Extracapsular dissection of pleomorphic adenoma in the parotid gland: A case report and review of the literature

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Abstract
Salivary gland tumors comprise of less than 3% of all tumors of the head and neck region. Pleomorphic adenoma represents 45 to 74% of all these salivary gland tumors and 65% of them occur in the parotid gland. Owing to the close proximity of this tumor to the facial nerve, there have been various techniques for surgical management of this tumor in the literature. Extracapsular dissection of pleomorphic adenoma is a conservative treatment modality which spares the handling of facial nerve. We are reporting a case of extracapsular dissection of pleomorphic adenoma in the lower pole of the superficial lobe of the parotid gland in a 22 year-old Indian male with a 1-year follow-up.

Keywords: Extracapsular dissection, facial nerve, parotid gland, pleomorphic adenoma

Introduction
Salivary gland tumors comprise of less than 3% of all head and neck tumors.[1] Eighty percent of these are benign, mostly pleomorphic adenomas.[2] Approximately 90% of parotid gland neoplasms are located within the superficial lobe, lateral to the facial nerve.[3] It is this unique relationship between the parotid gland tumors and the facial nerve that has shaped the different surgical approaches. Before the 1940s, the surgical management of benign parotid tumors was unsatisfactory, owing to a fear of damaging the facial nerve. The routine operation was enucleation of the tumor contents leaving the capsule in situ. This was associated with a high recurrence rate of 35%.[4] Bailey identified and dissected the main trunk of the facial nerve through the gland in 1941.[5] By the 1950s, formal superficial parotidectomy (preserving the facial nerve) became established as the appropriate treatment for benign parotid tumors with a recurrence rate below 2%.[6]

In the last two decades, a general trend adopted by many surgeons has been toward minimal invasive surgery in order to reduce morbidity while keeping the same outcome. In an attempt to extend this approach to parotid surgery, the extracapsular dissection (ECD) technique[7] was described by Gleave.[7] This technique involves careful dissection of the benign parotid tumor in a plane 3-4 mm peripheral to the tumor capsule without identification of the facial nerve. ECD differs from enucleation as the tumor is removed with an intact capsule as opposed to shelling out the tumor contents and leaving the capsule in situ as is the case with enucleation.[8]

This paper describes a case of pleomorphic adenoma (solitary mass, <3 cm in size) arising in the tail parotid gland and treated by the ECD technique.

Case Report
A 22 year-old male patient reported to the Department of Oral and Maxillofacial Surgery with the chief complaint of a slow-growing mass on the left side of the face, below the left ear lobe, since the last 2 years.

On clinical examination, a firm, nontender, nodular mass was palpated. It measured 1 cm × 1.5 cm and was located 1.5 cm below the left ear lobe. There were no associated signs of facial nerve deficit noted [Figure 1].

Based on clinical examination, sign and symptoms, a provisional diagnosis of pleomorphic adenoma was made. Fine needle aspiration biopsy and ultrasonography were also suggestive of pleomorphic adenoma [Figure 2].

The patient was taken up for surgery under general anesthesia. A retromandibular incision was taken and layer-wise dissection was carried out till the parotid fascia. Loose areolar connective tissue around the tumor mass was identified and dissection was proceeded in a centripetal fashion in this plane. Then the tumor mass was removed without damaging the capsule [Figure 3] and the parotid fascia was approximated.
using 3-0 vicryl and skin incision was closed using 6-0 Ethilon. No drain was used as the defect size was small. A pressure bandage was applied (2 days).

The excised specimen [Figure 4] was sent for histopathologic investigation and final diagnosis of pleomorphic adenoma was made [Figure 5]. The patient has been followed-up since the last 1 year without any complications [Figure 6].

**Discussion**

The concept of surgical excision of a parotid tumor has been attributed to Bertrandi in 1802. The initial applications of
this surgery involved an extensive approach, causing serious disfiguration and disability. By approximately 1850, the focus shifted toward dissection and the intimate relationship between the facial nerve and the parotid gland. Attempts were made to perform the surgery with nerve preservation. Codreanu performed the first total parotidectomy with facial nerve preservation. Grafting of the facial nerve after resection was attempted in the early 1950s. Beahrs and Adson, in 1958, eloquently described the relevant anatomy and surgical technique of current parotid gland surgery. They stressed surgical landmarks to avoid injury to the main trunk and branches of the facial nerve and advocated superficial parotidectomy for non-invasive lesions confined to that portion of the gland.

Superficial or total parotidectomy for benign parotid tumors has been proposed by Patey and by Patey and Thackray. High recurrence rates after enucleation, especially for pleomorphic adenoma and Warthin tumors, are related to an incomplete excision. Complications after parotidectomy are more frequently seen than after enucleation. 

The aim of a classic superficial parotidectomy is to allow the removal of the benign parotid mass with adequate margins of healthy parotid tissue around it. This is only possible when small tumors are located within the central portion of the superficial lobe of the parotid gland.

The literature shows that limited ECD does not result in an increased incidence of tumor recurrence. Dell’Aversana Orabona et al., after a longterm follow-up (mean 46 months), found that the incidence of tumor recurrence after ECD was 4.5%.

Also, facial nerve dysfunction is proportionally the length of time the nerve is exposed at the time of surgery. The advantage of ECD is that the facial nerve is not exposed if it is not in contact with the tumor, and even if there is contact, only a small proportion of the nerve is handled. In the literature, the risk of tumor rupture with ECD is the same as with conventional superficial parotidectomy (about 2-4%). In the presence of capsule rupture, the risk of recurrence is about 8% at 20 years’ follow-up.

Conclusion

The present data shown by various literatures conclude that ECD is associated with reduced operative time, low morbidity and reduced hospital stay. It is a transferable technique that appears safe in trained hands. Although ECD is a conservative surgical method, more cases and longer follow-up are needed to judge the efficacy of this procedure.

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