

# Unusual Metastatic Tumours Of The Parotid Gland -- Report Of Two Cases.

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**Key words :** - Parotid gland tumors, Metastases, CT

## INTRODUCTION:

An isolated parotid mass usually indicates a primary neoplasm. The parotid gland and its lymph nodes may also be sites of metastatic disease from regional and distant primary neoplasms. We report 2 rare cases of metastatic involvement of the parotid gland, one from undifferentiated nasopharyngeal carcinoma and the other from small cell carcinoma of lung which has not been reported so far to the best of our knowledge.

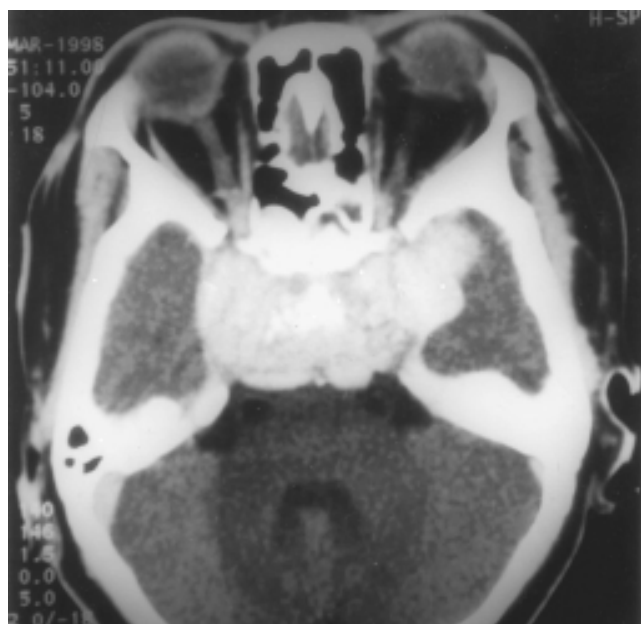


Fig 1(a): Axial CT scan reveals an enhancing nasopharyngeal mass with intracranial extension.

## CASE REPORT:

Case 1: A 14 yr girl presented with pain in the left side of

her throat, headache, vomiting and lymph nodal swelling of the left side of the neck of 3 months duration. CECT study revealed an enhancing soft tissue mass in nasopharynx with destruction of the skull base with intracranial extension. (Fig 1a) Multiple enhancing enlarged cervical lymph nodes and an enhancing rounded soft tissue mass in the left parotid gland were noted (Fig 1b and 2a) An FNAC was performed of the parotid mass and nodal mass, which revealed metastatic involvement from nasopharyngeal carcinoma. The patient was treated with chemotherapy and radiotherapy. Follow-up CECT 8 months later revealed regression of the nasopharyngeal tumor with complete resolution of the parotid mass and cervical lymph nodes. (Fig 2b) The patient is on regular follow-up.

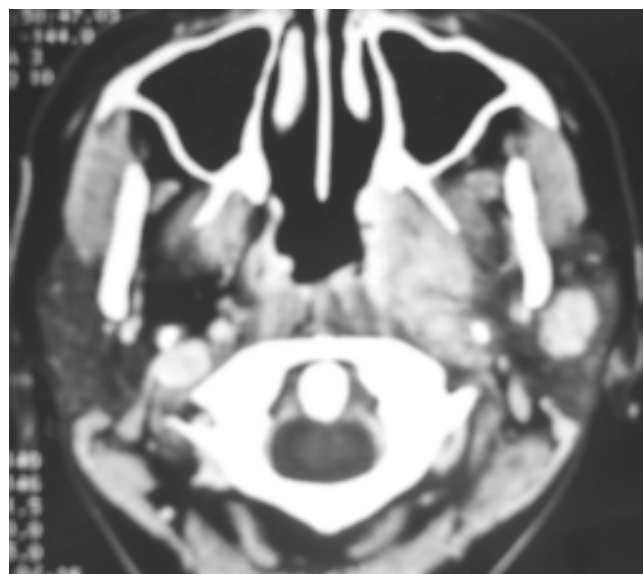


Fig 1(b): Axial CT scan demonstrates enhancing oval soft tissue mass with sharp margins within the left parotid gland.

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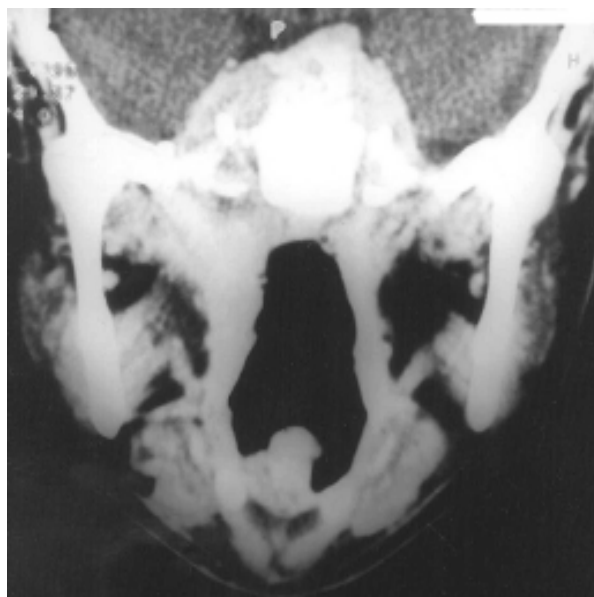


Fig 2: Regression of the nasopharyngeal mass and resolution of the parotid lesion is noted in the follow-up scans after chemo and radiotherapy.



