

Accessory Parotid Gland: A Cadaveric Case Report

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Abstract

The accessory parotid gland is an anatomical variation of clinical concern. This case report describes the incidental finding of an accessory parotid gland in a male cadaver of Sri Lankan origin with unknown age, during a routine cadaveric dissection. It was encapsulated and appeared grossly similar to the main parotid gland in terms of color and texture and was adhered to the Stensen's duct in its entire length. The awareness of this anatomical variation is crucial for healthcare professionals, to prevent potential complications during diagnostic and therapeutic interventions in the Sri Lankan population.

Keywords: accessory parotid gland, Anatomical variations, Parotid gland

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Introduction

The accessory parotid gland is an anatomical variation that is described as additional parotid tissue located separate from the main parotid gland. It may complicate parotidectomies, promote parotitis, and serve as a potential site for benign and malignant lesions to arise. Variations in the morphology and anatomical location of the parotid gland have been documented with clinical significance (1).

Accessory parotid tissue is most frequently seen overlying the masseter muscle closely associated with Stensen's duct and is situated between or deep to the zygomatic and buccal branches of the facial nerve (2). The anterior triangle of the neck is the second most typical location of these accessory parotid glands/tissue (3). It has been reported to be found in the middle ear (4), in a remnant of the Rathke pouch (5,6), in the cerebellopontine angle (7,8), in the posterior triangle of the neck (9). Interestingly the presence of heterotopic salivary tissue in the submucosa of the rectum has even been reported (10,11). Accessory parotid tissue is considered as accessory parotid gland when it has contact with the drainage of the Stensen's duct. parotid salivary tissue with no connection to the major gland is considered as ectopic parotid tissue (3). Although the accessory parotid gland (APG) is isolated from the main parotid gland, it is typically located on or above the Stensen's duct (parotid duct) and has tributaries that empty into the major parotid duct (12).

According to a recent review, the overall pooled prevalence of accessory parotid gland was reported to be 32.1%. However, when

considering the regional variations, the Asian population shows the highest prevalence. Interestingly, this variant was most commonly observed as a unilateral structure with nearly equal prevalence on the left and right sides (1, 13).

In humans' parotid gland is the first major salivary gland that begins the embryological development. At the initial stage, thickening of the oral epithelium (parotid anlagen or placode) formation takes place between the fourth and sixth embryonic weeks (14). The opening of the main duct is marked by a dimple that appears in this thickening. Then the invagination of the thickened epithelium into the underlying mesenchyme, cavitation of future ducts, the appearance of parotid lymph nodes, and finally the encapsulation occurs. The most widely accepted concept states that the accessory parotid gland is a structure made up of epithelial remnants that were present in the early stages of embryonic life but normally disappeared later (3).

Since there is an indirect connection between an accessory parotid gland and the main parotid gland through the parotid duct, failing to identify or to remove or irradiate an accessory parotid gland may therefore increase the risk of tumor recurrence in the spread of infections. It is recommended to consider accessory parotid gland tumors in patients presenting with a mid-cheek mass. A study shows 1.23% of accessory parotid gland tumors with a malignancy formation rate of 33.3% among reported 488 parotid tumors (15).

According to three live case reports, a pleomorphic adenoma in a middle-aged woman presented with a mass of the left mid-anterior cheek which showed its relationship to Stensen's duct in CT with sialography, an acinic cell adenocarcinoma of the accessory parotid gland in a young man, and chronic sialadenitis of the accessory parotid gland in an elderly man has reported as complications of the accessory parotid gland (16). Further, the presence of separate duct emptying into the Stensen's duct in an accessory parotid gland affected with pleomorphic adenoma has been reported (17). A case of sialolithiasis leading to inflammation of an accessory parotid gland due to a calculus developed from an accessory parotid gland isolated from the main gland has been reported (18). Apart from these cadaveric studies also have been reported the presence of accessory parotid glands in different countries across the globe including Sri Lanka (19-22). Considering the high prevalence in the Asian region and the significance of the clinical implications it is important to have a detailed cadaveric investigation of this anatomical variant.

Case Report

During routine dissection of the head and neck region in an adult male cadaver of Sri Lankan whose age was not recorded, a (previously unidentified) small glandular structure was observed along the right parotid duct (Stensen's duct) (figure 01). It was located 21.41 mm away from the anterior margin of the main parotid gland. The posterior aspect of the accessory parotid gland adhered to Stensen's

duct in its entire length (figure 02). The accessory parotid gland was located on the lateral side of the masseter muscle. It was encapsulated and the gross appearance was similar to the main parotid gland in terms of color and texture. The mass was an oval shape mass with maximum diameter of the gland was 22 mm and the minimum diameter was 9.18 mm (is it an oval-shaped mass. If so, please mention it and give the diameters). No accessory glands were found on the left side and the left parotid gland appeared to be normal.

The informed consent was obtained from the donor at the time of willed application for body donation and from legal guardians at the time of body donation to be used in research and education purposes.

