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GAVIN PUBLISHERS

Archives of Medical & Surgical Pathology

Ramji AN. Ar Med Surg Pathol 2: 103.

DOI: 10.29011/AMSP-103.100003

Case Report

Branchial Cleft Cyst or Tubercular Lymphadenitis: A Case Report of a Medical Masquerade

Ashwath Narayan Ramji*

Department of General Surgery, Kempegowda Institute of Medical Sciences, Bangalore, India

Corresponding author: Ashwath Narayan Ramji, Department of General Surgery, Kempegowda Institute of Medical Sciences, Bangalore, India. Tel: +91-9940160735; Email: drashwathramji@gmail.com

Citation: Ramji AN (2019) Branchial Cleft Cyst or Tubercular Lymphadenitis: A Case Report of a Medical Masquerade. Ar Med Surg Pathol 2: 103. DOI: 10.29011/AMSP-103.100003

Received Date: 23 April, 2019; **Accepted Date:** 02 May, 2019; **Published Date:** 10 May, 2019

Abstract

Branchial cleft cysts are common swellings in the neck in children and represent a congenital abnormality arising due to failure of obliteration of a branchial cleft, most commonly, the second branchial cleft. Complications include infection and suppuration with abscess or fistula formation, but if uninfected they may remain as painless swellings. They are unusual in adults, and diagnosis is often not as straightforward as in children, due to the consideration of more varied differential diagnoses including malignancy. Here we discuss the case of a 25-year-old male patient, with a clinical diagnosis of tubercular scrofula where histopathology revealed a branchial cleft cyst.

Keywords: Branchial cleft; Branchial cleft cyst; Congenital swelling; Neck swelling; Scrofula; Tubercular lymphadenitis

Introduction

Branchial cleft cysts, as the name suggests, are congenital retention cysts arising from unobliterated remnants of a branchial cleft [1]. They are common in children, generally presenting as an insidious painless mass in the neck, and remain uncomplicated unless secondarily infected [1]. In adults however, these are rare, and the presence of a neck mass in an adult usually triggers the alarms so that more likely, and more malicious pathologies like primary lymphoma, metastatic malignant deposits in the cervical lymph nodes, and granulomatous infections like tuberculosis are ruled out [2].

Case Report

A young male patient presented with history of a swelling over the right side of the neck for 2 months. It was insidious in onset, gradually progressive in size, with a sudden spurt in the growth in the last 2 weeks. There was no history of pain, discomfort or discharge, however, he complained of fatigue and few episodes of fever, predominantly in the evenings.

There was no history of cough, difficulty swallowing, positional or diurnal variation. There was no significant medical history, or similar complaints earlier. Family history was significant for tuberculosis in his paternal grandfather whom he was exposed to.

EExamination revealed a solitary vertically oval swelling in the right side of the neck, which was discrete, moderately well demarcated, with normal (pinchable) overlying skin, soft in consistency, non-tender, free from the skin but fixed to underlying tissue. Numerous sub-centimetric lymph nodes were noted bilaterally. But for a slightly elevated Erythrocyte Sedimentation Rate (ESR) (23), routine investigations were unremarkable. Mantoux test was positive with 18mm of induration and X–ray of the chest was normal. Computed Tomography (CT) scan of the neck was suggestive on an abscess in the superior portion of the right digastric and sternocleidomastoid muscles. An FNAC (Fine Needle Aspiration Cytology) was done which yielded cellular and epithelial debris with no evidence of infectious or inflammatory pathology.

Under general anesthesia, patient supine, neck extended and limits of the swelling marked previously (Figure 1), surgery revealed a well-defined cyst (Figure 2) containing minimal mucoid content that could be easily separated from the surrounding tissue (Figure 3).

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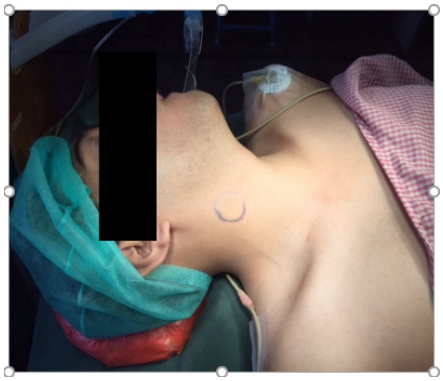

Figure 1: Operative Positioning.

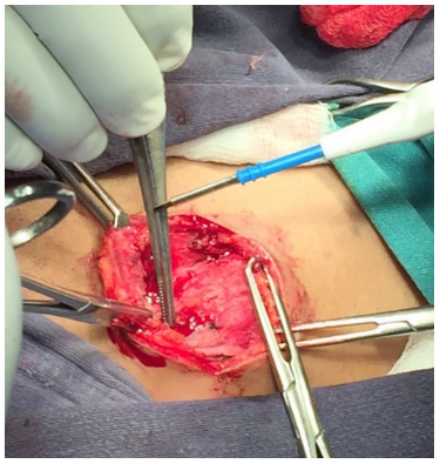

Figure 2: Well-defined cyst.

