

A Clinical Study on Salivary Gland Swellings.

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Abstract

Background : Salivary Gland Swellings are one of the most common clinical conditions encountered by the general surgeon. There are various causes of salivary swellings and they arouse much interest and debate because of their remarkable variability in structure, clinical presentation and behavior. This study was done with a interest to know the incidence, clinical presentation of swellings of the salivary glands, management, complications and correlation of the FNAC with the histopathology

AIM : 1. To study the age and sex distribution among patients presenting with Salivary Gland Swellings. 2. To study the accuracy of Fine Needle Aspiration Cytology (FNAC) in the diagnosis of Salivary Gland Swellings.

Methodology : 50 cases of salivary gland swellings presenting to Surgery Dept. and Surgical Oncology Dept. of Govt. Royapettah Hospital and Surgery Dept. of KMC Hospital at Chennai, from November 2014 to December 2015 were prospectively studied.

Results : Salivary gland swelling occurred more commonly in 3rd and 4th decades of life (28.57%) and 65% of salivary swellings were present in females. Among the non inflammatory and neoplastic swellings, 64% of salivary swellings were neoplastic and 36% non inflammatory swellings.

Conclusion: Non-inflammatory and neoplastic salivary swellings are common in the middle age group and in females. Surgery is the main modality in the treatment in both non inflammatory and neoplastic salivary gland swellings. Early diagnosis of the condition with subsequent surgical management carries a very good prognosis.

Keywords: Parotid gland; Submandibular gland; pleomorphic adenoma; superficial parotidectomy

I. Introduction

Salivary glands are classified as major and minor glands. They comprise a complex anatomic and physiologic "organ" systems. They produce enzyme lubrication, mixing agent and immune factors. They are affected by host of pathologic conditions. They are infection, immune disorder, hypertrophy and atrophy, systemic diseases and "neoplasms. Salivary gland swellings can be broadly classified into inflammatory, non-inflammatory and neoplastic swellings like calculi, benign tumours such as pleomorphic adenoma, oncocytoma, warthin's tumour or malignant tumours like adenocarcinoma, adenoid cystic carcinoma and undifferentiated carcinoma. Connective tissue diseases like haemangioma, lymphangioma, neurofibroma and other auto immune diseases like Sjogren's syndrome, Mikulicz disease etc. 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. Accurate pathological diagnosis is necessary for proper management of neoplastic disorders'.

Most of primary epithelial tumours occur in parotid glands. 7- 11% in the submandibular glands are malignant. Less than 1% occur in the sublingual glands. 9-23% occur in the minor glands. 15-30% of tumours of parotid gland are malignant. 40% in the submandibular gland are malignant. 50% in the minor salivary gland are malignant. 70-90% of sublingual glands are malignant. These tumours usually occur in adults with a female predominance. WT are more common in males^{5,6}.

FNAC of salivary gland tumours is helpful to both the patient and the clinician. Its immediate results, accuracy, lack of complications and economy are favourable. Appropriate treatment management can be planned earlier, local excision for benign neoplasm or radical surgery for malignancy. With non-neoplastic lesions, metastasis and lymph proliferative disorders, conservative management, chemotherapy or radiotherapy might be respectively preferable. In this study an attempt has been made to present various conditions of the salivary gland swellings admitted in Govt. Royapettah hospital and Kilpauk medical college hospital Chennai, from NOV 2014 to DEC 2015. All the cases are analysed and compared to the data available in literature.

II. Objectives Of The Study

- 1) To study the age and sex distribution among cases of salivary gland swellings.
- 2) To study the accuracy of FNAC in the diagnosis of salivary gland swellings
- 3) To study the methods of current surgical treatment of salivary glands swellings.

III. Methodology

This prospective study of consecutive cases of salivary gland swellings is based on 50 cases admitted in various surgical units in Govt.royapettah hospital and kilpauk medical college hospital Chennai from Nov 2014 to Dec 2015. 50 cases of salivary gland swelling are studied and data is presented here, which were analyzed and conclusion drawn, presented in tabular form with explanatory notes below each table. The statistics have been compared with different standard studies conducted on same subject by various authors around world.

Inclusion criteria:

- All patients admitted to surgical and surgical oncology wards of gov.royapettah hospital and kilpauk medical college hospital chennai with salivary gland swellings due to obstructions of the salivary duct and neoplasia.
- Patients who are willing for investigation and treatment.

Exclusion criteria:

- All salivary gland swellings arising as a result of congenital conditions.
- Salivary gland swellings arising as a result of inflammation. (ex. Mumps, Parotitis).
- Salivary swellings associated with systemic diseases. (Sjogren's syndrome). All patients admitted were evaluated by documenting the history, through clinical examination, routine laboratory 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 treatment or any medical problem. Associated medical conditions like diabetes, hypertension and anemia were managed and controlled before surgery with the patient's advice.

