



## Complications Following Surgery of Parotid Gland.

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### ABSTRACT :-

Salivary gland are common exocrine gland found in oral cavity that secrete complex fluid known as saliva. Salivary gland is mainly classified into two types based on size :Major and Minor salivary gland. The major salivary gland are 1) parotid gland 2)submandibular gland 3) sublingual gland and the Minor salivary gland are Von ebner gland , anterior lingual gland , labial , buccal , lingual , palatal and retromolar gland . Parotid gland is the largest of all the other gland . The surgery of salivary gland is performed when there is benign and malignant tumor . Most often 80% of tumor are present in the parotid gland and care must be given while performing the surgeries . As there are adjacent vascular and neural structures . The most catastrophic complication following surgery of parotid gland is Facial Nerve paralysis . Thus the surgeon must be familiar with complex anatomy of the facialis nerve and surrounding structure . Thus the review aims to evaluate the complication of following parotidectomy on the above mentioned aspects . An electronic search was conducted in PubMed , Science direct , Google scholar , Embase , ncbi.gov were searched in June 2023 with the following upto the year 2005 with the no language restriction or year of publication . Out of all the articles , studied 3 article that explained the various complication following parotidectomy . The first study revealed that the Facial Nerve Palsy is the frequency complication after parotidectomy . The second study reveals that parotidectomy is safe procedure with minimal complication and the third study reveals that the lesser extent the tissue dissection resulted in better post operative facial nerve function . All the individual Studies suggest that there are many complication and the most important of frequency occurring post operative complication is the temporary and permanent Facial Nerve Paralysis and Frey Syndrome .

**KEYWORDS** :- Complications , parotidectomy , Facial Nerve Paralysis , Frey Syndrome , Pleomorphic Adenoma , Major Salivary Gland , Painless Swelling .

### INTRODUCTION :-

Salivary gland tumors accounts for 3 to 10 percentages of all head and neck cancer(1) . The tumors are more common in the major salivary glands (2,3). The parotid gland is the most afflicted accounting for 36.6% to 83% of all cases. The most prevalent malignant and benign tumors are mucoepidermoid carcinoma and pleomorphic carcinoma (5,6).

Approximately 80 percentages occur in the parotid primarily in the inferior pole of the superficial lobe it can also develop in deep lobe(7). Thus, surgical innovation is the mainstay of parotid tumor. This surgical removal of the parotid gland is called as parotidectomy. Berard first mentioned parotidectomy in the medical literature in 1823 then in early 1912 Wilson Blair's pioneered parotidectomy emphasizing the significance of identifying and protecting the facial nerve (8). Types of parotidectomy (9): Partial parotidectomy, Superficial parotidectomy, Total parotidectomy, Extended total parotidectomy, Radical parotidectomy.

The partial parotidectomy involves dissection of a margin of normal parotid tissue this is a typical procedure for benign tumor and low grade cancer , the superficial parotidectomy is commonly done for metastasis to parotid lymph nodes such as malignant or high grade tumor in this procedure entire superficial lobe is resected , the total parotidectomy entails removing the entire parotid gland while preserving the facial nerve , the Extended total parotidectomy is a process of removal of superficial and deep lobe adjacent structures , the radical parotidectomy entails the removal of all parotid tissues as well as the sacrifice of the facial nerve. This is usually done when the facial nerve has been invaded by tumor and its function is hindered by the presence of a malignant tumor. If proper attention isn't paid to adjacent the structures such as nerves vessels arteries, it leads to complication .Generally, the complication following surgery of salivary gland involves intraoperative and postoperative complications namely (10-14). Intraoperative complications include transection of the facial nerve, rupture of the capsule, and incomplete surgical excision of the parotid tumor. Postoperative complications are classified as early and late under early complications facial paralysis, hematoma infection, skin flap necrosis, aesthetic deformity, Trismus, parotid fistula, however in late complications Sinkinesis of the facial nerve with hypoesthesia of the great auricular nerve, Frey syndrome and keloid. Thus, it is important for a surgeon to know the anatomy and the boundaries of the parotid gland that helps to reduce the complication following the parotidectomy. Our article aims to evaluate knowledge about complication following parotidectomy. It is a technically difficult procedure because of the critical structures in the region.