Discussion

Accessory parotid glands are believed to result from the incomplete disappearance of epithelial remnants during embryonic life (3). In our case report, the size of the accessory parotid gland was relatively larger than the mean values reported in a retrospective radiological study of 800 patients. However, the maximum diameter of 22 mm and minimum diameter of 9.18 mm were within the reported ranges of 3.8–29.4mm and 2.0–10.4 mm respectively (13). Further, our finding was also a unilateral right-sided gland, being in line with most of the previous studies (13). In this case report we found an accessory parotid gland, with a single parotid duct as shown in the case reported by Heidmann et al. (2021) (23).

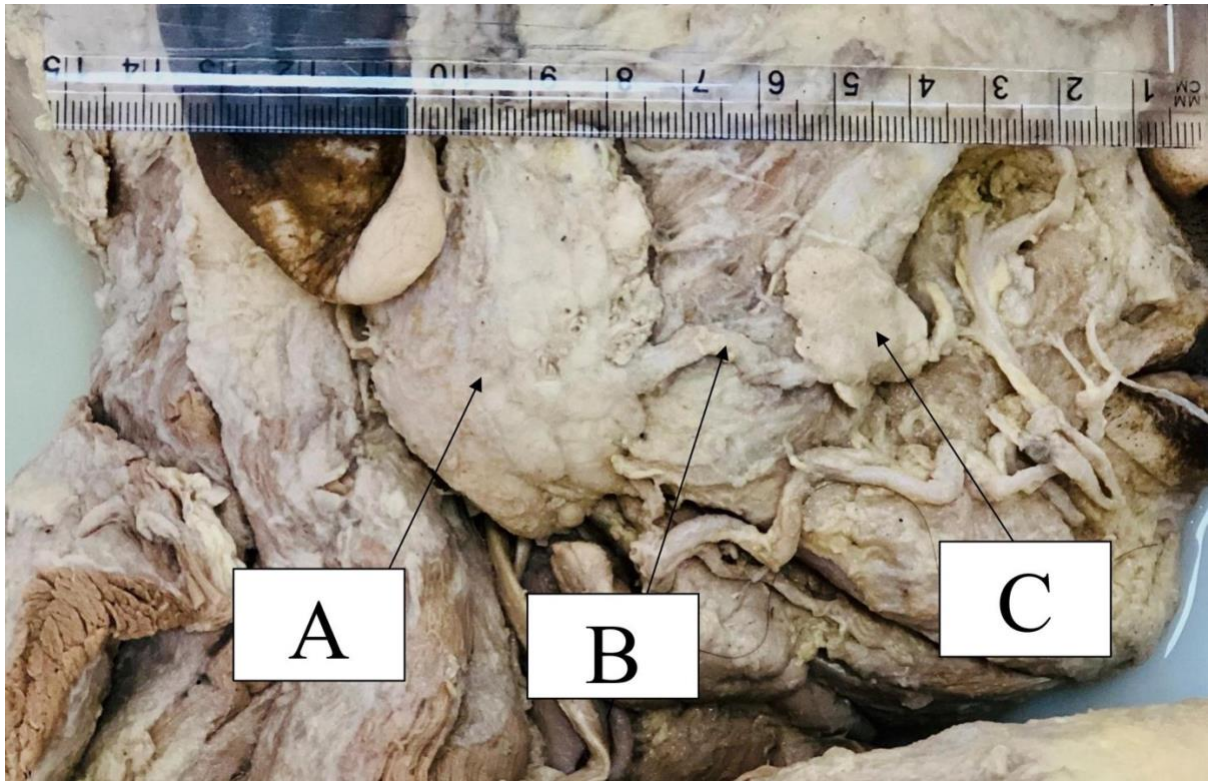


Figure 01: The presence of an accessory parotid gland located separately form the right major parotid gland along the right parotid duct (Stensen's duct)



Figure 02: The posterior aspect of the accessory parotid gland

However, unlike in this case, the present case had no evidence of hypoplasia. Typically, accessory parotid glands are located superolateral to the principal parotid duct and found on the lateral side of the masseter muscle (21). But in the present case, it was embedded in the duct and found overlying the right masseter muscle.

It was recommended to consider accessory parotid gland tumors as a differential diagnosis of asymptomatic mid-cheek lumps, as the most common tumors of the mid-cheek region are of accessory parotid-gland origin (15,24). glandular tissue present in accessory parotid glands has the same cellular and structural characteristics as normal parotid tissue, making it prone to the same types of abnormalities seen in the parotid gland (25). Therefore, it is important to be aware of these variations and extra care should be taken in the resection of an accessory parotid gland that is embedded in the Stensen's duct, which may be more complicated.

Conclusion

In conclusion, the accessory parotid gland is an important anatomical variant that underscores the complexity of the salivary gland system. It is more important variant to be aware of due its clinical relevance. The accessory parotid gland tumors can often present as mobile solid masses in cheeks. Given the potential for misdiagnosis due to their proximity to other structures and variability in presentation, it is essential for clinicians to maintain a high index of suspicion regarding accessory parotid gland

pathologies and to undertake thorough diagnostic evaluations.

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Conflict of Interest: Authors declare that there are no conflicts of interest

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