Case Report

Parotid Gland Teratoma: An Unusual Tumor in an Uncommon Location

Himanshi Avinash Jain[1], Puneet Kumar Bagri[2], Amruta Tripathy[1], Kiran Chaudhary[3]

From, [1]Consultant, [2]Senior Consultant & Head, [3]Resident, Department of Radiation Oncology, Shree Krishna Hospital, India

ABSTRACT

Extragonadal Teratomas are seen in 15% of cases and only 3-5% of such cases occur in the head and neck region. However, Teratomas rarely occur in the parotid gland. We present such a case here. A 10-year-old female presented with swelling over the left cheek. After radiological investigations, the patient was planned for surgical excision. Histopathological examination showed a well-encapsulated tumor with cystic and solid components, mainly comprised of mature neural tissue. Foci of glandular tissue and thyroid tissue and extensive areas of mature cartilage were seen. These features were suggestive of mature cystic teratoma of the parotid gland. The patient recovered well postoperatively and now is on follow-up. Due to the rarity of such lesions, it is difficult to diagnose them solely based on radiological investigations. Hence Surgical excision becomes a mainstay of treatment.

Key words: Teratoma, Tumor, Parotid, Salivary gland

Teratoma is a germ cell tumor that develops from pluripotent stem cells and consists of tissues derived from more than one of the three germ cell layers. These tumors usually occur in the testes and ovary. In 15% of cases, these tumors can occur in the extragonadal regions and only 3 to 5% occur in the head and neck region (1, 2). However, teratomas rarely occur in the parotid gland. These tumors have a female preponderance and usually occur in childhood or infancy. Adult cases are rare. Thus, we here report one case of mature cystic teratoma of the parotid gland which was diagnosed on histopathological examination. Due to the rarity of such tumors, adequate literature is not available to manage such tumors. The aim of this article is to add to the literature so as to help in the further management of such patients.

CASE REPORT

A 10-year-old female presented to the OPD at our Institute with complaints of swelling over the pre-auricular region of the left cheek for six months. The swelling was progressively in size and associated with pain. She then underwent Magnetic resonance imaging (MRI) of the neck region which showed a 26*33*44mm lesion arising from the superficial lobe of the parotid gland, heterogeneously hyperintense on T2W images (Figure 1). The lesion also extended to the adjacent deep lobe of the parotid gland and into the adjacent subcutaneous plane of the left parotid region. The radiological features were suggestive of the lesion being a Pleomorphic adenoma. Multiple fine needle aspiration cytologies (FNACs) were taken from the lesion but were inconclusive. The patient then underwent superficial parotidectomy with adequate margins and an additional part of the deep lobe of the parotid gland was also removed.

On histopathological examination, the sections showed well-encapsulated tumor with the cystic and solid components. It was comprised mainly of mature neural tissue with myxoid degeneration and fibroblastic proliferation. Foci of glandular tissue and adnexal structure (squamous eddies with hair follicles) and focal thyroid tissue with hurtle cell changes were noted. It also showed extensive areas with mature cartilage. One intra-parotid lymph node was recognized. An additional part of the deep parotid gland showed normal salivary gland histology (Figure 2). These histological features favored the diagnosis of mature cystic teratoma of the parotid gland. The postoperative site healed adequately with no post-operative complications and the patient is now kept on observation.

DISCUSSION

Teratomas have the potential to differentiate into ectoderm, mesoderm, and endoderm components like skin, nerve, bone, cartilage, and fat tissues (3). Also, teratomas are either cystic or solid. They may contain both mature and immature components. The majority of the teratomas are cystic and are thus referred as mature cystic teratoma. Teratomas are classified using the Gonzalez-Crussi grading system: 0 or mature (benign); 1 or immature, probably benign; 2 or immature, possibly malignant (cancerous); and 3 or frankly malignant (4).

Teratomas usually occur in the gonadal areas, however, in 15% of cases, they may occur in the extragonadal regions. It is rare in the head and neck regions (1, 5). Mature cystic teratoma

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Correspondence to: Dr Puneet Kumar Bagri, Department of Radiation Oncology, Shree Krishna Hospital, India.