Fig 3(a): An irregular enhancing mass in the right upper lobe abutting the pleura with associated mediastinal lymphadenopathy is seen in the axial post contrast CT thorax. (HP: Small cell carcinoma)



Fig 3(b): Axial CT neck reveals enhancing lobulated mass in the superficial lobe of the right parotid gland.

Case 2: A 60 yrs man with poor general health presented with cough and right-sided parotid swelling of 2 months duration and a single episode of hemoptysis. CECT study of thorax revealed an enhancing spiculated soft tissue mass in the periphery of right upper lobe with multiple bilateral parenchymal and pleural nodules along with mediastinal lymphadenopathy (Fig 3a). CECT of neck revealed an enhancing spiculated soft tissue mass in the right parotid gland (Fig 3b). FNAC from the right parotid and lung mass both revealed small cell carcinoma cells. The patient was advised radiotherapy in his hometown and is lost to follow-up.

## DISCUSSION:

The lymphatic anatomy of the parotid gland is complex with abundance of lymph nodes. In 1888 Sappey [3] published his classic dissertation on the lymphatic system with the depiction of lymphatic anatomy of head and neck on lithographs. Dye injections by Delamere et al [4] in 1903 revealed that lymph from the scalp, face and external ear drained into the lymph nodes associated with the parotid gland.

The parotid lymph nodes average 20-30 in number and develop embryologically before the parotid gland [5]. These nodes are divided into paraglandular and intraglandular nodal subgroups. The paraglandular nodes are predominantly along the superficial temporal vessels in preauricular area and receive drainage from the lateral and frontal aspects of scalp, ear, lateral half of lower eyelid, upper eyelid and root of nose.

The intra-glandular nodes are located in between the superficial and deep portions of the gland along the posterior facial vein and are both superficial and deep to the facial nerve. These nodes drain from the lateral and frontal aspects of the scalp, lateral aspects of the lids, lacrimal gland, conjunctiva, external auditory canal, parotid gland and paraglandular nodes. The intraglandular and paraglandular subgroups are a single functional unit and the efferent lymphatics from the parotid nodes drain into superior deep cervical nodes.

Cutaneous neoplasms of the face and scalp are the most common primary sites with melanomas and squamous cell carcinomas accounting for over 80% of metastatic lesions [1]. Bergerson et al [6] have reported that upto 80% metastatic disease in parotid results from cutaneous lesions evenly distributed between squamous cell carcinoma and melanoma.

Metastatic disease in the parotid originating from nasopharynx is rare prompting isolated case reports. Only 11 cases have been reported in the University of Hamburg Salivary Gland Register [2]. Several mechanisms have been put forward to explain the spread from nasopharynx

to parotid parenchymal [1,5]

- (1) Tumor can spread to the intraglandular parotid nodes via retropharyngeal nodes.
- (2) Spread may occur indirectly via paraglandular extension to nodes superficial or deep to the parotid capsule adjacent to parotid parenchyma and
- (3) Retrograde extension from massive metastasis in the neck, obstructing the normal lymphatic flow.

Distinction between primary and metastatic masses in the parotid is important from both diagnostic and therapeutic standpoint. Imaging with CT or MRI can help in determining the location and extent of disease and in more extensive neoplasms, the relationship with adjacent structures such as carotid artery, mandible and cranial base.

FNAC of parotid gland masses is accurate in about 85% of cases in distinguishing benign from malignant lesions [7] and is also accurate in differentiating metastatic lesions from primary neoplasm of the parotid.

Metastasis from distant (infraclavicular) primary tumors to the major salivary glands or their lymph nodes are rare with only 2 large studies having been reported to date revealing the incidence of such cases. In data compiled by Zachariades [8], only 10 out of 414 metastases to parotid gland were from distant primary carcinomas. In a study of 10,944 cases in the University of Hamburg's Salivary Gland Register [2], only 12 cases originated from a primary in lung, most of them metastasizing to the salivary parenchyma rather than intraglandular node.

## CONCLUSION:

A metastatic lymph node to the parotid gland can be identified on CT as enhancing intra-glandular masses. An awareness of the possibility of metastatic lesions to the parotid gland is important as such findings may have a major impact on patient management.

## REFERENCES:

1. Ord RA, Ward-Booth RP, Avery BS. Parotid lymph metastases from primary intraoral squamous cell carcinoma. *Int J Oral Maxillofac surg* 1989; 18:104-106.
2. Seifert G, Hennings K, Caslitz J. Metastatic tumors to the parotid and submandibular glands- analysis and differential diagnosis of 108 cases. *Pathol Res Pract* 1986; 18:684-692.
3. Saapey MPC. *Traite d'anatomie descriptive. Anatomic, Physiologic, Pathologie des Vaisseaux Lymphatiques consideres chez l'Homme et les vertebres*, 4th ed. Paris. A Delahaye & E Lecrosnier 1988.
4. Delamere G, Poirier P, Cuneo B. *The lymphatics*. Translated into English by Cecil H Leaf, London. Constable of London, 1903 o266.
5. Conly J, Arena S. Parotid gland as a focus of metastasis. *Arch Surg* 1963; 87:757-764.
6. Bergersen PJ, Kennedy PJ, Kneale KL. Metastatic tumors of the parotid region. *Austr N Z J Surg* 1987; 57:23-26.
7. Weinberger MS, Rosenberg WW, Meurer WT et al. Fine Needle aspiration of parotid gland lesions. *Head and Neck* 1992; 14: 483-487.
8. Zachariades N. Neoplasm metastatic to the mouth, jaws & surrounding tissues. *J Craniomaxillofac Surg* 1985; 17:283-290.

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