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Case report

Air containing branchial cyst-a rare incidental finding detected on CT

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ABSTRACT

A 35 year old male patient presented with a neck mass which was proved to be a multi nodular goiter. Computed tomography (CT) showed an air containing lesion in the right supra clavicular region, in addition to the thyroid nodule. The air containing lesion proved to be a branchial cyst. The case is presented because of its rarity.

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1. Introduction

Air containing second branchial cyst detected incidentally is a rarity. The lesion was detected on CT. No communication with airway was demonstrated. The CT findings and relationship to adjacent structure is described.

Branchial cleft cysts (BCCs) are the most common cysts to arise in the neck [1-6]. This is a case report of an incidental diagnosis of branchial cyst in a 35 year old male with a thyroid swelling

2. Case Report

2.1. Clinical History and Physical Examination Findings:

A 35 year old male patient presented with complaints of swelling in neck for the past one year, insidious in onset & progressive in nature. No H/o dysphonia, dyspnoea/palpitations/tremors. On examination an ovoid swelling was noted in front of the neck extending 5 cms lateral to midline of neck on right side. Swelling moved with deglutition. No evidence of retro sternal extension /audible bruit. Systemic examination within normal limits.

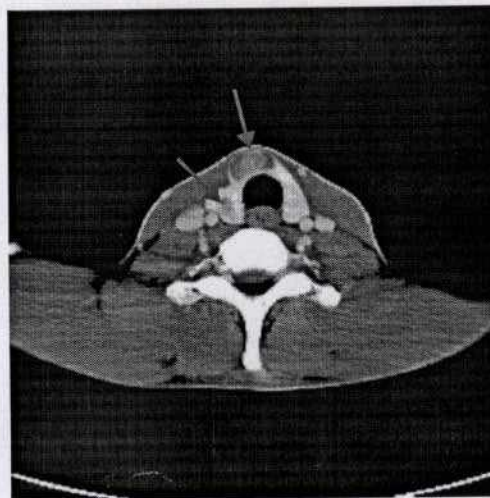
Neck Ultrasound: A mixed echogenic oval lesion with a volume of 3.3 cc in the right lobe of thyroid extending to isthmus. It contained internal echoes suggestive of debris. Another smaller well defined hypo echoic lesion with a volume of 0.3 cc was seen in the middle of the right lobe.

Multiple enlarged lymph nodes were seen on the right side at level II, III, IV largest measuring 1.5 x 0.8 cms were seen.

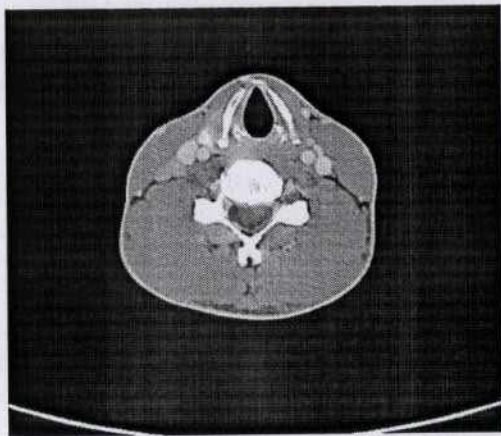
Contrast Enhanced CT (CECT) : A heterogeneously enhancing hypodense lesion measuring 2.3 x 1.5 x 3.5 cms involving the right part of thyroid (fig 1) extending to isthmus and across the midline. Another minimally enhancing hypodense lesion measuring 1cm seen in right lobe of thyroid.

Multiple enlarged neck nodes seen bilaterally at II, III, IV levels with largest measuring 1.8 cms on the right side (fig 2).