Email: drpuneetkb@yahoo.com

of the salivary gland is extremely rare. Parotid gland tumors are usually uncommon in the pediatric population. The differential diagnoses include mucous retention cyst, unilateral blockage of the parotid duct, benign mesenchymal tumors such as lipoma, fibroma haemangioma, neurofibroma, and benign salivary gland tumors such as pleomorphic adenoma (6). It has been observed that clinical examination, as well as, radiological investigation often fail to establish the diagnosis. Moreover, mature cystic teratoma being a rare tumor in the parotid gland, is hardly ever diagnosed preoperatively.

However, radiological investigations like sonography could comment on the size, nature of the lesion. Ultrasonography usually shows heterogeneous hyperechoic signals containing multiple components and with an uneven echo. Although, there are limitations for teratomas located deep in the tissues. Detailed extension of the lesion can be evaluated on a CT-scan or MRI. Despite advancements in radiological investigations, a final diagnosis can only be made with histopathological analysis. FNAC findings are usually non-specific (7). Teratoma in the parotid gland usually arises from the remnants of Rathke's pouch in the sphenoid bone, lateral neck, or tongue region (8).

The treatment of choice in a cystic teratoma of the head and neck region is surgical excision. Thus, in the case of cystic teratoma of the parotid gland, the treatment of choice is Parotidectomy. Depending upon the extension of lesion, it can be Superficial or Total Parotidectomy, Enucleation of the tumor or extracapsular dissection (9). Special precaution needs to be taken to spare the facial nerve. Facial nerve paresis is generally seen as a postoperative complication (8). Recurrence is a rare phenomenon in such cases. However, until now, only one case showed recurrence, probably due to incomplete resection of the tumor (10). Continuous follow-up is recommended to detect recurrences at an early stage.

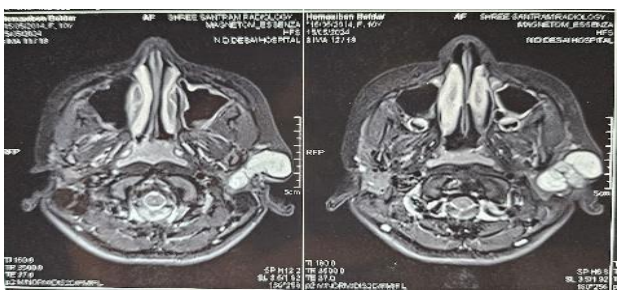
According to the review of the literature, only 15 cases of parotid gland cystic teratoma has been diagnosed till now (Table 1) (11-16). The earliest case was reported in 1975 by Shadid et al. who had reviewed 11000 cases of salivary gland tumors but couldn't find any other case with the same histology (11). We hereby report the 16th case in the literature of mature cystic teratoma of the parotid gland. As discussed earlier, surgery is the treatment of choice in such cases. Our patient underwent total parotidectomy with adequate margins. Now, the patient is kept on follow-up.

Table 1: Literature Review over the years

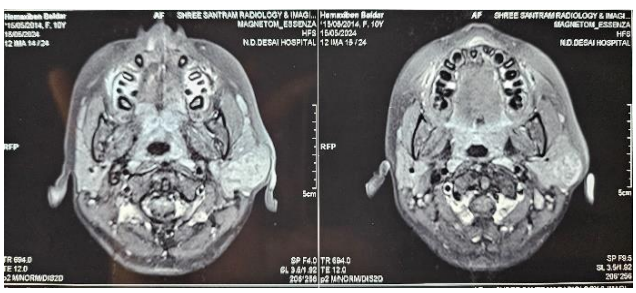
Author	Year of Report	Age (years)	Gender	Management	Follow-up	Ref no.
Shadid et. al.	1975	24	F	Superficial Lobectomy	NA	(11)
Ayudhya NS et. al	1991	35	F	NA	NA	(1)
Pirodda et. al	2001	18	F	Parotidectomy	None	(2)
Wang et. al.	2003	21	F	Tumor Resection	NA	(5)
Yang D R et. al.	2004	26	F	Tumor Resection	NA	(10)
Oudidi A et. al.	2007	NA	NA	NA	NA	(5)
Ohta et. al.	2009	17	F	Parotidectomy	NA	(5)
Lenan SHAO et. al.	2009	28	M	Tumor Resection	None	(8)
Satyajit Mishra et. al.	2014	18	M	Superficial Parotidectomy	NA	(16)
Aysim Ozagari et. al.	2015	11	M	Total Parotidectomy	NA	(15)
Nagdive et. al.	2016	3 month	F	Parotidectomy	None	(13)
Yin RJ et. al.	2017	9	F	Parotidectomy	NA	
Gharaibeh MM et. al.	2020	13	F	Lumpectomy	None	(12)
Liu HS et. al.	2022	26	M	Tumor Resection	None	(5)
A.N. Hanifi et. al.	2023	9- month	F	Partial Parotidectomy	NA	(14)
This Case Report	2024	10	F	Total Parotidectomy	None	

