CASE REPORT

A Rare Case Report of Intrathyroidal and Subcutaneous Bronchogenic Cyst, the Hidden Pearls in Unusual Sites

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Abstract

Bronchogenic cyst is a rare congenital anomaly arising from the ventral bud of the foregut or tracheobronchial tree. It most commonly presents in the mediastinum, with rare ectopic presentation, accounting for 10% to 15% of mediastinal tumors and 50 to 60% of all mediastinal cysts. In this article, we discuss cases of intra-thyroidal bronchogenic cyst and subcutaneous bronchogenic cyst.

Keywords

Bronchogenic cyst, Itrathyroidal, Mediastinal cysts

Introduction

The bronchogenic cyst is the abnormal budding of the ventral bud of the foregut in early foetal life. The most common sites of presentation are mediastinum & lung parenchyma. Rarely, it presents subcutaneously, in the midline of the neck, or in the thyroid . [1] Less than 70 cases of subcutaneous bronchogenic cysts have been reported till date. [2] The cyst seems to be arising from the primitive foregut which gives rise to the respiratory tract and oesophagus.

It is mostly unilocular, without tracheobronchial communication. It predominantly occurs in boys of the paediatric age group and is usually asymptomatic. It has a prevalence of 1 in 42000 to 1 in 68,000 cases. [3,4]

Case report

Case 1

A 47-year-old female presented with complaints of neck pain for one month. She was a known case of hypothyroidism for the past 4 years and was under regular treatment. The patient underwent a total thyroidectomy, and the specimen was sent for histopathological examination. Grossly, the specimen was unremarkable. On microscopy, the thyroid shows features of Hashimoto thyroiditis and a bronchogenic cyst was noted. The bronchogenic cyst was an incidental finding on the microscopic examination of the specimen. (*Fig 1*)

Case 2

A 32-year-old male came to the hospital, with a complaint of swelling in the midline of neck at the sternal notch since childhood. Swelling was static, not increasing in size. No complaints of pain, discharge, hoarseness of voice or pressure symptoms existed during the examination. The swelling measured 3x3 cm. Skin over the swelling appeared smooth, with no punctum or sinus. No movement on deglutition or tongue protrusion was

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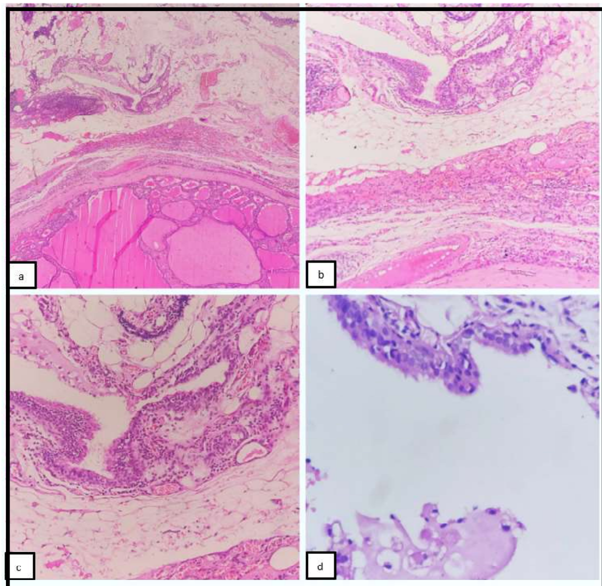

Fig 1a. Intrathyroidal Bronchogenic Cyst- Cyst wall seen along with the margin of thyroid tissue (X4 H&E b,c,d). The cyst wall shows pseudostartified ciliated columnar epithelium with lymphoid aggregated (X 10 X20 X30 H&E)

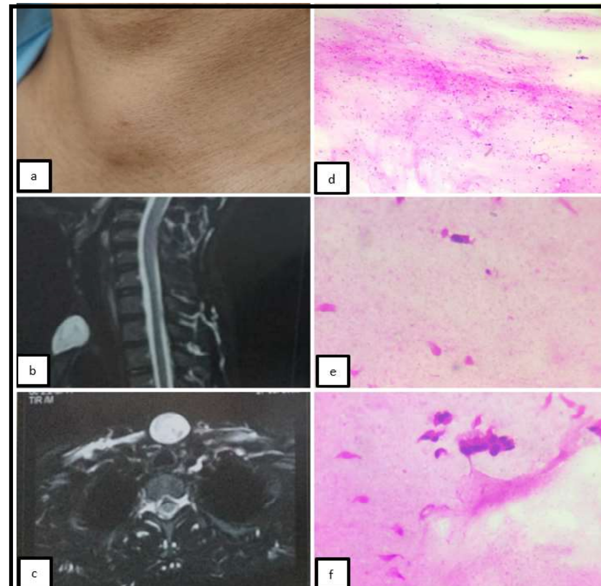

Fig 2a. Subcutaneous Bronchogenic Cyst- Clinical Image at the neck b,c Radiological Image MRI Neck shows hypertense lession without traxchea esophagal communication d,e,f Cellular smear shows cilliated columnar epithemium cells admixed with lymphocytes (X4 X10 X40H&E)