As a part of general work up of surgery in all patients, hemoglobin level, bleeding time, clotting time, urine, sugar albumin, microscopy, chest screening, ECG, Blood urea, serum Creatinine, RBS was estimated. Specific investigations like FNAC, X-rays of Mandible were done for all patients in the study group. Ultrasound, Sialography, C T Scan, was done wherever necessary.

After evaluation of the swellings by clinical examination and by specific investigations, a surgical plan was formulated. The final decision was taken per operatively by the surgeon. The required specimen was sent for histopathological examinations. Appropriate antibiotics and analgesics are administered post operatively for all cases. Drainage tube was removed when the drain was less than 20ml and sutures were removed on 5th day. The adjuvant treatment was decided depending on the final HPE report.

Different modalities of treatment adopted in this study are

1. Surgery alone
2. Surgery and post operative radiotherapy

The follow up period of these patients ranged from 1 month to 14 months. All patients were asked for follow up after 15 days of surgery then every month to detect morbidity and recurrence.

III. Results

Total number of admission to Department of General Surgery and Surgical Oncology were 12361, 50 cases of salivary gland swellings were admitted during November 2014 to December 2015. This constitutes 0.4% of total admissions. In our study, age of the patients varied from 18 years to 80 years, average age of the patient was 43.3 years. The case of lowest age group i.e., 18 years was of non inflammatory swelling and the case of highest age i.e., 80 years was of tumor swelling. On descriptive statistical analysis, of age in year with HPE reports P value was found to be = 0.052, which was >0.050 and hence P value was not significant. It indicates no significance between age group and HP reports in our study. Salivary gland swelling due to various causes, out of 50 cases, 17(34%) cases was of male and 33(66%) cases were female. On descriptive statistical analysis, of sex distribution with HPE reports, P value was found to be = 0.232 (> 0.05) so not significant. All cases presented with symptoms of swelling (100%), 52% (26) presented with pain, 56% (28) presented with tenderness. Five cases were with deep lobe involvement (10%), 24 cases of ear lobe elevation (48%). Facial nerve paralysis occurred in three case (6%). 64% (32 cases) were found in the parotid gland, 30% cases (15) in submandibular gland and 6% cases (3) in the sublingual gland. On the descriptive statistical analysis of Gland Involvement with HP reports, P value was found to be = to 0.000 (< .01) highly significant. Therefore correlation of Gland involvement with HP reports were highly significant. In our study, out of 50 cases, neoplastic lesions of 64.0% (32 cases) and non inflammatory non neoplastic lesions of 36% (18 cases) were seen. In our study, out of 18 cases, 14 (78.9%) were sialolithiasis and 4 cases (21.1%) of sublingualranula. Out of 32 salivary tumors, 96.88% (31) and were benign and 3.12% (1) was malignant. Out of 32 salivary gland

tumors, pleomorphic adenoma was 84% (27), 14% (4) of warthintumour and One case (2%) of adenoid cystic carcinoma. The accuracy of FNAC was 100% in case of benign salivary gland tumours, for Pleomorphic adenoma, Warthintumour, Adenoid cystic Ca. Surgery was the treatment for all cases of tumors. Superficial parotidectomy was done in all the 26 cases of parotid tumour (81.25%) without deep lobe involvement and total parotidectomy was done in 6 cases (18.75%) 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 4 cases of ranula. Post operative complications in our study of 50 cases were low. One case of facial nerve paralysis occurred after parotid tumour surgery in the case of deep lobe involvement and one case of mandibular nerve palsy occurred with submandibular sialadenectomy, wound infection was noticed in 8 cases.

On correlation of Occupation with HP reports P value = 0.458 (> .05) and hence not significant. On the basis of occupation, house wives were more commonly affected (46%) followed by farmers (14%). Least common were employees 2%. On descriptive analysis of duration of swelling with HPE reports, P value = 0.161 (> .05) therefore not significant. On distributive analysis, 1 to 3 years swelling were commonest followed by 3 to 5 years.Upto one year was less common. On descriptive analysis of Clinical Diagnosis with HPE reports P value = 0.000(< .01) therefore highly significant. Therefore there is strong association between clinical diagnosis and HP report.

IV. Discussion

Comparison of our present series of 50 cases with various series of other authors. In case series of Lustmann et al, out of total 245 cases, the incidence percentage of sialolithiasis were 94.3% submandibular gland, 4.5% parotid gland and 0.4% sublingual gland. In our study, incidence percentage of sialolithiasis i.e., all 14 cases were found in submandibular gland only which co-relates mostly with author in the above series. In accordance with the observation in Khazanchi et al case series, the benign tumors predominate out of 88 tumours, 63.6% benign and 36.4% malignant. Out of total 32 tumours, 96.88% benign and 3.12% malignant in our study. In case series of Renehan et al, 91% were from parotid, 4% submandibular and 5% sublingual gland. In our study, all the salivary gland tumors were observed in parotid gland.

