoid cyst presenting as a midline, cold thyroid nodule in a 9-year-old girl has been previously reported. We describe an intrathyroid dermoid cyst presenting as a solitary thyroid nodule in a middle-aged female.

## CASE PRESENTATION

A 35-year-old female presented with a left-sided neck mass. She noticed a swelling 1 year back. It had been gradually increasing in size since then. There were no other symptoms or signs suggestive of thyroid disease. There was no history of dysphagia, hoarseness of voice or additional neck masses. Obstetric history, she was married with two children and tubectomized 4 years back, menstrual cycles were regular. There was no past history of irradiation or iodides. The family history was unremarkable, although her mother had an excision of nonfunctioning thyroid nodules several years earlier.

Examination revealed a 3 × 2 cm oval-shaped, firm to hard mass left of the midline, medial and anterior to the sternocleidomastoid muscle (Fig. 1). It did not extend into the mediastinum and moved on swallowing but not on protrusion of the tongue. There was no cervical lymphadenopathy.

### Investigation

An ultrasound revealed a 3.4 × 1.9 cm hypoechoic nodule arising from within the left lobe of the thyroid (Fig. 2). Color duplex revealed no blood flow within the nodule. Thyroid function tests were within normal limits. Chest radiography was normal. Fine needle aspiration cytology (FNAC) was performed, which revealed few inflammatory cells.

### Operative Findings

A large smooth whitish color cystic mass was seen within and adherent to the left lobe of the thyroid gland (Fig. 3). There was evidence of a chronic inflammatory reaction around the mass. A left hemithyroidectomy was performed.

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**Figure 1.** Patient with solitary thyroid nodule.

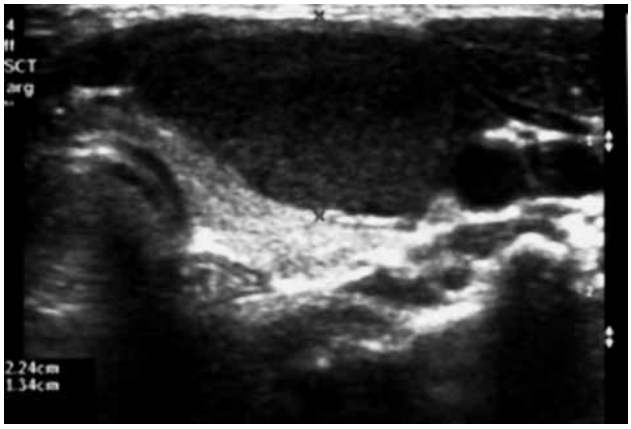

**Figure 2.** Ultrasound of intrathyroid lesion.

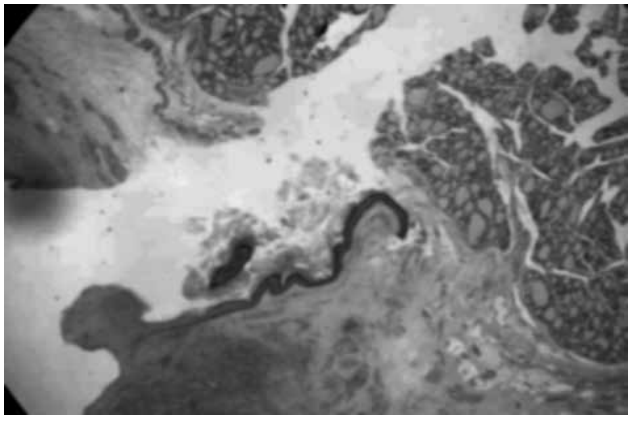

**Figure 3.** Showing operative intrathyroid cyst.

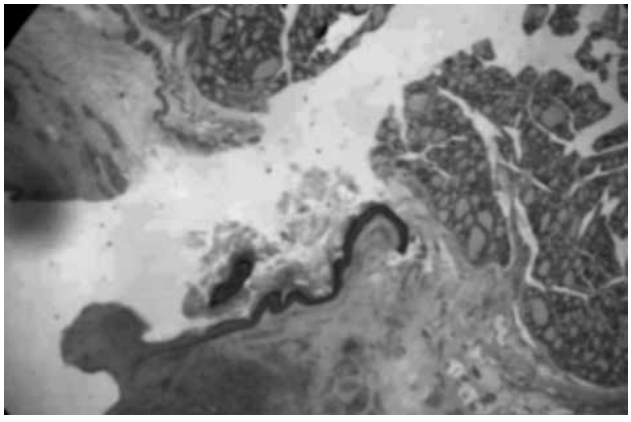

**Figure 4.** Histopathology of dermoid cyst with adjacent thyroid tissue.

### Histopathological Examination

The microscopic examination showed a dermoid cyst. The wall consisted of stratified squamous epithelium with few associated sebaceous glands. There were focal areas of rupture with an associated foreign body-type giant cell-reaction around keratin. Histologically, the adjacent thyroid was unremarkable and the cyst appeared attached to it (Fig. 4).