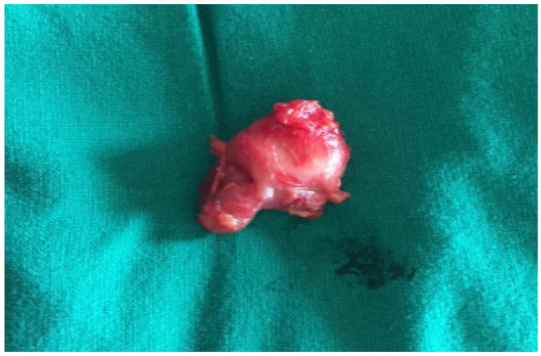

Figure 3: Excised Specimen.

Histopathology revealed a cystic cavity lined by epithelium and the presence of germinal centers in the underlying stroma. No granulomas or acid fast bacilli were seen. The swelling was thus reported to be a branchial cyst.

The patient was counselled regarding the possibility of undiagnosed tuberculosis however he preferred to withhold anti-tubercular therapy. Post-operative period was uneventful and at follow-up at 6 months he did not have any complaints, and ESR had settled to normal limits.

Discussion

Branchial cleft cysts are common congenital abnormalities in children, and represent failure of closure of a branchial cleft, and may manifest as a unilateral swelling, fistula, sinus, or a combination of these pathologies, with or without suppuration [1]. Most branchial cleft anomalies are due to persistence of the second cleft, with rare cysts arising from failure of obliteration of other clefts. They may present anywhere on the lateral side of the neck from below the external auditory canal to above the hyoid bone, usually anterior to the sternocleidomastoid muscle and posterior to the submandibular angle [1].

Presentation in adults is unusual and it is imperative to rule out more malevolent pathologies including metastatic malignant deposits in the lymph nodes, primary malignancy like lymphoma and granulomatous infections such as tuberculosis [2].

There are four theories regarding origin of branchial cleft cysts [3]:

- Incomplete obliteration of brachial mucosa
- Persistence of vestiges of the pre-cervical sinus
- Thymo-pharyngeal ductal origin
- Cystic lymph node origin – cystic change being stimulated by entrapped epithelium which may be derived from the branchial cleft, pharyngeal pouch or the parotid gland

In adults any neck mass should raise the suspicion of malignancy. Squamous cell carcinomas of the head and neck are known to metastasize via lymphatics and secondary deposits in the neck are common. CT is the imaging modality of choice to differentiate benign (reactive) and malignant node involvement with criteria including the node size, shape, their grouping, central necrosis and extra-capsular spread commonly used to determine the pathological nature. Lymph nodes larger than 15mm in levels I and II and greater than 10mm in levels III to VII are considered malignant [4]. CT findings of increased thickness of cyst wall, extra-capsular extension, heterogeneity and septations are more often associated with malignant cysts whereas benign branchial cleft cysts are larger and more homogenous; and fat stranding and calcifications are comparable between both [4].

In adults without smoking or alcohol being the causative factors, infection with Human Papilloma Virus-17 (HPV-17) has been implicated especially in relation to cystic node metaplasia [5]. These cases in younger adults are often misdiagnosed as congenital cystic swellings, with an indolent malignancy brewing beneath. The usual site of HPV-associated cystic adenopathy is akin to that

of the classic location of branchial cleft cysts arising from the second cleft – between the sternocleidomastoid, submandibular gland and the carotid sheath [4].

FNAC further helps confirm the tissue diagnosis, as in our case. The lining of the cyst is usually stratified or pseudostratified squamous epithelium, and may occasionally be columnar and ciliated, and the surrounding stroma is rich in lymphoid tissue [6].

Other differentials to consider include thyroglossal cyst, HIV-related lymphadenopathy, cat-scratch disease, sarcoidosis, and as in our case, tubercular scrofula [7]. Treatment is complete excision of the cyst (Figures 1-3), as any residual tissue can be a source of recurrence, or rarely, carcinoma [7].

Conclusion

Though essentially a benign pathology that can be generally managed without much hassle, branchial cleft cysts are uncommon in adults. A neck mass in an adult requires thorough investigation to rule out malignancy or granulomatous disease. In this case, the clinical picture mimicked that of tubercular lymphadenitis, with the diagnosis ultimately revealed on histopathological examination to be a branchial cyst cleft. Thus, it is important to keep in mind branchial cleft anomalies as a differential diagnosis of a neck mass even in adults.

Conflict of Interest: None to declare

Source of Funding: None

Ethical consideration: Consent for use of clinical photographs was obtained.

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