

Dermoid cyst of the parotid gland: report of a rare entity with radiological findings and treatment approaches

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Dermoid cysts (DCs) are uncommon masses of the head and neck region, and they account for only 7% of all such cysts. They usually arise in the orbit, the floor of the mouth, and nasal regions, and they are rarely seen in the parotid gland. This study reports a case of a 21-year-old man, presented with a parotid mass on left side, with the pathology consistent with 'DC'. The discussion includes the clinical presentation, imaging findings, gross pathology, histologic features, and differential diagnosis of parotid DCs.

Keywords:

dermoid cyst, neoplasm, parotid gland

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Introduction

The parotid glands are potential sites for many abnormal processes including benign and malignant masses. Benign cysts of the parotid gland can be classified as congenital and acquired. The acquired parotid cysts may present as a result of various etiologies such as neoplasm, ductus obstruction, trauma, calculi, and the presence of parasite infections. Congenital cysts consist of first branchial arch cysts, which are further divided into type I (branchial clefts) and type II (branchial pouch anomalies). Type I cysts occur from the first branchial arch, only of an ectodermal origin. Type II cysts originate from the first and second branchial arches and comprise mesoderm and ectoderm [1].

Dermoid cysts (DCs) form from congenital cystic lesions. These cysts include mesodermal and ectodermal elements, such as sebaceous glands and hair follicles. DCs of the head and neck region are very rare and account for only 7% of all such cysts [2]. The predominant areas in the head and neck are the mouth, orbital, and nasal regions (80%), and they have been rarely seen in the parotid gland [3]. When it happens, a correct preoperative diagnosis is needed to differentiate it from a malignancy. The purpose of this study is to present a 21-year-old man with parotid DC and to discuss its clinical presentation, imaging reports, histologic features, differential diagnosis, and the management.

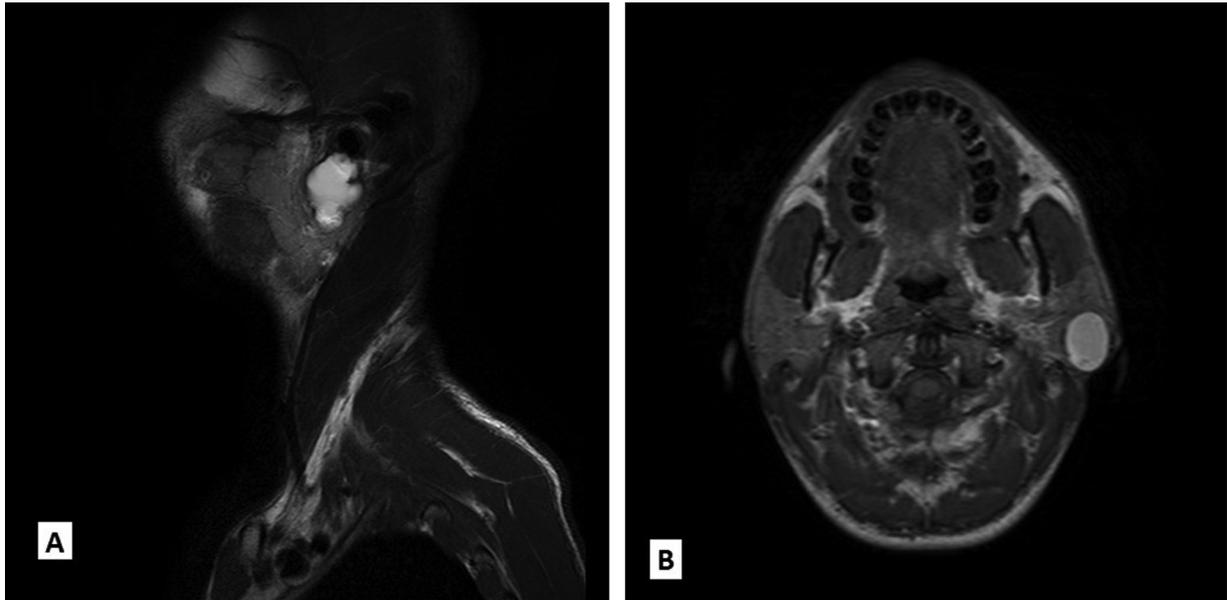
Case presentation

A 20-year-old male patient was admitted to the Ear Nose and Throat Clinic with a history of swelling on

