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IP Indian Journal of Anatomy and Surgery of Head, Neck and Brain

Journal homepage: <https://www.ijashnb.org/>

Short Communication

Tubarial salivary gland – A new kid on the block

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ARTICLE INFO

Article history:

Received 20-05-2022

Accepted 16-06-2022

Available online 06-07-2022

Keywords:

Radiotherapy

Salivary gland

PET scan

ABSTRACT

In 2020, a new pair of salivary glands was discovered between the nasal cavity and throat called ‘Tubarial salivary gland’. Though they were first discovered in Netherlands Cancer Institute during PET CT scan, and it is significant only during radiotherapy, the discovery itself is engulfed in various controversies. A review of literature along with the current locus standi about the latest salivary glands is done.

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1. Introduction

The human body contains a pair of previously overlooked and clinically relevant macroscopic new bilateral salivary gland called “tubarial glands”, which were recently described in patients with cancer. The scientists from Netherlands Cancer Institute (NCI) while doing a routine screening of 100 prostate cancer patients using prostatic-specific membrane antigen (PSMA) positron-emission tomography/computed tomography scan accidentally found the presence of large masses of glandular tissue in human nasopharynx in all patients. This discovery was done due to prostate-specific membrane antigen ligands (PSMA PET/CT) in a nuclear medicine approach that bears high diagnostic accuracy for salivary glands and subsequently the finding was confirmed histologically in the cadavers. Thus, tubarial glands are described as being located between the throat and the nasal cavity, notably torus tubarius, from which they derive their name. The secretions of these glands are poured onto the dorsolateral wall of the nasopharynx and lubricate and moisten the upper part throat located behind the nose (nasopharynx) and behind the mouth (oropharynx).

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On an average, they are about 4 cm (1.5 inches) long and these glands were categorized as seromucous glands with ducts by histological histochemical studies.[Figure 1]

The surgical importance of these glands is during radiotherapy including the pharyngeal area of these glands, can lead to xerostomia and dysphagia, suggesting, first, a major functional role for these recently described organs, and second, a potential for averting these symptoms by avoiding radiotherapy/ radiation of this region.¹

2. Tubarial Glands and Sjogren’s Syndrome

In a study, it was speculated that tubarial glands may be implicated in Sjogren’s syndrome (SS) and that might be the reason why some patients with SS present with upper airway dryness, ultimately leading to improve SS classification and diagnostic criteria. It was suggested that a multicenter PSMA PET/CT study of SS patients with or without a dry rhinopharynx could shed light into tubarial glands’ role in SS. If it were possible to anatomically access these glands and to conduct biopsies, one could confirm whether they are involved in SS or not too. In the former case, SS classification and diagnostic criteria might be reformed.²

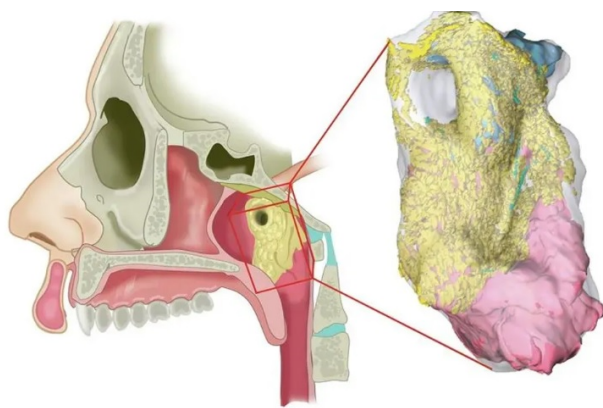


Fig. 1: Tubarial salivary gland location

3. Controversies on Tubarial Salivary Glands

It remains to be seen if the glands are classified as minor or major salivary glands but the discovery of a new body structure in 2020 certainly sparks wide scientific interest. The tubarial glands exhibit several aspects analogous to the minor salivary glands of the palate, potentially suggesting a designation as minor rather than major glands for the region in question. The authors concede these resemblances, stating “the tubarial glands have many similarities with the palatal conglomerate of microscopic glands”.³

The controversy about tubarial salivary glands begins with the location of the glands, which suggests that their fluids do not reach the mouth and that they are therefore not involved in the production of saliva, and due to the glands’ apparent lack of amylase, a key protein found in saliva, it was not appropriate to classify the tubarial glands as salivary glands at all. Another controversy was the gender disparity as 99 out of the 100 patients in the sample used to identify the tubarial glands were male. Because of this gender imbalance, it was thought that it will be important to conduct further analyses to determine if are any differences in these structures in females. There was again a controversy that this discovery of tubarial glands are not new as in the 19th century, anatomists Jean Cruveilhier and Jakob Henle and otologist Adam Politzer described glands in this region of the throat.

4. Importance in Oncology

The sparing of these glands during radiotherapy of head-and-neck cancer patients will relieve them from common posttherapy symptoms which is seen in many of the oncology patients like dryness of the mouth (xerostomia) and difficulty in swallowing (dysphagia).⁴ There is a first

case report which indicates that the “tubarial salivary gland”, like the other large salivary glands in the head and neck area, can also develop malignant degeneration and may develop salivary gland carcinoma.⁵

5. Conclusion

Tubarial salivary glands are the new kid on the block and must undergo several research to establish its place firmly in the annals of Anatomy. If the xerostomia and dysphagia can be prevented in every patient undergoing radiotherapy by saving radiation injury to these tubarial salivary gland, it will help in decreasing the morbidity and mortality significantly in such cancer patients in the future.

6. Conflict of Interest

The authors declare no relevant conflicts of interest.


7. Source of Funding

None.


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Cite this article: Bhattacharya K, Bhattacharya N, Bhattacharya AS. Tubarial salivary gland – A new kid on the block. *IP Indian J Anat Surg Head, Neck Brain* 2022;8(2):80-81.