In case series of Leverstein et al, for total 245 cases, 192 (78.3%) were superficial and 54 (22%) were from deep lobe of parotid. In our study, out of 32 parotid tumours, 26 (81.25%) were seen in superficial lobe of parotid and 6 (18.75%) in deep lobe, which mostly correlates.

| Series | Average Age In Years | |
|-----------------------|----------------------|-----------|
| | Benign | Malignant |
| Khazanchi Et Al. 1988 | 44 | 50 |
| Renehan Et Al. 1996 | 55 | 59 |
| Present Study | 47 | 80 |

In case series of Renehan et al, average age incidence was 55 years for benign and 59 years for malignant tumours. In our series of salivary gland tumors, out of 32 cases, 31 cases were benign with mean age 47 and one case was malignant of 80 years age, which were consistent in comparison. In our study of 50 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. In our study, there was no recurrence and nil mortality. Benign swelling of the salivary gland found in lower decade of life, whereas, malignant swelling was found in 8th decade of life, which correlates with many authors in other series.

| Series | Benign | Malignant |
|-----------------------|--------|-----------|
| Spiro RH et al., 1974 | 98% | 93% |
| Present Study | 100% | 100% |

In case series of Spiro et al 1974, comparison of FNAC with post op HP diagnosis, 98% were benign and 93% were malignant tumours. In our study of 50 cases, all cases correlated with FNAC and histopath diagnosis.

V. Figures and tables.

Figure 1: Photograph of Modified Blair Incision
Figure 5: Photograph after Superficial Parotidectomy

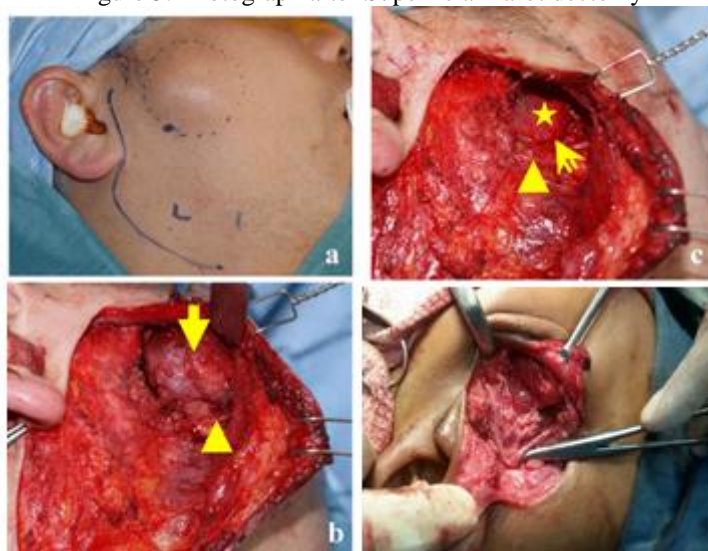


Table – I

| Sl. No. | Age in Years | Frequency (50) |
|---------|--------------|----------------|
| 1. | < 20 | 1 |
| 2. | 21-30 | 9 |
| 3. | 31-40 | 10 |
| 4. | 41-50 | 11 |
| 5. | 51-60 | 9 |
| 6. | 61-70 | 9 |
| 7. | 71-80 | 1 |

Table – II

| Sl. No. | Diagnosis | No. of Cases (50) |
|---------|--------------------------|-------------------|
| 1. | Pleomorphic Adenoma | 27 |
| 2. | Warthin's Tumour | 4 |
| 3. | Adenoid Cystic Carcinoma | 1 |
| 4. | Sialolithiasis | 14 |
| 5. | Sublingual Ranula | 4 |

VI. Conclusion

Following the study of 50 cases of salivary gland swellings, the following conclusions can be made.

- ✓ Diagnosis of the salivary gland tumors must be considered in any patient presenting with salivary gland swelling
- ✓ Salivary gland swelling occur more commonly in 3rd and 4th decades of life and seen most common in females
- ✓ Neoplastic salivary gland swellings were more common than non inflammatory swellings.
- ✓ Sialolithiasis is the predominant non inflammatory swelling.
- ✓ Sialolithiasis occur more commonly in the submandibular salivary glands.
- ✓ Salivary gland tumors occur more commonly in the parotid gland, most often benign, pleomorphic adenoma constitute majority of all neoplasms.
- ✓ 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. For salivary gland tumors, most commonly done surgery is superficial parotidectomy.
- ✓ Since most malignant tumors are 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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