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Original Research Article

Study of Outcomes and Surgical Approach in Swelling of Salivary Gland

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Abstract:

Background: Salivary gland tumours are rare tumours and majority of these are benign and about 20% are malignant. The incidence of salivary gland cancers ranges from 0.5 to 2 per 100,000 in different parts of the world. Salivary gland swellings in the parotid or submandibular glands usually present as an enlarging mass and may be associated with neurological symptoms like facial nerve paralysis or pain. Minor salivary gland tumours present as a submucosal intraoral mass which subsequently ulcerates. Acute inflammatory conditions generally can be diagnosed by history and physical examination alone, whereas chronic inflammatory diseases and granulomatous disorders require supplemental diagnostic information including lab tests, imaging studies and biopsy. FNAC of salivary gland tumours is advantageous to both the patient and the clinician because of its immediate results, accuracy, lack of complications and economy. Appropriate therapeutic management may be planned earlier, whether it is local excision for a benign neoplasm, radical surgery for a malignant one or any other alternate treatment.

Material and Methods: All patients admitted to surgical wards due to obstructions of the salivary duct and neoplasia were included in the study. Demographic data from all the patients were collected, also they were evaluated for clinical examination, routine laboratory investigations and specific investigations. After evaluation of the swellings by clinical examination and by specific investigations, a surgical plan was formulated. The final decision was taken by the operative surgeon. Conclusion: Salivary gland tumors occur more commonly in the parotid gland, most often benign, pleomorphic adenoma constitute majority of all neoplasm. Surgery is the main modality of treatment in salivary gland sialolithiasis. Most commonly done surgery is excision of submandibular salivary gland & superficial parotidectomy and also for salivary gland tumors. Awareness and early referral is necessary, as prognosis is good if treated early.

Keywords: Salivary Gland, Tumour, Neoplasm, Surgery.

Introduction

Salivary gland tumours are rare tumours and majority of these are benign and about 20% are malignant. The incidence of salivary gland cancers ranges from 0.5 to 2 per 100,000 in different parts of the world, with the highest incidence seen in Croatia [1]. These tumours can occur in both the major and minor salivary glands. About 80% of major salivary gland tumours are seen in the parotid glands, while most minor salivary tumours are located in the palate [2]. 20–25% of the parotid glands tumours are malignant. Prevalence is about 40% for the submandibular glands, and more than 90% of sublingual gland tumours are malignant [3,4]. Some authers concluded that a diet rich in vitamin C and low in cholesterol may be effective in preventing salivary gland cancer [5]. Immunosuppression, radiation and HIV infection was seen to increase the risk of salivary gland cancers [6,7]. Salivary gland swellings in the parotid or submandibularglands usually present as an enlarging mass and may be associated with neurological symptoms like facial nerve paralysis or pain. Minor salivary gland tumours present as a submucosal intraoral mass which subsequently ulcerates [8]. Acute inflammatory conditions generally can be diagnosed by history and physical examination alone, whereas chronic inflammatory diseases and granulomatous disorders require supplementaldiagnostic information including lab tests, imaging studies and biopsy. Accurate pathological diagnosis is necessary for proper management of neoplastic disorders [9]. These tumours usually occur in adults with a female predominance, but about 5% occur in childrenless than 16years [10]. FNAC of salivary gland tumours is advantageous to both the patient and the clinician because of its immediate results, accuracy, lack of complications and economy [9]. Appropriate therapeutic management may be planned earlier, whether it is local excision for a benign neoplasm,radical surgery for a malignant one or any other alternate treatment. In general, disregarding specific histological types, Prognosis is most favorable in those located inpalate, less favorable in parotid and

least favorable in submandibular gland. With non-neoplastic lesions, metastasis and lymph proliferative disorders, conservative management, chemotherapy or radiotherapy might be respectively preferable [11]

Objectives

Study of surgical approach and outcomes in salivary gland swelling, Appropriate therapeutic management may be planned earlier, whether it is local excision for a benign neoplasm, radical surgery for a malignant one or any other alternate treatment

Material and Methods

The present prospective, observational study was carriedout in Department of General Surgery at Patna Medical college and Hospital Patna. Study duration of Two Years. All patients admitted to surgical wards with salivary gland swellings due to obstructions of the salivary duct and neoplasia were included in the study. Patients were excluded if salivary gland swellings arising as a result of congenital conditions, salivary swellings associated with systemic diseases and salivary gland swellings arising as a result of inflammation like Mumps or Parotitis.