Abbreviations – F-Female, M-Male, NA- Not Available

a)



b)



c)

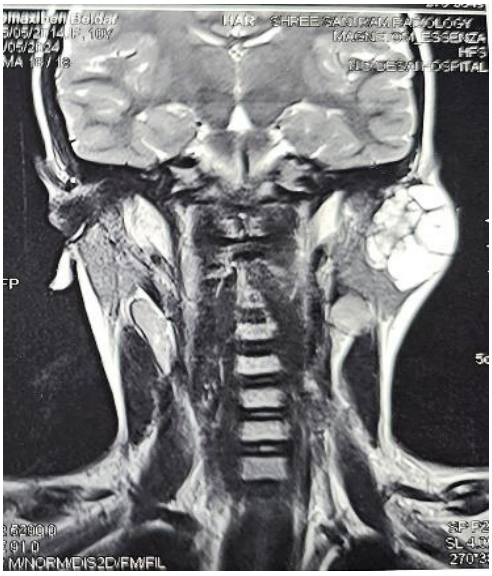
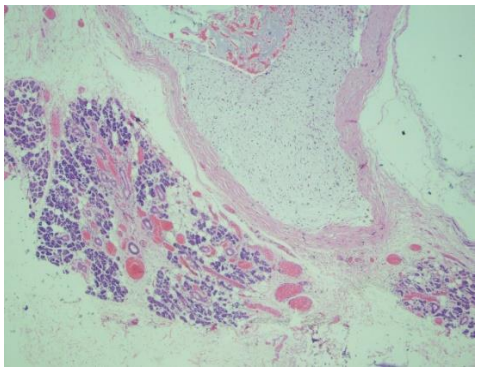
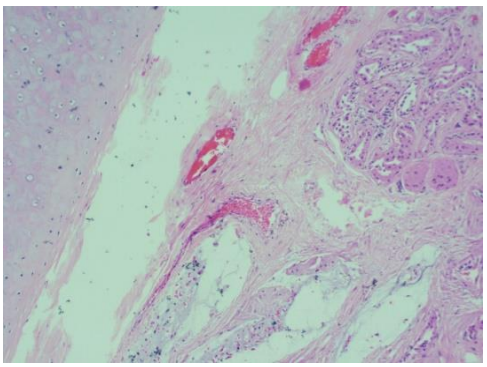


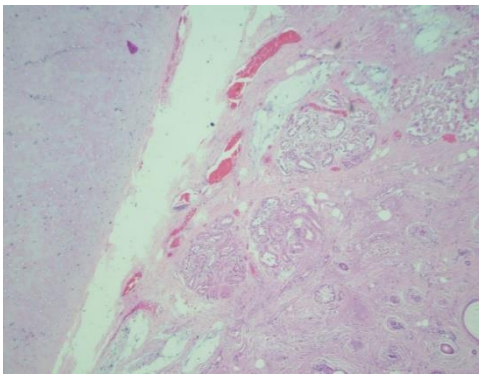
Figure 1: MRI images showing showed 26* 33 * 44mm lesion arising from the superficial lobe of the parotid gland, heterogeneously hyperintense on T2W images. The lesion also extended to adjacent deep lobe of parotid gland and into adjacent subcutaneous plane of the left parotid region p/o Pleomorphic adenoma (T2W a, b axial images, c- coronal section)

a) b)





c) d)



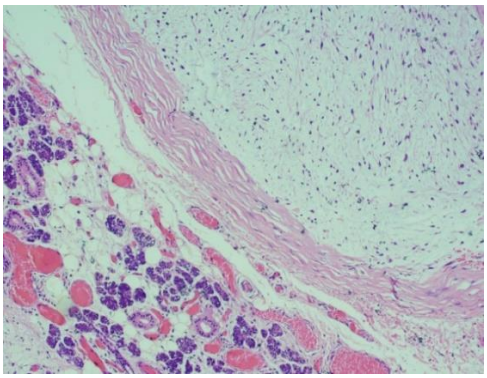


Figure 2: The microphotograph shows the presence of mesenchymal tissue of immature cartilage and bone with salivary glands with unremarkable findings. (H & E stained, a,b,c – magnification – 4X, d- magnification- 10x).