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## MATERIALS AND METHODS :-

Using the Mesh terms "Complications of Parotidectomy , Facial Nerve Paralysis ,

Pleomorphic adenoma with alternate spelling of related terms a structured literature search was conducted up to the year 2009 for articles written in English language in PubMed , ncbi , nlm.gov , google scholar , scopus and web of databases

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## DISCUSSION :-

Salivary gland tumors, which make up 2%–6% of all complex neoplasms, are rare(15).The majority of tumors are found in the superficial lobe, where benign tumors are more common, but the deep lobe can be impacted by both benign and malignant tumors(16-17) . According to the published work(18) , in the first study consist of 60 patients 95% of parotidectomy were in superficial lobe and 5% in deep lobe. Superficial parotidectomy was performed in 48 cases whereas total parotidectomy was performed in 12 cases in that facial nerve paralysis is noted in 10 cases (20.8% )in superficial parotidectomy and 10 cases (83.3%) in total parotidectomy hypoesthesia seen in 7 cases (14.5%) in superficial parotidectomy whereas 9 cases (75%) in total parotidectomy thus this study shows facial nerve paralysis is more common complication following parotidectomy .The second study reported that the morbidity rate after 112 parotid gland procedures. Following superficial parotidectomy, Frey's syndrome (11%) and facial nerve palsy (38% transient, 9% permanent) were frequent. This treatment is appropriate for malignant tumors and pleomorphic adenomas. Benign disorders should be treated with less invasive surgery that has a lower risk of complications because they may often be diagnosed before operation(19). Finally the third study ,the total of 187 patients were identified as having undergone parotidectomy (78.4% )patients had benign tumors, (21.6%) were malignant tumors. The most commonly reported unwanted effect of the operation was transient facial nerve palsy occurred in (21.3%)while permanent facial nerve paralysis was observed in (3.9%)Frey's syndrome (7.3%), gradually improved with time. Hypoesthesia of the cheek or earlobe (20.2%) ,Wound infection (7.3%), Sialocele (6.7%),Parotid fistula (5.1%) , seroma (6.7%), hematoma( 3.4%), hypertrophic scar or keloid (3.9%), surgical site depression(15.2%), skin necrosis( 0%) and Greater auricular neuroma (0%)(20).

This indicates that facial nerve palsy is the most frequent postoperative consequence following parotidectomy. The etiology of facial nerve paralysis are nerve compression, crushing, and stretching electrocoagulation and heat damage .However all possible results of meticulous parotidectomy are nerve compression, crushing, and heat injury which is quite uncommon and nerve stretching is most common (21). Several studies have shown that 6% elongation of nerve cause perineurium tears due to stress-strain rips, resulting in a loss of compound action potential (22).Cases of transitory facial nerve paresis resolved within 6 months on average, with 90% resolving within 1 month (23-28).Laccourreye (23) states that temporary paresis normally resolves within the 18th post-operative month.

Frey's syndrome is characterized by gustatory discomfort, perspiration, and flushing of the skin overlaying the parotid area, which may be accompanied by pain in the auriculotemporal nerve distribution. It is caused by the amputation of the parasympathetic secretomotor nerves fibres that innervated the salivary gland developing into the sweat gland (29).

Hypoesthesia of the greater auricular nerve is a common side effect after parotidectomy. Patients are warned that patients will experience numbness around the ear, particularly near the lobule Within a year of the procedure, the numbness will go away, although a small patch of skin may still be anesthetized. Some authors propose preserving the posterior branches of the greater auricular nerve to facilitate a faster and more complete return of sensory function

(30).Amputation neuroma is caused when greater auricular nerve is transected thus proper knowledge about the anatomy of parotid gland and surrounding structure is necessary (31).Skinflap necrosis is uncommon and typically affects the distal tip of the post-auricular skin flap, particularly when a modified rhytidectomy incision was made. To prevent this problem, care must be used when constructing the parotid flap to avoid curving too far posteriorly (25).The "surgical depression" induced by parotid gland excision is most visible soon after the procedure, when the surrounding skin is slightly oedematous, emphasizing the contrast. This despair also fades with time, but not completely. The severity of this depression is determined by the amount of gland removed

(31). Hematoma is a rare complication and usually cause due to inadequate haemostasis during surgery (32).

A parotid fistula is a passageway that connects the skin to a gland or duct that secretes saliva.

After a parotidectomy, a parotid salivary fistula is a very common consequence.

If the resected edge of the remaining salivary gland leaks saliva, it may gather under the flap or drain through the wound. (sialocele), a salivary fistula or sialocele is created. During meals, particularly during mastication, the flow through the fistula rises (31,33-40) . Mild trismus may be related to inflammation and fibrosis of the masseter muscle which is usually mild and transient (31).

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## CONCLUSION :-

The most frequent post-operative complication is transaction facial palsy, and the best way to prevent iatrogenic facial nerve injury during parotid surgery is still to have a thorough understanding of the anatomy, use good surgical technique, identify multiple anatomic landmarks, and use modern instruments.

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