

Case Report

DOI: <http://dx.doi.org/10.18203/2349-2902.ijssurgery20162768>

A second branchial cyst, masquerading as lipoma, a mistaken diagnosis supported by radiology and fine needle aspiration cytology: case report

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Received: 26 April 2016

Accepted: 03 June 2016

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ABSTRACT

At the fourth week of embryonic life, the development of four branchial clefts result in five branchial arches, which contribute to the formation of various structures in the head and neck. We report a case of second branchial cleft cyst in a 50 years old lady for last 30 years. The cyst did not develop any complication in spite of long duration. The mass had been evaluated in past and she underwent ultrasonography (USG) and fine needle aspiration cytology (FNAC). Again, we evaluated the patient with USG, contrast enhanced computer tomography (CECT) and FNAC. The final diagnosis on both the occasions was lipoma neck. The mass was found to be second branchial cyst on exploration under local anaesthesia and same was confirmed by histopathology. We wish to highlight the limitation of radiology and cytology the diagnosis of branchial cleft cysts. The magnetic resonance imaging (MRI) may have clinched the exact diagnosis, which was not done in this case. The operating surgeons should always keep in mind these limitation and be prepared for surprises in dealing with the neck masses.

Keywords: Branchial cyst, USG in branchial cyst, FNAC in branchial cyst, CECT in branchial cyst

INTRODUCTION

At the fourth week of embryonic life, the development of four branchial clefts results in five branchial arches. The buried clefts become the ectoderm lined cavities, which ultimately involute completely.

If a portion of cleft fails to involute completely, the entrapped remnant forms an epithelial lined cyst with or without a sinus tract to the overlying skin.^{1,2} We are reporting an interesting case of neck swelling of 30 years duration, masquerading as lipoma in middle aged women.

CASE REPORT

A 50 year lady, presented with solitary, painless mass on the left side of neck for the last 30 years. The mass was

insidious in onset and has progressively increased in size. There was no history of pain or any discharge. Patient had been evaluated 15 years back and underwent ultrasonography (USG) of the neck followed by fine needle aspiration cytology (FNAC).

The diagnosis of lipoma neck supported by USG and FNAC was made at that time. On examination, there was single, well defined swelling of 05×05 cm size, in the left submandibular region, in front of sternocleidomastoid (SCM) muscle. The superior margin of swelling was 01 cm below the mandibular margin as shown in figure 1a. The local temperature of swelling was normal; it was non-tender, smooth surfaced soft in consistency, well defined margins. The patient was evaluated with USG, FNAC and contrast enhanced computer tomography (CECT). USG revealed presence of well defined,

hypoechoic, compressible, elliptical mass in the left submandibular region. It showed multiple echogenic lines with no internal vascularity on Doppler. The CECT showed large well defined lesion of size $4.7 \times 4.3 \times 4.2$ cm (AP \times TR \times CC) abutting the carotid vessels medially, parotid gland laterally and SCM muscle inferiorly. On post contrast images, no enhancement was seen. On CECT lipoma/neurofibroma/lymph node mass were given as differentials as shown in Figure 1b. The FNAC result confirmed the diagnosis of lipoma.

