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Pathology

A Rare Case of Intrathyroidal Ruptured Epidermal Inclusion Cyst

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Abstract **Case Report**

Cystic lesions of the thyroid are quiet common. The differential diagnosis of cystic lesions of the thyroid ranges from developmental, degenerative, non-neoplastic, inclusion and neoplastic disorders. Epidermal inclusion cyst, though a common entity, is extremely rare in the thyroid gland and is thought to arise from foci of squamous metaplasia. We report a rare case of ruptured intrathyroidal epidermal inclusion cyst which was diagnosed on histopathology as an incidental finding coexisting with multiple colloid nodules.

Keywords: Epidermal inclusion cyst, thyroid gland, ruptured.

INTRODUCTION

Cystic lesions of the thyroid are the commonly encountered conditions in clinical practice [1]. It encompasses a wide spectrum of heterogenous disorders ranging from developmental, degenerative, inclusion to neoplastic disorders. It can present as either a nodular or diffuse swelling with no age or sex predilection .Fine-needle aspiration (FNA) sample of a thyroid nodule provides presumptive diagnosis in most of the cases when it is taken from representative sites [2]. However surgical excision with detailed histopathological examination only will reveal interesting and incidental findings with precision. The occurrence of epidermal cyst in the thyroid is extremely rare [3]. We, hereby, report such a rare case of epidermal cyst in thyroid gland which was an incidental finding.

Case History

A 46 years female patient presented to surgery department with swelling in front of neck for past two years. A clinical diagnosis of goiter was made and was advised FNA cytology. The swelling initially was small and gradually increased in size according to the history given by the patient. On examination a single large swelling measured 6 cm × 3 cm, on the right side of the neck, painless, soft in consistency, and moved with deglutination. There was no lymphadenopathy. The patient's thyroid function test was within normal limits. Ultrasonography of neck revealed a colloid goiter. FNAC was done using 24-gauge needle with a 10 ml syringe which yielded 2.5ml of colloid mixed hemorrhagic fluid. The smears were fixed in 100% methanol and stained with hematoxylin and eosin (H and E) and papanicolaou stains. Smears showed the presence of numerous cyst macrophages along with occasional follicular epithelial cells. Based on the above findings, a final diagnosis of Bethesda category -II- Benign-consistent with Benign colloid nodule was given. Following which right hemithyroidectomy was performed. Hemithyroidectomy specimen measured 6.5 x 4.5 x 3 cms [Fig 1]. External surface was cystically enlarged and congested. Cut surface shows a large cystic space measuring 4.2 x 3.7 x 2.8 cms filled with grey yellow fluid. Mulitple small cyst ranging 1 x 1cms to 0.5 x 0.5 cms one of which was filled with grey white areas are noted towards lower pole with adjacent areas of calcification.

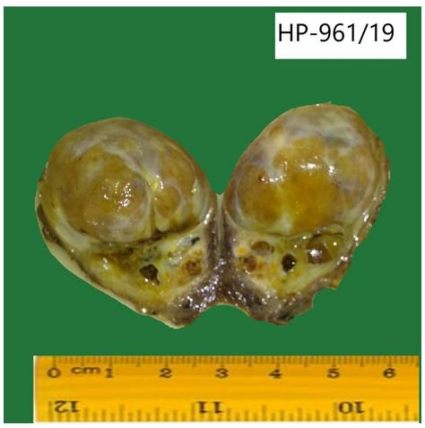

Fig 1: Photograph showing cut section of thyroid gland with large dominant cyst in the upper pole and multiple smaller cysts in the lower pole

Histopathological examination revealed a large cyst lined by flattened epithelium with surrounding thyroid parenchyma shows scattered lymphocytes with focal area of lymphoid aggregate formation [Fig2]. One of the multiple small cysts which were filled with grey white material was lined by stratified squamous epithelium with foci of rupture [Fig 3 and 4].

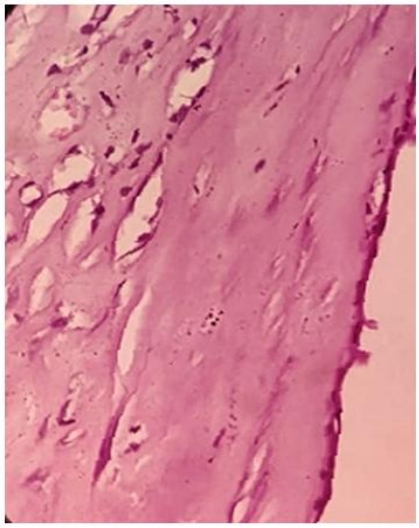

Fig-2: Photomicrograph showing colloid cyst lined by flattened epithelium (400X, H&E).

