Papillary Carcinoma Thyroid in a Thyroglossal Cyst

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Introduction

Human thyroid gland derives mainly from one median anlage, which develops from invagination in the floor of the primitive pharynx, at the base of the tongue. This anlage, during its maturation, migrates downward, along the transient thyroglossal duct anterior to the trachea, on an S-shaped path in relation to inferior margin of hyoid bone. During this descent, the connection between the thyroid gland and the floor of pharynx (foramen caecum) may persist to form a thyroglossal duct (TGD) [1]. Thyroglossal duct cysts occurs in 7% of the adult population [2]. However, carcinoma in TGD cyst is rare with reported incidence of less than 1% [3]. We describe a case of papillary carcinoma in a thyroglossal duct cyst.

Case Report

The patient was a 45 year old female with a four month history of an anterior midline neck mass which was painless and associated with no other symptoms. The physical examination revealed a 3 cm diameter, smooth, well defined, painless, cystic nodule at the level of the hyoid bone which moved with deglutition and protrusion of the tongue. The thyroid gland was clinically normal and there were no neck lymph nodes palpable. An ultrasound examination of the neck confirmed it to be a thyroglossal cyst and reported the thyroid gland normal. A fine needle aspiration cytology (FNAC) was done which was reported colloid thyroid nodule. The patient underwent surgery under general anesthesia with a diagnosis of a TGD cyst. The mass was resected by standard Sistrunk's procedure. The cyst was resected in-toto and there were no local signs of invasion of the tissue surrounding the cyst or duct seen per-operatively. The patient was discharged within 24 hours.

Gross examination of the specimen showed a 3.5 x 3.0 x 3.0 cm cyst. The cyst wall measured 0.3 cm in thickness and had a solid, brown colored component which measured 1.0 x 0.5 cm. Histopathological sections demonstrated cyst wall containing papillary structures with a vascular core (Fig. 1). Papilla were lined by neoplastic epithelial cells with

pleomorphic vesicular nuclei showing nuclear groove and psammoma bodies (Fig. 2). Peripheral compressed normal thyroid tissue was also seen. There was no capsular invasion and the margins were negative.

The patient has been on follow-up since last one year. Clinical and sonological examination of the head and neck region is carried out at each visit. So far there is no evidence of recurrence.

Discussion

Ectopic thyroid tissue occurs in 62% of thyroglossal duct remnants and is subject to the same disease processes as the thyroid gland itself [4]. The most common histological type of thyroglossal duct carcinomas (TDC) is papillary carcinoma (80%). Mixed follicular papillary carcinoma (8%), squamous cell carcinoma (6%), follicular carcinoma (3%), adenocarcinoma and various unclassified tumors (3%) form the other possibilities. It is now generally accepted that TDC arises from the thyroid tissue remnants located in the cyst itself [5]. The major diagnostic criteria include high cellularity, the presence of papillary formations and cells with enlarged nuclei with anisonucleosis and powdery chromatin with definitive nucleoli. Intra-nuclear pseudo inclusions and grooves are the significant diagnostic criteria. Psammoma bodies, multinucleated giant cells and ropy colloid are variably present [6]. Although the diagnostic criteria of FNAC for TGD cyst and papillary carcinoma thyroid have been well defined, failure to achieve an accurate diagnosis of papillary carcinoma arising in thyroglossal duct cyst is not uncommon [7]. Similar was our experience as the preoperative FNAC failed to detect the papillary carcinoma.

The diagnosis of TDC is often made post-operatively on histopathological examination. Initially these tumors were considered to be metastases from occult thyroid carcinoma that may have undergone cystic degeneration and subtotal or total thyroidectomy with neck dissection

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Fig. 1 : Photomicrograph (H & E (x100)) showing (a) cyst wall (b) papillary structure

was advocated in all cases [8]. However present evidence is against such radical surgery. It is thought that the prognosis is good and similar to that of papillary carcinoma of thyroid gland having cure rates in excess of 95%. Hence most authors consider a Sistrunk's operation to be adequate [9-11]. Others consider the possibility of multifocal origin and possible lymphatic spread to the thyroid, based on embryology. They opine that a radioiodine thyroid scan is warranted. If there is abnormal uptake on the scan or there is cystic wall invasion by the carcinoma or if the thyroglossal duct cyst carcinoma is greater than 1.5 cm, a total / near total thyroidectomy is indicated followed by thyroid stimulating hormone (TSH) suppression therapy [12-14]. In our case the ultrasound examination showed a normal thyroid and there were no neck nodes. Further, the histopathology did not show invasion of capsule. Hence, we consider Sistrunk procedure to be adequate surgery in this case. One year follow-up has been uneventful.

In conclusion, TGD carcinoma is a rare cancer arising from thyroid tissue located in the duct itself. The Sistrunk operation is adequate for most patients with incidentally diagnosed TGD carcinoma in the presence of a clinically and radiologically normal thyroid gland. Total thyroidectomy followed by suppressive doses of eltroxin is indicated if there is thyroid involvement and if the cancer has spread beyond cyst wall. Long term follow-up is indicated and the prognosis is usually very good.

Conflicts of Interest

None identified

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Fig. 2 : Photomicrograph (H & E (x200)) of cyst wall showing papillary carcinoma thyroid with Orphan Annie nuclei (arrows) and Psammoma body (inset)

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