

Managing Some Rare Parotid Masses

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How to cite this article:

Keshav Gupta, Mohit Srivastava, Ashu Bhati. Managing Some Rare Parotid Masses. RFP J ENT Allied Sci 2023;8(2):39-44.

ABSTRACT

Background: The parotid gland is a major salivary gland in the human body located in both the cheeks. It accounts for approximately 3-6% of all head and neck masses. Three fourths of all parotid masses are benign. However, they are very diverse in nature and in intimacy with important anatomical structures. An accurate diagnosis and surgical management of some rarely presenting parotid masses is further challenging to the medical team because of limited literature and experience with these masses.

Methods: A retrospective study was done at our Tertiary Care Institute studying different approaches towards rarely presenting parotid masses during last two years.

Results: A giant pleomorphic adenoma with 14 cm diameter managed with total superficial Parotidectomy, a difficult to diagnose parotid mass at angle of mandible which was confirmed to be Schwannoma post excision and a large Paediatric lymphangioma managed with Sclerotherapy are discussed here.

Conclusion: All were managed without mortality, with minimal morbidity and no recurrence noted till date. Our experience will be of great use to physicians and surgeons while dealing with rare benign parotid masses.

Keywords: Diagnosis Management, Mass Parotid, Rare Surgery Swelling.

INTRODUCTION

Human body houses many salivary glands which release their secretions through the ducts opening into the oral cavity. These secretions are composed of saliva, enzymes, minerals, water and immunoglobulins and hence responsible for the

mechanical, defensive, digestive, immunological and pH regulatory functions of the oral cavity. There are larger paired major salivary glands and smaller numerous minor salivary glands. Parotid gland is the largest of all salivary glands which houses both the cheeks. Its secretions are watery and reaches the oral cavity through its duct named as Stenson's duct.

The parotid gland is inverted pyramidal in shape with its apex towards the angle of mandible and its base at the zygomatic arch anterior to the external auditory canal. Anteriorly it is in relation with buccal pad of fat and posteriorly it curves around the posterior border of mandible.¹ The gland is covered by a tough, non-yielding false fascia which is formed by condensation of deep fascia of neck and it splits to surround the gland. The gland is composed of a superficial lobe and a deep lobe. Important anatomical structures like Facial Nerve, retromandibular plexus of veins, Facial Vein,

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Received on: 27.08.2023

Accepted on: 29.11.2023



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external carotid artery and its branches passes through the substance of the gland. Facial nerve enters the gland as soon as it leaves the stylomastoid foramina either in form of a single trunk or its branches and gives off its terminal branches within the substance of the gland. The Stenson's duct emerges at the anterior part of the gland, passes horizontally through masseter, pierces buccinator and opens in oral cavity through papillae on both sides opposite the upper second molar teeth.²

Parotid masses are quite common and accounts for approximately 3-6% of all head and neck masses. Majority (almost three-fourths) of all parotid masses are benign masses and rest are malignant.³ Benign parotid masses also consist of a large variety of masses and have been classified on various basis. One of the largest studies on benign parotid masses were conducted by Bradley and Mc Gurk⁴ (1065 cases) and Everson and Cawson⁵ (2410 cases). The incidence of benign parotid masses was reported to be 5.3-6.2 per lakh population. No age group is spared. Sixth decade of the life is most likely to face a benign parotid mass. Females are more likely to present with this condition.⁶ Diagnosis as well as treatment needs good clinical as well as technical expertise. Pleomorphic adenoma (PA) is one of the commonest parotid masses. PA has a definitive anatomical relation between Facial Nerve (FN) and its branches and hence its surgical management may be challenging. A large PA is more challenging as it may be in close relation with many or all branches of FN.⁷ Schwannoma are rare benign parotid masses. There are limited studies available in literature about Parotid Schwannoma (PS). Large Bradley- Mc Gurk and Everson-Cawson studies did not report a single case of PS. Parotid Lymphangioma (PL) are another rare benign parotid mass. Management of paediatric parotid masses is always challenging as they require dedicated and specialised medical care right from presentation till the last step in management. Surgery may be quite challenging in this age group.

There are various factors which needs to be considered while managing a case of rare benign parotid mass. Prompt diagnosis in a systematic and cost-effective manner in a single sitting may be challenging in such cases. After a diagnosis is reached, the next step is to decide the best treatment which may be medical or surgical or both. Surgical cases require choosing the best approach, meticulous planning, good surgical exposure, good surgical skills, perfect completion and team work. We have addressed all these factors for the management of benign parotid mass in detail in the present paper.

