

# Solitary nodal metastases presenting as branchial cysts: A diagnostic pitfall

Rudraksh Gupta<sup>1\*</sup>, Arjun Narula<sup>2</sup>, Nikhil Bansal<sup>3</sup>, Hemant Kumar Mishra<sup>4</sup>

<sup>1,2,3</sup>||<sup>rd</sup> Resident, <sup>4</sup>Professor and HOD, Department of Radiodiagnosis, Mahatma Gandhi Medical College and Hospital, Sitapura Industrial Area, Jaipur, Rajasthan, INDIA.

Email: [drudrakshgupta@gmail.com](mailto:drudrakshgupta@gmail.com)

## Abstract

A subset of metastatic squamous cell carcinoma of the head and neck presents as cystic masses in the neck. Often, distinguishing between these cystic metastases of squamous cell carcinoma from benign cystic neck lesions, such as branchial cleft cyst, can be very challenging. We present as case which presented to us with imaging characteristics of atypical features of branchial cleft cyst. Histopathological investigations revealed it to be a squamous cell carcinoma.

**Keywords:** branchial cyst, squamous cell carcinoma, fine needle aspiration cytology (FNAC).

## \*Address for Correspondence:

Dr. Rudraksh Gupta, Resident, 4Professor and HOD, Department of Radiodiagnosis, Mahatma Gandhi Medical College and Hospital, Sitapura Industrial Area, 302022 Jaipur, Rajasthan, INDIA.

Email: [drudrakshgupta@gmail.com](mailto:drudrakshgupta@gmail.com)

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## INTRODUCTION

A subset of metastatic squamous cell carcinoma of the head and neck presents as cystic masses in the neck. Often, distinguishing between these cystic metastases of squamous cell carcinoma from benign cystic neck lesions, such as branchial cleft cyst, can be very challenging<sup>1,2</sup>. Squamous lining cells in benign cystic lesions may exhibit significant cytologic atypia, raising concern for squamous cell carcinoma. The challenge in distinguishing benign from malignant cystic squamous lesions of the neck is made more difficult when evaluating fine needle aspiration biopsies given the limited sample size. Herein a patient presented radiologically with all features of branchial cleft cyst and turned out to be metastatic squamous cell carcinomas on fine needle aspiration cytology.

## CASE REPORT

A 28 year old female presented with a solitary, painless mass in the neck. The swelling was smooth, nontender, fluctuant present at lower one third of the anteromedial border of the sternocleidomastoid muscle. Lab investigations are normal. Subsequent XRAY, USG, CT and MRI were done and swelling was diagnosed as branchial cyst.

### Radiological Investigations

#### Ultrasound

- A well defined round to oval cystic lesion of size approx 4 x 3 x 2 cm is seen in right submandibular region.
- The lesion seems to compress carotid and jugular vessels.
- There is mild displacement of submandibular gland anteriorly.
- There is mild displacement of adjacent structures however no obvious evidence of invasion is seen.
- There is no internal vascularity uptake on doppler examination.
- There is no evidence of septation/soft tissue density or calcification noted.

#### CT Scan

- Rounded, sharply circumscribed
- Fluid density centrally
- Thin wall
- Extension of the cyst wall between the ICA and ECA just above the carotid bifurcation