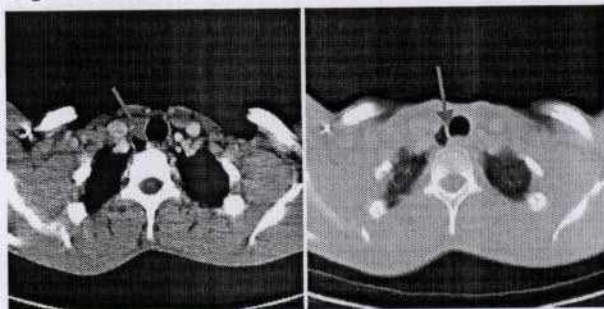
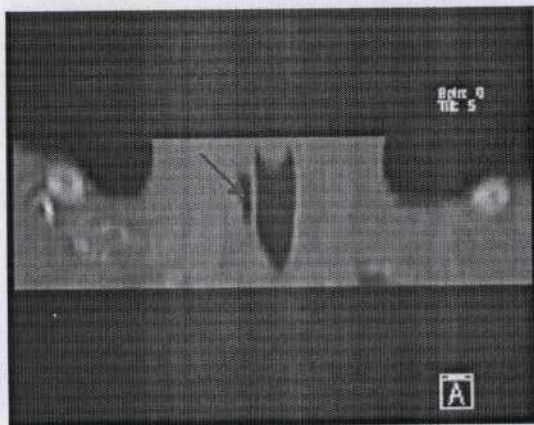
Fig 1 CECT in soft tissue window showing the lesions in thyroid (arrows)



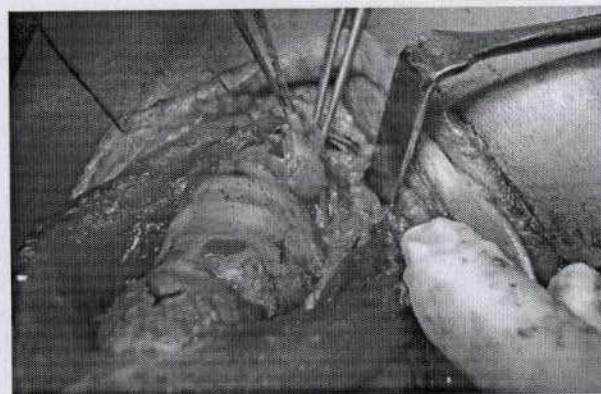
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Fig 2 CECT showing right cervical lymphadenopathy

An oval air containing pocket measuring 1.9 x 1.2 x 4 cms (AP x transverse x cephalo-caudal) was seen in the right para tracheal region above the level of the clavicle (Fig 3 & 4). It showed internal linear strands resembling lung parenchyma. Although rare in this location, the possibility of sequestered lung / lymphatic sac was proposed. Patient underwent total thyroidectomy and right functional neck dissection with excision of the right supra clavicular sac.

Fig 3 CECT (Mediastinal and lung window) The branchial cyst (arrow) is seen medial to brachiocephalic vessels and to the right of trachea.**Fig 4 Coronal reformatting shows longitudinal orientation of the lesion (arrow).**

At surgery, the thyroid nodule and the lymphadenopathy were confirmed. The lesion in the right supra clavicular region was located in the tracheo-oesophageal groove (fig 5). It was excised and subsequently sent for histopathological analysis.

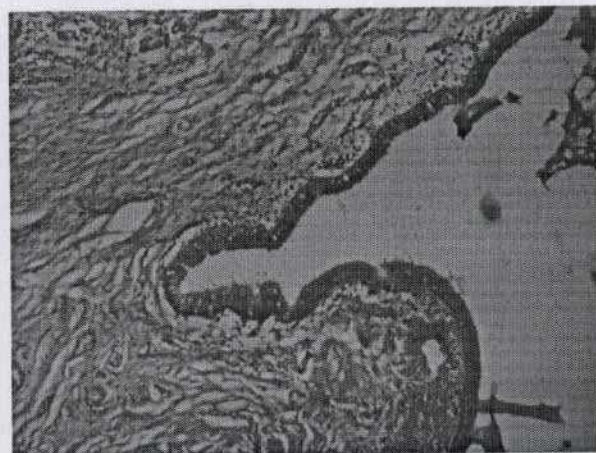
Fig 5 Per-op photograph showing the lesion (astreix)

3. Histo pathology

Total thyroidectomy specimen showed follicles of varying sizes filled with colloid which at areas show resorption. There were areas of fibrosis and hemorrhage.- features were consistent with multi nodular goiter with colloid nodule.