AIM

To study the management of rare benign parotid masses.

OBJECTIVES

- To study the best diagnostic modalities in prompt, systematic and cost-effective diagnosis of rare benign parotid masses
- To study the treatment options available in management of benign parotid masses
- To decide the best surgical approach in surgical management of rare benign parotid masses

MATERIAL AND METHODS

We conducted an observational retrospective study at our Tertiary care Hospital after taking due permission from the Institutional Ethics Committee to study the management of rare benign parotid masses in indoor patients in Department of Otorhinolaryngology and Head and Neck Surgery during last two years. Informed and written consent for publication for using the clinical data in good faith were taken. Patient's right to confidentiality has been maintained and patient's identity is revealed nowhere. The clinical knowledge hence gathered has been reviewed with knowledge from the literature and present protocols to conclude the right management approach for management of rare benign parotid masses.

Inclusion criteria: Patients of all sexes and all age groups who were admitted in Department of Otorhinolaryngology and Head and Neck Surgery at our Tertiary Care Centre from April 2021- March 2023 diagnosed with rare benign parotid masses were included in the study

Exclusion criteria: Patients with common parotid swellings, infectious conditions and malignancy were excluded from the study.

OBSERVATIONS

The first case was that of a 34 years male skilled labourer by occupation who presented with a right parotid mass of 12 years duration (Fig. 1). The swelling was of gradual onset and slowly increasing in size. It was a single painless swelling in the region of right cheek. There was no history of sudden increase in size, any episode of decrease in size, bursting, discharge, change in overlying skin, abnormal sensations. There was no history of trauma, radiation exposure, exposure of long duration to heat, heavy metals, dyes and toxins.

However, there was long duration exposure to bright sunlight almost 8 hours a day for last 20 years. There was no previous history of occurrence and/or resolution of a noticeable long duration swelling in same or any other region of the body. There was no history of fever and weight loss. There was no history of systemic illnesses. Patient is a chronic smoker and smokes 2-5 bidis a day for last 10 years. The mass was measured to be an ovoid mass with maximum 14 cm diameter. It had a smooth surface, no edges, no pulsations and no impulses. Temperature of overlying skin was normal. There was no tenderness, well defined regular margins, no fixity to skin or other structures. It was non-compressible and non-reducible. The mass was dull on percussion with no auscultatory sounds. There were no palpable lymph nodes. Bilateral Facial Nerve was intact.

An ultrasound guided FNAC followed by CECT Neck (Fig. 2) were done in a single sitting. All investigations suggested PA and demanded histopathological confirmation.

The second case was that of an 18 years male student who presented with a very slowly progressive left infra-auricular mass over last 5 years (Fig. 3). Rest of the mass was freely mobile but there was slight indentation on skin at a single point at its periphery. There were no overlying or surrounding fistula or sinus. However, there was no history of tuberculosis in patient and close relatives but it still could not be ruled out at presentation. A FNAC done 3 months back suggested a benign inflammatory lesion with epithelioid cells? Tubercular. However, diagnosis could not be confirmed. We did a USG and core biopsy at our centre. USG showed a hypoechoic lesion in superficial lobe of parotid gland with a solid cellular structure without a cavity. Histopathology was recommended to find its exact nature. Histopathology showed cells which were well stained with eosin only without any nuclear material. No signs of malignancy, necrosis and inflammation were seen. Excision was advised to find its exact nature.

The third case was that of a 2 years male child with a huge swelling of left cheek (Fig. 4). It was present almost since birth and gradually increasing in size since then. It blanched on digital pressure and had no pulsations. USG with colour doppler, USG guided FNAC and CECT neck were all suggestive of PL.

RESULTS

The first case was a large parotid PA. Contrast enhanced computerised tomography (CECT)

showed that the mass was limited to superficial lobe of the parotid gland. It was in intimate relationship with four branches of the FN on its deep surface. It was excised in toto by total superficial parotidectomy (Fig. 5-6). The intra-operative period was uneventful. There was transient FN dysfunction in immediate post operative period which was probably due to handling of the branches of the FN. The FN function completely recovered within 72 hours after surgery spontaneously. Histopathology confirmed the diagnosis of PA. There has been no recurrence till date.