noted. On palpation, it was soft in consistency. MRI neck showed a hyperintense lesion in front of the trachea with no connumnarection with the trachea. Fine needle aspiration was done, and cytological examination done. The smears showed few clusters and singly scattered ciliated columnar epithelium and degenerated cells in an eosinophilic background and was reported as subcutaneous bronchogenic cyst. Since the swelling was asymptomatic, patient was not willing to undergo excision of the cyst. (*Fig 2*)

Discussion

Bronchogenic cyst is usually seen in the thorax or the mediastinum. Extra-thoracic presentation is rare and can be encountered in the neck, thyroid, and subcutaneous sites. Cytological evaluation shows ciliated columnar epithelium. On histopathological examination, a cyst wall lined by pseudostratified ciliated columnar epithelium with smooth muscle and cartilage is seen. [5]

In case 1, it's an intrathyroidal presentation when a total thyroidectomy specimen was sent for histopathological examination. Grossly, no cystic lesion was noted. Only on microscopic examination, a cyst was seen in the wall of the thyroid. The cyst was lined by pseudostratified columnar epithelium along with focal squamous epithelium, and cartilage is seen. Differential diagnoses were branchial cyst, thyroglossal cyst, and bronchogenic cyst. Although these three are close overlapping differentials in this case, the cyst was not clinically or radiologically evident, and was an incidental microscopic finding.

In case 2, the patient presented with subcutaneous swelling of the neck. On cytological examination of fine needle aspirate, presence of ciliated columnar epithelial cells and lymphocytes were suggestive of bronchogenic cyst. But the limitation was the patient had not undergone excision. Differential diagnoses were lipoma, dermoid or epidermal cyst, thyroglossal, branchial or bronchogenic cyst. Based on anatomical sites and absence of movement on deglutition, thyroglossal and brachial cysts were ruled out.

Lipoma is a benign neoplasm of adipose tissue. It is an encapsulated, yellowish globular tumour. FNAC shows spindle, floret, hibernoma, or skeletal muscle cells in a fibro myxoid or chondromyxoid background. [6]

Epidermal cyst or dermoid cyst on FNAC yields a thick, greasy, foul-smelling material. The smear shows mature

squamous epithelial cells in the background of debris and inflammatory cells. Hair follicles are seen in dermoid cyst . [6]

Branchial cyst is the second most common congenital anomaly in children and occur due to the obliteration of the branchial apparatus. [7] They present as cysts, sinuses, and fistulae in the sternocleidomastoid's anterior border, and the neck's anterolateral aspect. They are usually seen in young adults and present with sudden swelling in the lateral aspect of the neck. On FNAC, a thick grey-yellow fluid aspirate is obtained, which on examination reveals mature squamous epithelial cells with inflammatory cells background. On histopathology, stratified epithelium with lymphoid follicle is seen. The cyst walls can have sebaceous or mucinous glands .[8]

Thyroglossal cyst is the most common congenital neck swelling and arises from the thyroid gland. This is due to the persistence of cystic dilatation of the thyroglossal duct .[9] On local examination, a midline neck swelling with sinus of fistulae can be seen which moves on protrusion of the tongue. FNAC reveals cellular with predominantly inflammatory cells and squamous or ciliated columnar epithelial cells. Thyroid tissue is seen in 10% of the aspirates. On microscopy, cyst lined by pseudostratified ciliated columnar or squamous epithelium can be seen along with lymphoid aggregate in the wall because of secondary infection in the sinus tracts. Thyroid tissue can be seen in the cysts. [8]

Conclusion

Bronchogenic cyst is a benign congenital developmental abnormality of the embryonic foregut. In this article, we reviewed two cases of rare presentation of bronchogenic cysts. In most instances, diagnosis is established by histopathology, more often presentation will be without any clinical symptoms. If its symptomatic or the cyst is suspicious of malignancy should be resected. Careful follow-up for prevention of infection and recurrence is required.

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