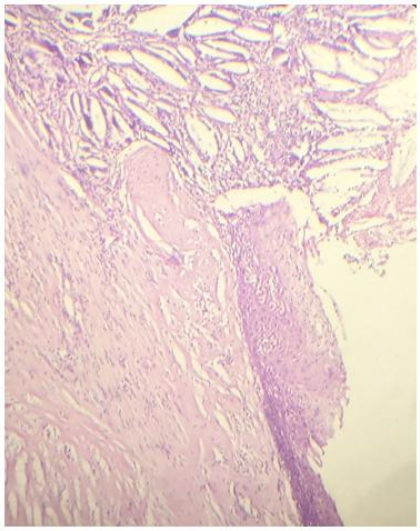

Fig-3: Photomicrograph showing ruptured cyst lined by stratified squamous epithelium with adjacent areas of collection of cholesterol clefts and foreign body type of giant cells (100X, H&E)

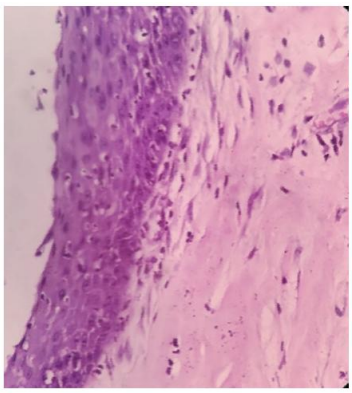

Fig-4: Photomicrograph showing cyst wall being lined by stratified squamous epithelium (400X, H&E)

The cyst is surrounded by fibrosis along with collection of cholesterol clefts; hemosiderin laden macrophages and foreign body type of gaint cells with focal areas of calcification were also seen. The remaining small cysts were lined by flattened epithelium. Based on the above findings a final diagnosis of multiple colloid nodules along with epidermal inclusion cyst of the thyroid with surrounding Hashimoto thyroiditis.

DISCUSSION

Epidermal inclusion cysts commonly result from implantation of epidermis into the dermis. Epidermoid inclusion cyst, though a common entity, is extremely rare in the thyroid gland, and thought to arise from foci of squamous metaplasia [3]. Only ten cases of intrathyroidal epidermal inclusion cyst has been reported in literature so far headlighting its rarity. The age range was from 4 to 60 years with a mean of 42 years [4]. There was no sex predilection. Nicholson in 1922 was the first to report the appearance of squamous epithelium in the human thyroid gland [5]. Metaplasia of the follicular epithelial cells due to severe chronic inflammatory process was the proposed hypothesis for its appearance. In our case also the long standing colloid nodule would have induced squamous metaplasia with formation of the epidermal inclusion cyst. Rupture of the cyst had led to the collection of histiocytes and cholesterol clefts along with foreign body type of gaint cell reaction to the keratin.

On cytology smears from epidermal inclusion cyst many anucleate squames , mature squamous cells and clusters of inflammatory cells comprising of neutrophils, lymphocytes and macrophages against dirty background are seen [6]. In our case since we have hit the large colloid nodule only cystic macrophages and few follicular epithelial cells were seen. Grossly, epidermoid inclusion cysts are mostly unilocular and well circumscribed. Literature evidence has shown these cysts to be mostly unilocular ranging in size from 1.1 to 4.4 cm. However in our case the size of the cyst was around 0.7X0.5cms only. On histopathological examination all the epidermal inclusion cysts reported so far were lined by squamous epithelium and surrounded by fibrous layer which may contain smooth muscle fibers along with atrophic follicles [3]. Our case showed rupture of the cyst with associated degenerative features. Total surgical resection of cyst with capsule is treatment of choice. No recurrence has been documented if excised completely till date in literature.

Squamous cells are not normally seen in a thyroid gland. A plethora of diagnosis such as benign metaplasia, thymic rests, neoplasms, thyroglossal duct remnants, and branchial cleft cysts and epidermoid cysts has to be considered. The more common branchial cleft cyst shows the presence of lymphoid tissue which is absent in our case. Thyroglossal cyst shows the presence of abundant colloid, columnar epithelium cells, and few mature squamous cells.

CONCLUSION

Epidermal inclusion cyst of the thyroid is a seldom encountered entity. The presence of squamous cells in thyroid gland should make us search for this rare diagnosis in thyroid. This case is the first intrathyroidal ruptured epidermal cyst with foreign body type of giant cell reaction to be reported in the literature, hence it deserves significance.

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