Fig. 1: A large parotid mass of 12 years duration in a 34 years old male patient



Fig. 2: Contrast enhanced computerised tomography (CECT) shows a large mass in superficial lobe of parotid in close contact with important neurovascular structures

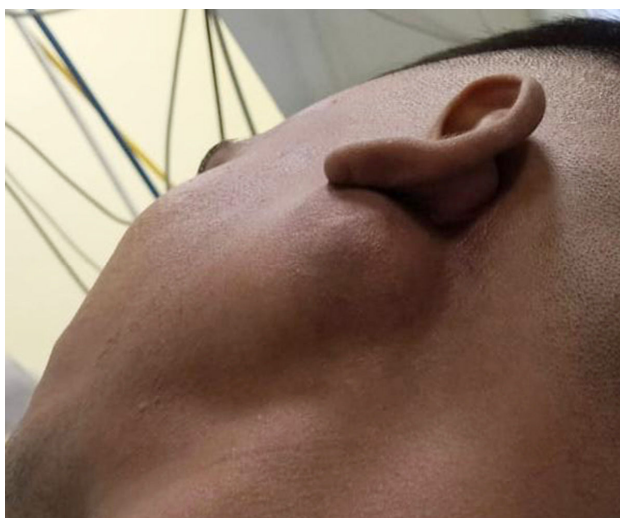


Fig. 3: A small infra-auricular with a skin indentation at a single point in an 18 years old male patient for last 5 years



Fig. 4: A large parotid swelling in a 2 years old male patient present and enlarging since birth

Pre-operative diagnosis was not clear in the second case. It was a small mass away from the major neurovascular bundles. Partial superficial parotidectomy was done in this case and the mass was completely excised with 5 mm strip of normal surrounding tissue and sent for histopathology (Fig. 7). There were no intra-operative and post-operative complications. Histopathology revealed presence of compact hypercellular Antoni A and myxoid hypocellular Antoni B areas suggestive of PS.

The third case was a paediatric case with PL. USG doppler was done to rule out arteriovenous



Fig. 5: Total superficial parotidectomy after complete removal of superficial lobe of parotid gland. Facial Nerve (FN) and its branches are intact in the bed

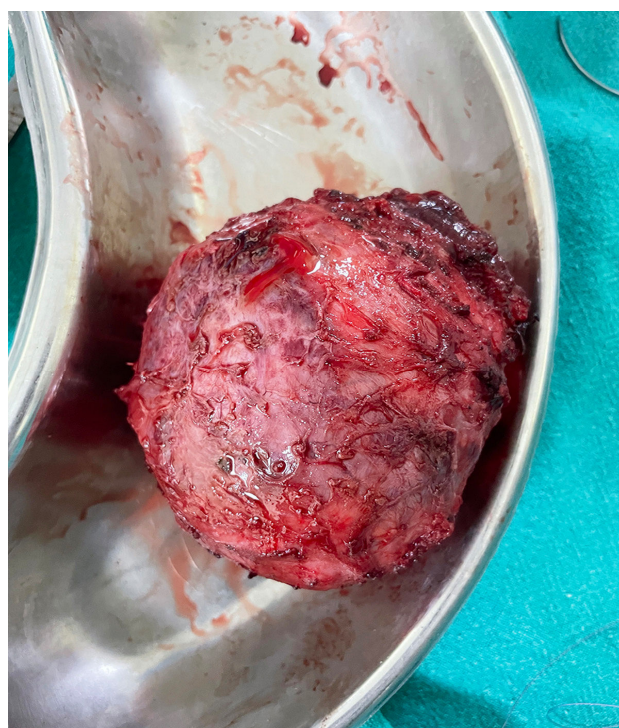


Fig. 6: The Pleomorphic Adenoma (PA) of maximum 14 cm diameter was excised intact and complete, and sent for histopathological evaluation

malformation, presence of blood flow within the mass and significant direct vascular contribution to it by the surrounding blood vessels. CECT Parotid was done to note topographic and angiographic details. The child was taken to the paediatric operation theatre where under sedation, anaesthetic monitoring and after sensitivity testing under CT guidance, a 27 Gauge needle was passed into the mass perpendicular to the skin in pre