The postoperative recovery was uneventful. Repeated thyroid function tests 6 weeks postoperatively were normal.

## DISCUSSION

The thyroid gland develops during the 3rd week of gestation, as a midline diverticulum from the ventral surface of the pharynx. Elongation of the embryo with growth of the pharynx and tongue leaves the thyroid caudal to its point of origin. The diverticulum forms the majority of the gland but receives lateral contributions from the fourth ultimobranchial bodies that form the calcitonin-producing C cells.

A palpable neck mass is a commonly encountered clinical problem. Meticulous clinical history and physical examination may suggest the clinical diagnosis. Imaging is increasingly performed to confirm the clinical diagnosis and assesses the anatomical extent of involvement before any form of treatment. Apart from its location, the distinction between solid and cystic or cyst-like neck masses helps in the definitive diagnosis or to narrow the differential diagnoses. Cystic masses of the neck include a wide range of congenital and acquired lesions. The vast majority of cystic lesions in infants and children are congenital or developmental in origin, whereas inflammatory and neoplastic diseases constitute the majority of cystic or cyst-like neck masses in adults.

An asymptomatic left-sided mass evident low in the anterior cervical triangle may represent lymphadenopathy in the pre-tracheal lymphatic chain with a single predominant node. A congenital anomaly such as a true cervical dermoid or third or fourth branchial cleft cyst must be considered as these, together,

comprise 55% of cervical neck masses in children. Thymic cysts may occasionally present just lateral to the midline but are very rare. Lymphatic malformations such as cystic hygromas occur predominantly in the posterior triangle but may present in this manner. They are usually fluctuant and brilliantly translucent. A thyroglossal duct cyst would tend to present as a midline mass that elevates on tongue protrusion.

A dermoid cyst is the most common of the teratomatous lesions in the head and neck region, approximately 7% occur of all dermoids occurring in this region. Histologically, it contains two germ cell layers and skin appendages (e.g., hair follicles and sebaceous glands). An epidermoid cyst is less common in the neck as compared to a dermoid cyst and is comprised solely of ectoderm. In this case, the nodule appeared to move with swallowing but did not elevate with protrusion of the tongue. The ultrasound scan suggested an intrathyroid mass and radionuclide scanning confirmed the presence of normal-appearing functioning thyroid tissue surrounding the mass. The mass was therefore thought to arise from the left hemithyroid.

The intrathyroid location of the lesion is of particular interest with regard to the etiology of dermoids in the head and neck. A hypothesis for this entity is entrapment of cells within disparate layers during embryogenesis. This explains the appearance of components of ectoderm within a predominantly endodermal organ such as the thyroid. Yet another explanation has been the traumatic implantation of ectodermal cells within deeper tissues. This applies in the context of dermoid cysts identified around surgical incisions or near scars but would not be applicable to our patient.

## CONCLUSION

Dermoid cysts should be included in the differential diagnosis of a lateral neck mass in adults, even when apparently within the thyroid gland. Given the rarity of this lesion, the true diagnosis may only be made at operation. Because of the risk of infection and progressive enlargement, excision remains the treatment of choice.

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### A Third of World's Children have High Lead Levels

Lead poisoning is affecting children on a huge scale that was previously unknown, suggests a new study by the United Nations Children's Fund (UNICEF) and Pure Earth, an international non-profit organization that focuses on pollution issues.

This first of its kind report has revealed that about 1 in 3 children, which amounts to about 800 million worldwide, have blood lead levels at, or above, 5 μg/dL, the amount at which action needs to be taken.

Around half of these children are in South Asia. The report has also stated that informal and inadequate recycling of lead-acid batteries has a huge contribution to lead poisoning in children in low- and middle-income countries… (*UN*)