



Giant Parotid Tumor: Surgical Challenge. Case Report and Comprehensive Literature Review

Himani Sharma¹, Hitender Basista¹, Vivek Pathak¹, Vishwani Khanna¹, Hemkant Verma²

1. Department of ENT School of Medical Sciences and Research Greater Noida
2. Department of Surgical Oncology

***Correspondence to:** Dr Vivek Pathak, MBBS, MS ENT, Associate Professor Department of ENT School of Medical Sciences and Research Greater Noida.

Copyright.

© 2024 **Dr Vivek Pathak**. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received: 21 March 2024

Published: 02 April 2024

Introduction

Pleomorphic adenoma is the commonest neoplasm found in salivary glands. It represents 45–60% of all tumours of the salivary glands. It has been associated with high recurrence rate and may develop malignant changes over time. ¹About 80% of them originate from the parotid gland, most often from the inferior pole of superficial lobe. They are rarely arising from the deep lobe or in accessory parotid tissue. ² Pleomorphic adenoma are occur mostly between third to sixth decade of life. The tumor shows slight female preponderance.² It mostly presents as an asymptomatic, gradually progressive painless swelling over the parotid region. The symptomatology depends on various factors such as size, location, relation to deeper structures, and malignancy status. There maybe a parapharyngeal swelling suggestive of deep lobe involvement.

However small, the risk of malignant potential is found to be proportional to duration of disease (1.5% in 1st five years, 9.5% after 15 years).

The treatment modality is by surgical excision followed by regular follow- up for 3-4 years.

Case Report

A 45-year-old female presented to the out-patient department with history of a slow- growing swelling over left side face for 20 years. The swelling was painless, initially small in size and progressively increased in size with time. Patient was a known case of hypertension which was controlled by medication. Surgical history was non-contributory. Patient underwent sonography and Fine needle aspiration cytology. The investigations were suggestive of pleomorphic adenoma. The patient being of lower socio-economic background, was then lost to follow-up.



Figure 1

However, patient returned four months later, with complaint of rapid increase in size of swelling.

On examination there was single swelling over the left parotid region. The left pre-auricular region showed fullness due to the swelling. The swelling extended from the left infra-auricular region till below the angle of mandible and extending slightly onto neck. The size of the swelling was 6cm by 5cm, irregular, nodular, firm, margins were well-defined, not tender, non-mobile with fixity to underlying structures. The skin over the swelling showed puckering. Facial nerve examination was normal on both sides. Oral cavity examination was unremarkable. The routine blood investigations were performed and were within normal limits. Neck examination showed no palpable lymph nodes.

A contrast-enhanced magnetic resonance imaging was done which was suggestive of a well-circumscribed, lobulated lesion of 7.1*4.0*7.18cm involving the superficial lobe in the left parotid gland. On post-contrast images the lesion showed avid enhancement with few non-enhancing areas suggestive of necrosis. Antero-superiorly the lesion was extending and abutting the left masseter muscle. Posteriorly, abutting the sternocleidomastoid muscle. Medially, displacing the left retro-mandibular vein.

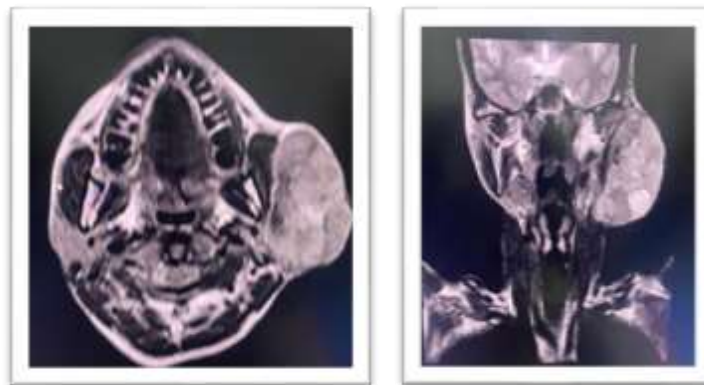


Figure 2

After taking informed consent, patient was planned and taken up for left superficial parotidectomy under general anesthesia. A modified Blair incision was given in the left preauricular region. Platysma muscle and superficial musculo-aponeurotic layers were dissected. The tumor was identified as a pale, encapsulated nodular swelling involving the superficial lobe. Using retrograde approach, peripheral branches of facial nerve were identified. The tumor was then separated and resected, preserving branches of facial nerve. Haemostasis was achieved followed by closure in three layers.