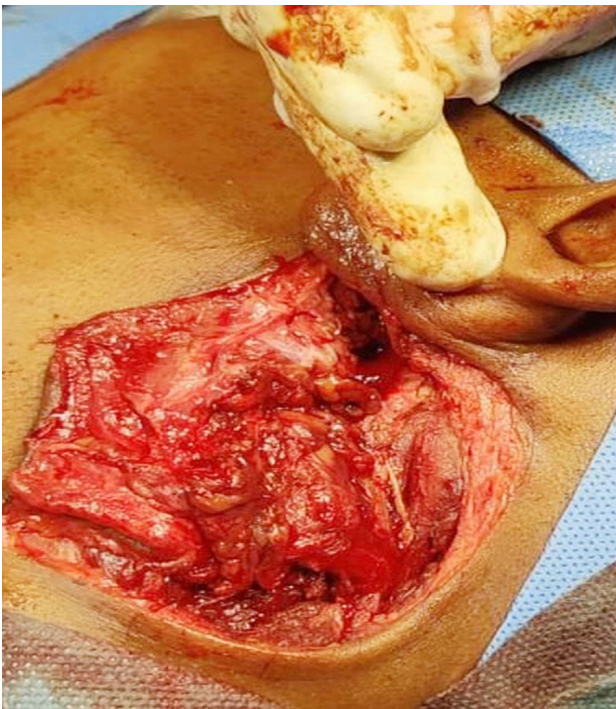


Fig. 7: Partial superficial parotidectomy was done with 5 mm strip of normal tissue around the mass and sent for histopathology

auricular region, thick red blood was aspirated from the collection of immature vessels and 1 mL of sclerosing agents were injected. The child was kept under monitoring for 24 hours and discharged the next day with a plan for repeat procedure after a month for the residual mass. There was no residual



Fig. 8: The mass completely disappeared on first follow up 7 days after the first session of sclerotherapy

mass when the patient came for follow up after 7 days (Fig. 8). The child is under regular follow up for last 3 months and no recurrence is seen during this period. Also, no repeat procedure was done during this period.

DISCUSSION

Aetiology of benign salivary gland tumours is not well understood. There have been concerns regarding petrochemicals, dyes⁸, radiation⁹, mobile phones¹⁰ and Human Papilloma Virus (HPV)¹¹ but none has a proven association with benign parotid tumours. Benign parotid tumours are slow going and usually devoid of other symptoms other than the presence of a mass. Presence of pain, abnormal sensations, increase in growth rate, weakness, skin involvement, fixity or irregularity should alert the physician for possibility of malignant transformation. It is advisable to do an ultrasonography (USG) and USG guided FNAC at presentation in a single sitting. It saves time, money and provides a more accurate diagnosis. USG is very useful as it increases accuracy of FNAC, fulfils most of the requirements of imaging,¹² distinguishes a lump from a node and from diffuse enlargement of the gland. A CECT/ Magnetic Resonance Imaging (MRI) should be done in cases of tumours larger than 3 cm, involvement of deep lobe and parapharyngeal space and suspicion of malignancy. FNAC has an accuracy of 80-90%¹³ and a core biopsy increases sensitivity to 100% and specificity to 92%.^{14,15} In our case of PS, a single point of indentation on skin may be attributed to previous FNAC which was done 3 months back. Common differentials of parotid masses are PA, Warthin's tumour, Oncocytoma, Monomorphic masses, basal cell carcinoma (BCC), cystadenoma and myoepithelioma.¹⁶ Surgery is indicated in most of the parotid masses for definitive histology, presence of continued growth in persistent mass and probability of malignant transformation. Enucleation is not performed now because of high recurrence rate.¹⁷ Either total superficial parotidectomy or partial superficial parotidectomy with a cuff of normal tissue should be done.¹⁸ A parotid tumour will always be found near the FN and its branch¹⁹ and hence carries high risk of iatrogenic FN injury. Overall recurrence rate of PA is 2% and usually years after the surgery.⁷

CONCLUSION

All parotid masses should be managed in a systematic and a comprehensive manner. History

taking and clinical examination are the cornerstone of the management. USG is the most valuable imaging modality. USG with FNAC should be done in a single sitting. However, CECT and MRI may be required in select cases. Core biopsy may add on to histopathological evaluation. Total and partial superficial parotidectomy are the preferred surgical techniques for the masses of superficial lobe. Surgery has to be done very carefully as in most of the cases FN or its branch will be in close relation. Sclerotherapy is a promising novel technique for angiogenic masses. Long term follow up is to be done as recurrence may be seen decades after surgery.

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