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Short Communication

Discovery of new salivary gland – A substantial histological analysis

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\section*{Article info}

\textbf{Article history:}
Received 27 March 2021
Received in revised form 1 June 2021
Accepted 3 June 2021
Available online 10 June 2021

\textbf{Keywords:}
Salivary glands
Immunohistochemistry
Tubarial glands
Sublingual gland
COVID-19

Regardless of the COVID-19 pandemic in 2020, discovering a new salivary gland turned into all the rage among the medical fraternity. The significance of the disclosure has been correlated with its clinical relevance in radiotherapy of oropharyngeal carcinoma. However, there are views against this new revelation, owing to the lack of substantial evidence. We have endeavoured to illuminate Tubarial glands with potential shreds of evidence.

\section*{Materials & method}
With these two different schools of thought in mind, we meticulously dissected a small tissue of tubarial glands bilaterally (Fig. 1), from a male cadaver of about 60 years old, obtained by body donation program (AIIMS, Rishikesh) and stained that tissue with H & E and Periodic acid-Schiff (PAS) stains to look into the minor details of the same. We also used Immuno-histochemical markers CD-10 and S-100 mainly to check myoepithelial cells.

\section*{Discussion}
Optimal knowledge of the normal anatomy and function of salivary glands is essential for better interpretation of the images [5]. As such, it is pretty challenging to visualize the minor salivary glands by Conventional imaging techniques and, more so, these newly discovered remotely placed submucous glands (including its duct opening) and interpretation of the same as salivary gland. Salivary glands can be better visualized by positive emission tomography (PET) or computed tomography (CT) with radio-labeled ligands for the PMSA [6]. Even after treatment, to assess the salivary gland’s presence and function by PMSA PET/CT, the thorough knowledge regarding its quantitative physiologic uptake patterns is vital and is presently not well understood. Most
of the time, the imaging experts may not be aware of such obscure structures, limiting the ability to protect their viability during treatment [7,8]. However, Valstar et al., in their study, demonstrated a clearly defined bilateral PMSA positive area along the posterior lateral wall of the nasopharynx extending from the skull base down on the inner side of the superior constrictor muscle in the scans. Since the aforesaid area of interest was predominantly present on the torus tubarius (Eustachian cushion), they called them Tubarial glands. The stained tissue showed predominantly mucous glands with macroscopic ducts opening onto the dorsolateral wall of the nasopharynx. The cells exhibited nearly 100% cytoplasmic expression of PSMA with a preference towards the luminal side and PSMA-ligand uptake, like mucous acini of minor salivary glands present in the palate. They lacked amylase expression indicating the meager count of serous acini, which is on par with sublingual glands [9].

Fig. 1. Schematic representation to show the proposed site of new salivary gland.

Fig. 2. H&E staining of Tubarial glands (10×) represented within the yellow arrows. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Fig. 3. Tubarial glands stained with PAS stain (40×).

Fig. 4. (a) CD 100 staining showing diffuse basal positivity for Myoepithelial cells (40×) represented by yellow arrow. (b) S-100 staining showing diffuse basal positivity for Myoepithelial cells (40×) represented by yellow arrow. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)
Xerostomia is a much-known side effect of lutetium-177-PSMA treatment. The tracer uptake depends on the expression of the PSMA epitome in the glands and directly proportional to the gland’s volume and function [10,11]. It is believed that these tubarial glands play a significant role in nasopharyngeal lubrication and failure of protecting them during radiotherapy treatment of patients with cancers of the head and neck; it can aggravate radiation-induced dysphagia and xerostomia [12,13].

Conclusion

The discovery of the salivary gland sparks a scientific interest that opens the door for further dig on the thrust area with more evidence from physiological studies. The findings of our study indeed add substantial evidence to the much-debated presence of a new salivary gland and the discovery of the same.

Author agreement

All authors have seen and approved the final version of the manuscript being submitted. They warrant that the article is the authors’ original work, hasn’t received prior publication and isn’t under consideration for publication elsewhere.

Conflict of interest

No conflict of interest.

Declaration of interest

There’s no financial/personal interest or belief that could affect the objectivity.

Funding source declaration

No funding.

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