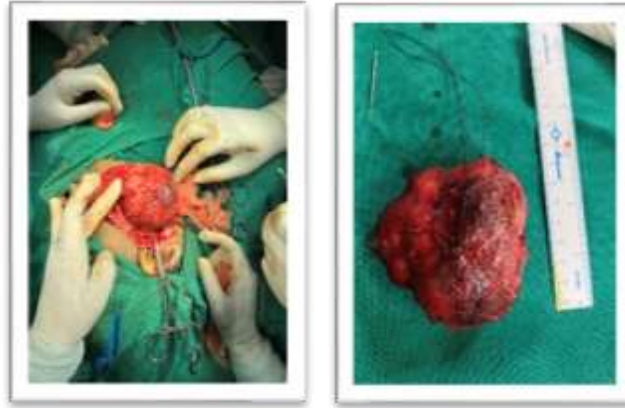


Figure 3

The excised tumour measured 7.5*2*6cm. The histopathology showed a single, lobulated and encapsulated tumour. Microscopy showed well – circumscribed thinly encapsulated tumour, compositing of epithelial and myoepithelial cells along with abundant chondro-myxoid matrix and focal cartilage formation. Epithelial elements in form of tubules with intra-luminal eosinophilic material with radiating myoepithelial cells at periphery were noticed.



Figure 4

Discussion

Pleomorphic adenoma is the most common salivary gland tumor. Due to its dual origin from epithelial and myoepithelial elements it is also known as benign mixed tumors (BMT's). The appearance microscopically is variable showing, mixed proliferation of polygonal epithelial and spindle-shaped myoepithelial cells. The stromal matrix can be variable - mucoid, myxoid, cartilaginous or hyaline origin. A true capsule is lacking around the tumour, however, a pseudocapsule is seen. The pseudocapsule comprises of a fibrous tissue of variable thickness. The normal glandular parenchyma is invaded forming finger-like projections known as pseudopodia. These microscopic pseudopodia have been found to be the cause for high chances of local

recurrence.²

Chromosomal abnormalities have been postulated and have been found in chromosome 8q12. The region is the site of the pleomorphic adenoma gene PLAG1.⁴

Ultrasonography and magnetic resonance imaging (MRI) provide aid in diagnosis. MRI provides better and in-depth description of tumour margins and its relation to the surrounding and deeper structures.⁴ A key criteria for surgery depends on the result of fine needle aspiration cytology. FNAC is performed after a diagnostic imaging test to rule out any vascular lesion.

In the present case, a routine ultrasonography of face and neck was performed to rule out any vascular lesion, following which the patient underwent core needle biopsy which showed variable appearances of fibro myxoid stroma with masses, tubules and cords of bland cuboidal to polygonal cells. No features of pleomorphism, mitosis or necrosis were seen.

A study conducted in 2015, included 562 patients with major salivary gland tumours. The study compared the diagnostic accuracy and accuracy of tumor subtyping rates of CNB and FNAC for the preoperative evaluation of salivary gland tumors. The study concluded that core needle biopsy results had higher sensitivity along with more accurate tumor subtyping, especially for malignant tumors.⁵

The main treatment is surgical excision for pleomorphic adenoma. The limit of dissection depends on tumor extent and tumor relation to facial nerve. The mainstay of surgical treatment can be enucleation of tumour, enucleo-resection, superficial and total parotidectomy according to the above factors.⁶

Limited surgical procedures are performed for more circumscribed and easily accessible tumors than patients undergoing a formal parotidectomy. The selection bias should compare the recurrence or complication rates of various surgical procedures. The complication in parotid surgeries can alter the quality of life of the patient as there is high risk of facial nerve injury. Around 11% to 65% patients were found to have temporary facial nerve dysfunction after parotidectomy. In 0-19% patients experienced permanent paralysis.⁷

Pre-operatively risk factors should be assessed to avoid facial nerve injury. These are- age, nature and extent of tumour, size of tumour, case of tumour recurrence or revision surgery, tumour having subsites along course of facial nerve and tumour involving deep lobe of the gland.