CONCLUSION

Due to the rarity of such lesions, radiological investigations alone are probably not adequate to diagnose such tumors. Surgery is the mainstay of treatment as it not only helps in establishing the diagnosis but also post-surgery recurrence is rare.

REFERENCES

1. Ayudhya N S, Parichatikanond P, Chinda K. Benign cystic teratoma of the parotid salivary gland: report of the first case in Thailand. J Med Assoc Thai, 1991, 74(10): 478–480.
2. Pirodda A, Ferri G G, Truzzi M, *et al*. Benign cystic teratoma of the parotid gland. Otolaryngol Head Neck Surg, 2001, 125(4): 429–430.

3. Batsakis JG. Teratomas of the head and neck. In: Tumors of the head and neck: clinical and pathological considerations. 2nd ed. Baltimore: Williams & Wilkins. 1979: 226-232 [DOI: 10.1002/hed.2890030117].
4. Gonzalez-Crussi F. Extragonadal Teratomas. Atlas of Tumor Pathology, Second Series, Fascicle 18. Washington D.C.: Armed Forces Institute of Pathology, 1982.
5. Liu HS, Zhang QY, Duan JF, *et al*. Cystic teratoma of the parotid gland: A case report. World J Clin Cases 2022; 10(8): 2622-2628.
6. A. Tas, R. Yagiz, S. Altaner, *et al*. Dermoid cyst of the parotid gland: first pediatric case, Int. J. Pediatr. Otorhinolaryngol. 74 (2) (2010 Feb) 216–217.
7. Yang DM, Jung DH, Kim H, *et al*. Retroperitoneal cystic masses: CT, clinical, and pathologic findings and literature review. Radiographics 2004; 24: 1353-1365.
8. Shao L, Guan H, Wan J. Mature cystic teratoma of the parotid gland: a case report and review of the literature. Frontiers of Med 2009; 3: 503-506 [DOI: 10.1007/s11684-009-0076-8].
9. Witt R L. The significance of the margin in parotid surgery for pleomorphic adenoma. Laryngoscope, 2002, 112(12): 2141–2154 7. Kountakis S E, Minotti A M, Maillard A, Steinberg C M. Teratoma.
10. Yang D R, Xu H M, Long Q X. Mature cystic teratoma of the Fig. 5 Post-operative MR images. (a) Both salivary glands; (b) duct system of the right salivary gland.
11. Shadid E A, Engeron O, Glass R T. Benign teratoid tumor of the parotid: case report. Plast Reconstr Surg, 1975, 55(3): 363–365.
12. Gharaibeh MM, Wadiya AA, Gharaibeh A, *et al*. Rare Benign cystic teratoma in the parotid gland. Eur J Clin Exp Med. 2020; 18(1):42–44. doi:10.15584/ejcem.2020.1.9
13. Nagdive N, Chavan CD, Bhambere S. Congenital mature cystic teratoma of parotid: A rare case. J Evid Based Med Healthc 2016; 3(6), 207-208. DOI: 10.18410/jebmh/2016/48
14. A. N. Hanifi, Z. Baset, A. S. Ibrahimkhil, *et al*. Congenital mature cystic teratoma of the parotid gland in an infant: Report of a unique case. International Journal of Surgery Case Reports 105 (2023) 107979
15. Aysim Ozagari, Tulay Basak, Fevziye Kabukcuoglu, *et al*. MATURE CYSTIC TERATOMA OF THE PAROTID GLAND. Oral and maxillofacial pathology. Volume 119, Number 3. Abstracts e159
16. Satyajit Mishra, Nirupama pati, Pratyusa Bishi, *et al*. Teratoma in parotid: a rare case report. Asian J. Pharm. Hea. Sci. | Jan - Mar 2014 | Vol-4 | Issue-1

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