Demographic data from all the patients were collected, also they were evaluated for clinical examination, routinelaboratory investigations and specific investigations. In history, importance was given to presenting complaints, duration of lump, rapid increase in size, associated symptoms of facial nerve involvement, previous surgical. Associated medical conditions like diabetes, hypertension and anemia were managed and controlled before surgery with the patient's advice. All routine investigations were carried out on all the patients. After evaluation of the swellings by clinical examination and by specific investigations, a surgical plan was formulated. The final decision was taken by the operative surgeon. The required specimen was sent for histopathological examinations. Appropriate antibioticsand analgesics are administered postoperatively for all cases. Drainage tube was removed when the drain was less than 20ml and sutures were removed on 5th day. Malignant tumors, after surgery, for postoperative radiotherapy. The adjuvant treatment was decided depending on the final HPE report. Different modalities of treatment adopted in this study are either surgery or Surgery and postoperative radiotherapy. The follow up period of these patients ranged from 3months to 1 year. All patients were asked for follow up after 15 days of surgery then every month for 1st year then every 3 months in 2nd year, to detect morbidity and recurrence.

Results

40 cases of salivary gland swellings were admitted duringstudy period. Age of the patients varied from 9 years to 80 years. Average age of the patient was 40.6 years. The case of lowest age group i.e., 9 years was observed with non-inflammatory swelling and the case of highest age i.e., 80 years was of tumor swelling. Out of 40 cases 15(35%) cases were male and 25(65%) cases were female.

Table 1: Mode of Clinical Presentation

Mode	No. of Cases	Percentage
Swelling	40	100.0
Pain	26	65.0
Fever	8	20.0
Increased salivation	11	27.5
Tenderness	22	55.0
Fixity of swelling	4	10.0
Ear lobe elevation	19	47.5
Deep lobe involvement	3	7.5
Facial nerve paralysis	1	2.8

All cases presented with, symptoms of swelling (100%), 65 % (26) presented with pain. 55 % (22) presented with tenderness. Three cases were with deep lobe involvement (11.4%), 19 cases of ear lobe elevation (47.5%). Facial nerve paralysis occurred in one case (2.8%).

Table 2: Site for Various Salivary Gland Swellings

No. of cases	Parotid	Submandibular	Sublingual
40	25 (62.5%)	12(30.0%)	3(7.5%)

In our study, 62.5% (25 cases) were found in the parotid gland, 30% cases (12) in submandibular gland and 7.5% cases (3) in the sublingual gland.

In our study, 41.66% (5) of cases of sialolithiasis were in right submandibular gland, 58.33% (7) of cases in the left submandibular gland and 3 cases (100%) of ranula were seen in right sublingual gland only. Out of 25 salivary tumors, 96.1% were benign and 2.5% malignant. Out of 25 cases of parotid tumors, 22 (88.46%) cases were seen in superficial and 3 (11.53%) in deep lobe

Table 3: Incidence of Superficial and Deep Lobe Involvement of Parotid Gland Tumours

No of Tumors	Superficial Lobe	Deep Lobe
25	22(88.46%)	3(11.53%)

Table 4: Correlation of FNAC and Histopathology

Lesions	No. of patients	FNAC (%)	BIOPSY (%)
Pleomorphic adenoma	22	100	100
Warthin tumour	3	100	100
Adenoid cystic Ca.	1	-	-

The accuracy of FNAC was 100% in case of benignsalivary gland tumours. One case which was diagnosedby FNAC as adenoid cystic carcinoma was referred to higher center for the management.