A study in 2019 evaluated the incidence of facial weakness post parotidectomy in 794 patients. In the study incidence of temporary and permanent (more than 6 months) facial weakness were 9.2 and 5.2% respectively. In addition, tumor subsite (tumors involving superficial and deep lobe) was associated with postoperative facial weakness, but not tumor size.⁸

Another known complication of parotidectomy is Frey's syndrome/ gustatory sweating. After superficial and

total parotidectomy, the syndrome is seen in 2% to 40% of patients but in only 0% to 5% after ECD; hence, it is positively related to the extent of parotid surgery.⁹

In a randomized trial, the incidence of facial nerve paralysis, Frey syndrome, and auricular dysesthesia post partial parotidectomy was found to be less as compared to superficial or total parotidectomy.⁹

During surgery rupture of capsule and spillage of tumour can attribute to recurrence of tumour. Almost 10% patients present with malignant transformation. The following are predictive of malignant change - advancing age, massive tumor size, sudden increase in size, a long duration of the mass, occurrence in submandibular salivary gland, and hyalinized connective tissue.¹⁰

In the present case, the patient underwent a left superficial parotidectomy under general anaesthesia. The superior lobe of the gland along with the tumour was excised completely and carefully preserving the facial nerve. During surgery facial nerve was identified with the help of its surgical landmarks. Immediate post-operatively, the patient was stable and shifted to the ward. The patient was on intravenous anti-biotics for a period of seven days. Post-operatively the drain was removed on second day. The surgical site was healthy and healing well. Facial nerve was examined and was intact bilaterally. Currently, patient is in follow-up on weekly basis and shows no signs of post-operative complications of facial nerve injury, Frey's syndrome and auricular dysesthesia.

Conclusion

Pleomorphic adenomas can be treated with various surgical modalities. Various studies have been conducted to assess the factors attributing in deciding the surgical approach and also the risk of complications. In India, we come across female patients for whom the risks of surgery and post-operatively quality of life are the mainstay of consent for surgery. Therefore, the surgical approach and outcome should depend upon the need of the patient.

References

1. Spiro RH. Salivary neoplasms: overview of a 35-year experience with 2,807 patients. *Head Neck Surg.* 1986; 8:177–84.
2. Eveson JW, Cawson RA. Salivary gland tumours. A review of 2410 cases with particular reference to histological types, site, age and sex distribution. *J Pathol.* 1985; 146:51–8.

3. Sergi B, Limongelli A, Scarano E, Fetoni AR, Paludetti G. Giant deep lobe parotid gland pleomorphic adenoma involving the parapharyngeal space. Report of three cases and review of the diagnostic and therapeutic approaches. *Acta Otorhinolaryngol Ital*. 2008; 28:261-265.
4. Song IH, Song JS, Sung CO, Roh JL, Choi SH, Nam SY, Kim SY, Lee JH, Baek JH, Cho KJ. Accuracy of Core Needle Biopsy Versus Fine Needle Aspiration Cytology for Diagnosing Salivary Gland Tumors. *J Pathol Transl Med*. 2015; 49(2):136-43.
5. Mehle ME, Krause DH, Wood BG, Benninger SM, Eliachar I, Levine HL, et al. Facial nerve morbidity following parotid surgery for benign disease. The Cleveland Clinic Foundation Experience. *Laryngoscope*, 1993; 103: 386-388.
6. Laccourreye H, Laccourreye O, Cauchois R, et al. Total conservative parotidectomy for primary benign pleomorphic adenoma of the parotid gland: a 25-year experience with 229 patients. *Laryngoscope* 1994; 104:1487-94.
7. Jin H, Kim BY, Kim H. Incidence of postoperative facial weakness in parotid tumor surgery: a tumor subsite analysis of 794 parotidectomies. *BMC Surg*. 2019;19(1):199.
8. Hancock BD. Clinically benign parotid tumours: local dissection as an alternative to superficial parotidectomy in selected cases. *Ann R Coll Surg Engl*. 1999; 81:299-301.
9. Roh JL, Kim HS, Park CI. Randomized clinical trial comparing partial parotidectomy versus superficial or total parotidectomy. *Br J Surg*. 2007; 94:1081-7.
10. Zarbo RJ. Salivary gland neoplasia: a review for the practicing pathologist. *Modern Pathology*. 2002; 15 (3): 298-323.