the left side of face for 1 year. Despite a mass noticed belonging to preauricular region, all the other physician examinations including nasal and oral cavity, oropharynx, neck region, and thyroid were all within normal limits. During this time, the mass had grown very slowly. The mass was firm, nontender, nonfluctuant, and ~3×3 cm in diameter on superior portion of the superficial parotid gland. The patient had never mentioned about pain, and facial nerve functions were normal. Moreover, there was no evidence of palpable cervical lymph nodes. The skin overlying the cyst was normal, and there was no evidence of skin invasion. There was no fistula ostium in the oropharynx or piriform sinus that might demonstrate a branchial cyst. Ultrasonography results indicate a 3×3 cm sized, well-circumscribed dense cystic mass, and MRI reported a 2.4×2×3.1 cm diameter, well-circumscribed but also lobule contoured mass in T1 and T2 series, distinct as a hyperintense cystic natured lesion (Fig. 1a and b). Fine-needle aspiration cytology (FNAC) was performed, and the cytological analysis showed nonmalignant anucleated epithelial cells and keratin debris. After FNAC, it was decided to also perform surgery to excise the cyst. The cyst was excised under general anesthesia, with superficial parotidectomy by protecting the facial nerve (Fig. 2a and b). Facial nerve functions of the patient were proper, and any early complications were

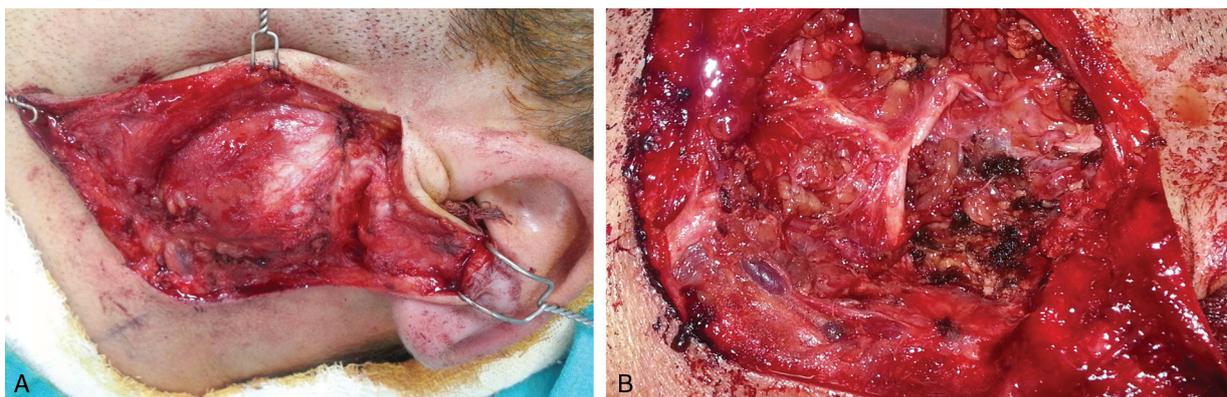
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Figure 1



(a, b) In axial and sagittal MRI, it is seen as well circumscribed, but lobulated; in T1 and T2 sequences, it is seen as a cystic lesion with a hyperintense internal structure.

Figure 2



(a) The image of the intraoperative mass located in the left parotid gland. (b) Postoperative facial nerve appears to be intact.

not developed. Moreover, there was no recurrence monitored at the first year control. Gross pathology of the specimen was a red-tan, soft, spongy tissue with $\sim 3.5 \times 2.0 \times 1.5$ cm diameter. The lumen of the cyst was filled with keratin, and the lining comprised thin, stratified squamous, ortho-keratinised epithelium. The wall of the cyst was composed of compressed, fibrous connective tissue, interspersed with sebaceous glands and focal collections of chronic inflammatory cells.

Discussion

DCs are generally described as benign entities, and 7% of DCs are located in the head and neck region; frequently located in the orbit, the floor of the

mouth, and nose region [4]. It is commonly seen in head and neck region after coccyx and ovary, with a rate of 44.5 and 42.1%, respectively. Although 1–5% of all parotid lesions are cystic, DCs are relatively rare [4]. A total of 20 DCs in the 18 prior case reports have been published in the literature up to date, to our best knowledge.