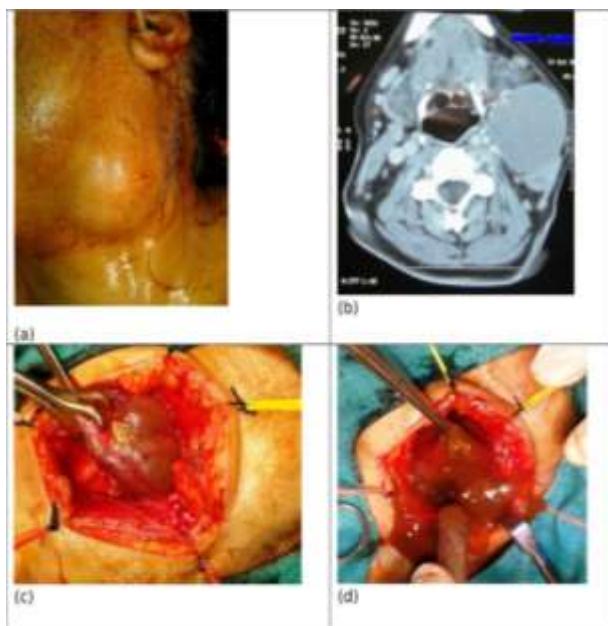


Figure 1: (a) Pre-operative photograph, showing large swelling in left mandibular region; (b) CECT images showing large well defined lesions of size $4.7 \times 4.3 \times 4.2$ cm (AP \times TP \times CC) abutting the carotid vessels medially, parotid gland laterally and SCM muscle inferiorly. (c, d) Intra-op showing thin walled cyst, containing thick, viscous material.

The patient was planned for excision biopsy under local anaesthesia (Lignocaine 0.1% with Adrenaline + Bupivacaine 0.4% mixture). On exploration, it was realised that we are dealing with the branchial cyst and it was going deep beyond carotid bifurcation. The cyst wall was very thin and got ruptured during manipulation. The cyst was full of brownish coloured, thick, viscous gelatinous material as observed in Figure 1c, 1d. With the help of some added sedation, the swelling was mobilised all around and the part of swelling going beyond the carotid bifurcation was suture ligated, as it was not possible to do further dissection under LA and consent for general anaesthesia was denied.

The final HPE report confirmed it to be branchial cyst with cyst cavity lined by columnar epithelium.

In post-operative period, the patient was subjected to ENT examination, no fistula opening was detected in posterior tonsillar region. The patient is on regular follow

up for last one year and no trouble has been reported so far.

DISCUSSION

Anomalies of the second branchial cleft account for approximately 90% of all cases.³ Both MRI and CT scanning are preferred in the evaluation of branchial cleft cysts.^{4,5} The choice of imaging technique depends on the regional preferences, MRI is preferred over CT for Type I first branchial cleft cysts and for parapharyngeal masses. It reliably confirms the cystic nature of the mass and more precisely defines the extent of the lesion and its relationship to the surrounding structures. It is also believed that all the clinically relevant information is available as clearly on CT scans as on MRI but with lower costs and with an easier imaging process.⁵ Limitations of CT and MRI are that both are unable to distinguish a branchial cleft cyst from a lymphangioma in children or metastatic squamous cell carcinoma from cervical nodes in adults.⁵

The sensitivity of fine needle aspiration cytology and frozen section for detecting branchial cleft cysts has been reported to be 75% and 100% respectively.⁶

In this case, the cyst wall was thin and the cyst was full of gelatinous material matching the consistency of fat. This could have been the reason that the lipoma was given as a diagnosis in all the investigation, as these investigations failed to pick up the interface between cyst wall and its contents. FNAC also failed to clinch the right diagnosis, may be due to fatty contents matching the aspiration cytology of lipoma. The treatment of branchial cyst is complete surgical excision and ligation of any residual tract.⁷

We wish to report this case to highlight the limitations of USG, CECT and FNAC in diagnosis of branchial cyst. The MRI may have provided the exact diagnosis, which was not done in this case. The operating surgeons should always keep in mind these limitation and be prepared for surprises in dealing with the neck masses.

CONCLUSION

The management of colorectal cancer has progressed over the past few decades because of many advances, including those in genetics, pathology, imaging, medical oncology, radiation oncology, and surgery.¹⁶ Undoubtedly, the management of patients afflicted with colorectal cancer will evolve as advances continue to be made in the multiple disciplines that contribute to the diagnosis and treatment of colorectal cancer.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Kumar V, Bhandari JS, Sharma A, Awasthi S. A second branchial cyst, masquerading as lipoma, a mistaken diagnosis supported by radiology and fine needle aspiration cytology: Case Report. *Int Surg J* 2016;3:1656-8.