Table 5: Surgical Procedures Adopted for Various Salivary Gland Swellings

Procedures	No. of Patients	Percentage
Excision of submandibular gland	12	28.20
Superficial parotidectomy	21s	56.41
Total Parotidectomy	3	7.6
Excision ranula	3	7.6
Total	39	100

Surgery was the treatment for all cases of tumors. Superficial parotidectomy was done in all the 21 cases of parotid tumour (56.41%) without deep lobe involvement and total parotidectomy was done in 3 cases (7.6%) with deep lobe involvement. In all the cases of submandibular gland lesions, excision of submandibular gland was done.Excision of the sublingual gland was done in 3 cases of ranula. One case of adenoid cystic cacinoma was referredto higher center because of the advanced malignancy.

Table 6: Post Operative Complications

Nature of Complications	No. of Patients	Percentage
Facial nerve paralysis	1	2.5
Mandibular nerve paralysis	1	2.5
Wound infection	8	20

Post operative complications in my study of 40 cases were low. One case of facial nerve paralysis occured afterparotid tumour surgery in the case of deep lobe involvement and one case of mandibular nerve palsy occured with submandibular sialadenectomy, wound infection was noticed in 8 cases.

Discussion

History of salivary gland disease date backs to times of Hippocrates. Although parotid gland has been surgically approached on selective basis for at least the last 300years, an understanding of parotid anatomy, especially in relation to the facial nerve, was not made clear until early part of 20 century. Earliest reports of parotid extirpative surgery were recorded in Dutch literature of late 1600 [13]. According to Foote and Frazel, term mixed tumour dates from Minssen's review in 1874- Which is cited by Ahlbom. This neoplasm was originally designated the benign mixed tumour in 1866. A name change to pleomorphic adenoma was suggested in 1948 [13]. Out of 40 cases in our study 15(35%) cases were male and 25(65%) cases were female. This finding was in accordance with the study by Ansari [5] in Iran, Otoh et al [14]. in Nigeria. In our study, incidence percentage of sialolithiasis i.e., 12 cases were found in submandibular gland which co-relates with Pizzirani et al [15] in 1985 and J. Lustmann et al [16] in 1990. In the present study 97.5% tumours were benign and 2.5% were malignant. Renehan et al [17] 1996 observed80% benign and 0% malignant tumour in his study while Skolnik et al [18] in 1977 observed 59.40% benign and 30.60% malignant tumour.In our study, all the salivary gland tumors were observed in parotid gland. Comparative study was in accordance to Renehan et al [17].

Table 7: Frequency of Benign and Malignant Salivary Tumours In Different Series

Series	No. of tumors	Benign	Malignant
Foote et al [19]1954	730	68.30%	31.70%
Skolniketal [20] 1977	435	59.40%	30.60%
Khazanchi et al [21] 1988	88	63.60%	36.40%
Renehan et al [17] 1996	1194	80.00%	0.00%
Present study	25	97.5%	2.5%

In accordance with the observation in other series, the benign tumors predominate in our study.

Out of 25 parotid tumours, 22 (88.46%) were seen in superficial lobe of parotid and 3 (11.53%) indeep lobe.

In a study by H. Leverstein et al [22]., superficial tumours were observed in 192(78.3%) cases and deep tumours in 54(22%) cases. In our study of 40 cases of salivary gland swelling, shows that, surgery is the treatment of choice in all cases of salivary gland swellings. FNAC plays an important role in the diagnosis of salivary gland tumors and accuracy rate was 100% in our series. Benign swelling of the salivary gland found in lower decade of life, whereas, malignant swelling was found in 8th decade of life.

Conclusion

Salivary gland tumors occur more commonly in the parotid gland, most often benign, pleomorphic adenoma constitute majority of all neoplasm. History and physical examination complement FNAC and help in diagnosis. FNAC has good accuracy in diagnosing salivary gland swellings. Surgery is the main modality of treatment in salivary gland sialolithiasis. Most commonly done surgery is excision of submandibular salivary gland & superficial parotidectomy and also for salivary gland tumors. Since most malignant tumors is asymptomatic and long standing benign tumors can undergo malignant change, community awareness and early referral is necessary, as prognosis is good if treated early.

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