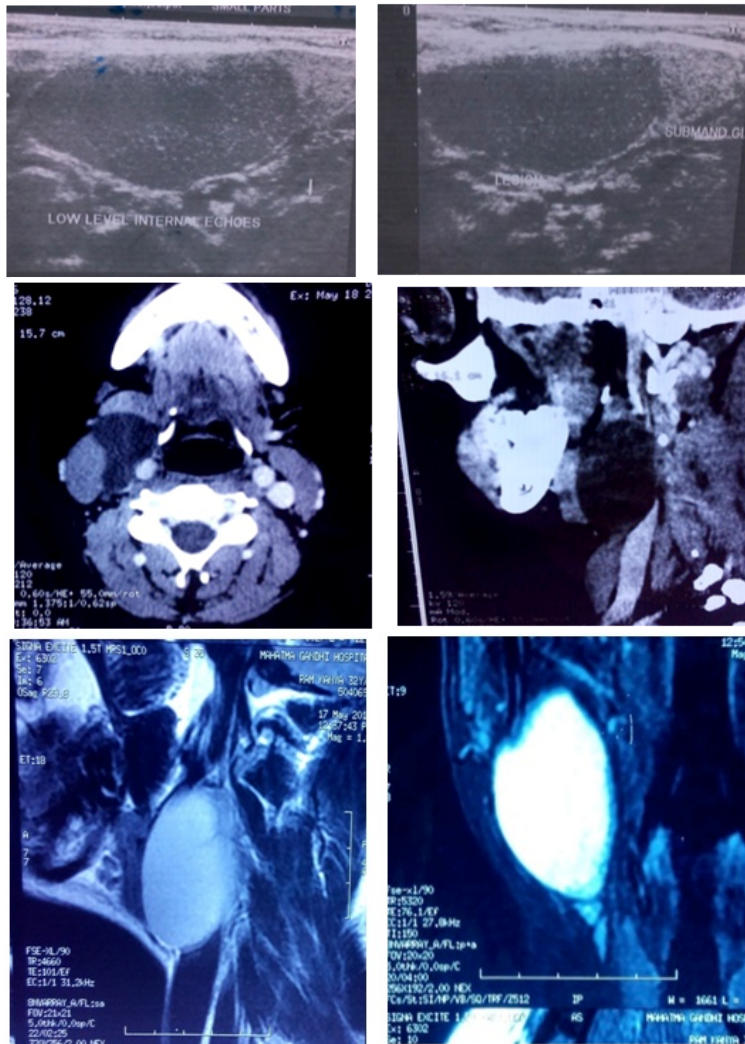
(sometimes referred to as the notch sign) is said to be ‘characteristic’<sup>2,3</sup>.

**MRI Scan**

- A well defined cystic lesion is seen in the right carotid space at and above the level of bifurcation of right common carotid artery appearing hypointense on t1 and hyperintense on t2 and stir images. Thin internal septations are seen in the lesion. The lesion measures 3.6 cm x 2.4 x 4.8 cm.
- The lesion is situated lateral to the carotid

vessels, anterior to right internal jugular vein, antero medial to the sternocleidomastoid muscle and posterior to right submandibular salivary gland.

- Subcentimetric sized lymph nodes are seen in bilateral submandibular regions and left side level 2.
- Nasopharynx, oropharynx and larynx appears normal.



**Figure 1a and 1b:** Ultrasonography show a cystic structure with low level internal echoes  
**Figure 2:** Contrast enhanced CT(Axial and sagittal sections) show well defined thick walled cystic structure in the right carotid space at and above the level of bifurcation of right common carotid artery  
**Figure 3:** MRI: A well defined cystic lesion is seen in the right carotid space at and above the level of bifurcation of right common carotid artery appearing hyperintense on sagittal T2 weighted and coronal STIR images. Thin internal septations are seen in the lesion

**DISCUSSION**

The case presented was initially undiagnosed clinically and radiologically as branchial cysts. On clinical and

radiological investigations there were no overt indications of malignancy<sup>4</sup>. These cases also demonstrate that a long clinical history is not a reliable distinguishing feature

between branchial cyst and cystic degeneration of metastatic squamous cell carcinoma-these cases had a history of 7 and 9 months. These patients case histories emphasize the importance of considering metastatic squamous cell carcinoma in the differentials diagnosis of cystic neck swellings, even in absence of clinical and radiographic findings<sup>2,4</sup>. Ultrasound, CT, MRI will often reveal irregular thicker walls, heterogeneous internal debris or septations of the wall which would not be expected in branchial cysts, although differentiation is more difficult in infected branchialcysts<sup>1,3,5</sup>. Fine needle aspiration cytology will frequently reveal the true diagnosis although a negative result should always be treated with caution.

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