The retrieved lymph nodes showed multiple caseating granulomas with foreign body and Langhan's type of giant cells. Ziel Nielsen stain was negative- Features suggestive of granulomatous lymphadenitis, Probably Tuberculosis.

The sequestered sac in the tracheo-oesophageal groove showed multilocular cyst lined by stratified ciliated columnar epithelium with sub epithelial lymphoid aggregates. Some of the locules were filled with mucin-Features consistent with branchial cyst.(fig 6)

Fig 6 Branchial cyst lined by columnar ciliated epithelium with sub epithelial lymphoid tissues. (H & E stain 10 x 40)

4. Discussion

Most branchial anomalies arise from the second branchial apparatus. A number of theories exist to explain the development of abnormalities within the branchial cleft [7]. The most widely held belief is that incomplete obliteration of the cervical sinus plays an important role in this process [3]. If no communication occurs with inner mucosa or outer neck skin, trapped arch remnants form a cyst. Second BCCs appear as painless fluctuant masses in the lateral portion of the neck adjacent to the anteromedial border of the sternomastoid muscle [8-10], anywhere along a line from the oropharyngeal tonsillar fossa to the supraclavicular region of the neck [3]. The mass enlarges over time and may become painful or tender if secondarily infected [9]. Patients with BCCs are usually older children or young adults in contrast to patients with fistulas who are usually infants or children [11,12].

Cross-sectional imaging has become the mainstay of diagnosis for BCC [3, 4].

Our patient presented with nodular swellings in the thyroid. The branchial cyst was not detected clinically, probably due to its small size and soft consistency. It was not detected on ultrasound, probably due to its air content. It was incidentally detected on CT. The lesion was located in the supraclavicular region medial to the sternocleidomastoid muscle. It showed HU values corresponding to air and few internal linear strands.

This case is being presented as the cyst was incidentally diagnosed and it showed air within it.

5. References

- [1] Gold B. Second branchial cleft cyst and fistula. *AJR Am J Roentgenol*. 1980;134:1067-1069.
- [2] Lev S, Lev MH. Imaging of cystic lesions. *Radiol Clin North Am*. 2000;38:1013-1027.
- [3] Harnsberger H, Manusco A, Muraki A, et al. Branchial cleft anomalies and their mimics: computed tomographic evaluation. *Radiology* 1984;152:739-748
- [4] Coppens F, Peene P, Lemahieu SF. Diagnosis and differential diagnosis of branchial cleft cysts by CT scan. *J Belg Radiol* 1990;73:189-196.
- [5] Herman TE, McAlister WH, Siegel MJ. Branchial fistula: CT manifestations. *Pediatr Radiol* 1992;22:152-153.
- [6] Albers GD. Branchial anomalies. *JAMA* 1963;183:399-409.
- [7] Colledge J, Ellis H. The etiology of lateral cervical (branchial) cysts: past and present theories. *J Laryngol Otol* 1994;108:653-659.
- [8] Miller M, Rao M, Tom B. Cystic masses of the head and neck: pitfalls in CT and MR interpretation. *AJR Am J Roentgenol* 1992;159:601-607
- [9] Som P, Sachet M, Lanzieri C, et al. Parenchymal cysts of the lower neck. *Radiology* 1985;157:399-4061
- [10] Som P. Cystic lesions of the neck. *Postgrad Radiol* 1987;7:211-236
- [11] Telander R, Deane S. Thyroglossal and branchial cleft cysts and sinuses. *Surg Clin North Am*. 1977;57:779-791.
- [12] Sedgwick CE, Walsh J. Branchial cysts and fistulas. *Am J Surg* 1952;83:3-8.