The major complaints are slow-growing painless masses. In physical examination, it is often palpated as fluctuating or not-fluctuating, mobile, nontender mass. The differential diagnoses include lipoma, branchial cleft cyst, lymphoepithelial cyst, mucous retention cyst, suppurative infections, pleomorphic adenoma, fibroma or neurofibroma, and blockage of the parotid duct [4]. The diagnostic tools such as

ultrasound, computed tomography (CT), MRI, and FNAB can be performed. MRI and CT display information about the structure of the mass and uncover the relationship between surrounding tissues. The mass is usually observed as a cyst having a hypodense center inside the parotid gland parenchyma in CT results. Moreover, in MRI, the diagnosis of lipoma can be removed after the absence of fat vision in the mass. Although preoperative imaging techniques support the diagnosis of parotid DC, a FNAB is a highly effective method of diagnosis.

The definite diagnosis of a parotid DC could not be established by preoperative investigations, in our case. For preoperative imaging, techniques such as ultrasound, CT, MRI, and FNAB can help during the differential diagnosis. Ultrasound may be helpful during differentiating solid, vascular, and cystic lesions. MRI and CT may help in identifying the main structure of the mass and the relationship with the surrounding tissues. In CT, the cysts are usually seen as hypodense masses inside the parotid gland parenchyma. In MRI, the fat mass can support the lipoma diagnosis. However, Baschinsky *et al.* [5] and Islam and Hoffman [6] reported that FNAC evaluation was effective as a preoperative diagnostic procedure. The diagnostic value of FNAC in salivary gland tumors revealed a sensitivity and specificity of 73 and 91%, respectively, for distinguishing a benign tumor from a malignant tumor [3]. Positive FNAC result for malignancy was predictive of the final histologic diagnosis, although negative FNAC result was of low predictive value. Misinterpretation between benign and malignant tumors has been documented, emphasizing that the final treatment decisions should not be based on cytological data alone. Although preoperative imaging techniques support the diagnosis of parotid DC, a FNAB is a highly effective method of diagnosis. In our case, MRI and FNAC were evaluated preoperatively. Moreover, parotid gland tumors, first branchial cleft cysts, and other pathological entities such as mucous retention cysts, unilateral blockage of the parotid ducts, post-traumatic sialoceles, and lymphoepithelial cyst [7] must be considered as

differential diagnoses. Malignant transformation of DC is reported as 5% in locations outside of the neck region [3]. Especially in patients with ovarian localized mass, transformation is more frequently reported. The most common malignant transformation is to squamous cell carcinoma. Malignant transformation is extremely rarely in the head and neck region, and only one case with sublabial transformation to squamous cell carcinoma has been reported in the literature [8]. Long-time existence and the rapid growth of DC must be thought as malignant transformation, and surgery is required for the definite diagnosis and the cure.

Conclusion

The occurrence of a DC in parotid gland is extremely rare. We have reported the case of a patient with a 20-year history of an unresolved left facial tumor. It is important to consider a DC in the differential diagnosis of a parotid gland mass. Despite the benign nature of parotid DCs, surgical resection is the best choice for the definitive treatment and cure.

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Conflicts of interest

There are no conflicts of interest.

References

- 1 Aynehchi B, Newman JG, Brooks JS. Dermoid cyst of the parotid gland. *Ear Nose Throat J* 2010; 89:E4–E6.
- 2 Saylam G, Tanrikulu S, Dursun E, Iriz A, Eryilmaz A. A mass at fat density in the parotid gland: dermoid cyst or lipoma. *B-ENT* 2009; 5:43–45.
- 3 Gonzalez-Perez LM, Crespo-Torres S. Dermoid cyst of the parotid gland. *Oral Radiol* 2013; 29:92–95.
- 4 Yigit N, Karslioglu Y, Yildizoglu U, Karakoc O. Dermoid cyst of the parotid gland: report of a rare entity with literature review. *Head Neck Pathol* 2015; 9:286–292.
- 5 Baschinsky D, Hameed A, Keyhani-Rofagha S. Fine-needle aspiration cytological features of dermoid cyst of the parotid gland: a report of two cases. *Diagn Cytopathol* 1999; 20:387–3668.
- 6 Islam S, Hoffman GR. Parotid dermoid cyst: a rare entity. *J Laryngol Otol* 2009; 123:127.
- 7 Kanaujia SK, Singh A, Nautiyal S, Ashutosh K. Basal cell adenoma of parotid gland: case report and review of literature. *Indian J Otolaryngol Head Neck Surg* 2015; 67:430–433.
- 8 Devine JC, Jones DC. Carcinomatous transformation of a sublingual dermoid cyst: a case report. *Int J Oral Maxillofac Surg* 2000; 29:126–127.