

STUDY OF INCIDENCE, ACCURACY OF FNAC AND SURGICAL MANAGEMENT OF PAROTID SWELLINGS

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ABSTRACT

BACKGROUND

Parotid swellings are the commonest one in salivary gland tumours. My study includes incidence, accuracy of FNAC, various surgical modalities of treatment and post-operative complications and comparison with world statistics.

METHODS

The cohort study which included 45 patients was conducted in Madras Medical College Hospital. Data was collected from the patients after obtaining their consent. The age group ranged from 16 years to 77 years. FNAC was performed in all patients. Inclusion criteria were patients with parotid swellings. Exclusion criteria were patients with parotid lesions due to systemic or metabolic illness.

CONCLUSION

1. Parotid lesions comprised of the most common salivary gland lesion in our hospital.
2. Amongst the various lesions it was noted that benign tumours were the most common and the least common were non-neoplastic disorders.
3. The sex incidence showed a similar distribution among both males and females with the ratio being 1:1.02.
4. FNAC correlated in a total of 86.67% of cases.
5. Most commonly performed surgery was superficial parotidectomy.
6. Facial nerve palsy and seroma formation were the commonest complication noted post-operatively.

KEYWORDS

Parotid Tumours, FNAC, Superficial Parotidectomy, Facial Nerve.

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INTRODUCTION

1. To study the incidence of various parotid swelling.
2. To discuss accuracy of FNAC in comparison to the histopathological reports.
3. To study the various surgical modalities of treatment of parotid swellings.
4. To discuss the postoperative complications and comparison with world statistics.

MATERIALS AND METHODS

The cohort study which included 45 patients was conducted in Madras Medical College Hospital. Data was collected from the patients after obtaining their consent.¹ In the group, a total of 19 males and 26 females were present. The age group ranged from 16 years to 77 years. FNAC was performed in all patients. Histopathology of specimens was done in 41 cases. A total of 7 non-neoplastic, 22 benign and 16 malignant lesions were identified; 41 patients were operated on and postoperative radiotherapy was given in 10 cases.

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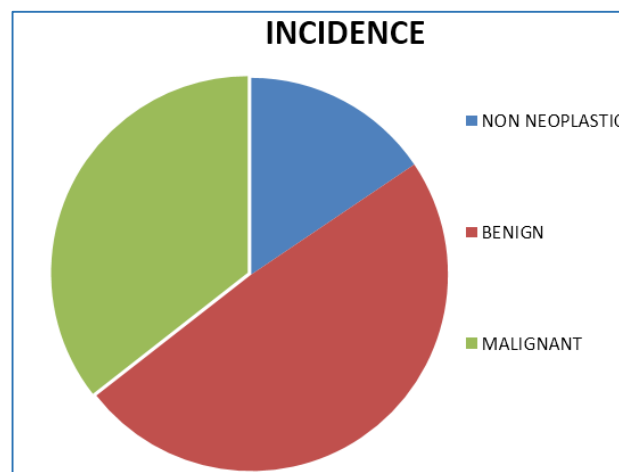
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Inclusion criteria were patients with parotid swellings. Exclusion criteria were patients with parotid lesions due to systemic or metabolic illness.

Observation and Analysis

The observation of the study of 45 parotid lesions yielded the following results.²

Lesion	Total No. of Cases	Percentage
Non-Neoplastic	7	15.55%
Benign	22	48.89%
Malignant	16	35.56%
Overall Incidence		



	Male	Female	Total
Non-Neoplastic	4.44%	11.11%	15.56%
Benign	22.22%	26.67%	48.89%
Malignant	17.78%	17.78%	35.56%

Sex Incidence Distribution

Age Group	No. of Cases	Percentage
10-19	3	6.66%
20-29	5	11.11%
30-39	9	19.98%
40-49	7	15.54%
50-59	7	15.54%
60-69	9	19.98%
70-79	5	11.11%

Age Incidence

Analysis of Individual Groups of Lesions Yielded the Following

RESULTS

A) Non-Neoplastic Lesion

Lesion	Male	Female
Chronic sialadenitis	-	1
Abscess	1	3
Cystic lesion	1	-
Reactive adenitis	-	1

Non-Neoplastic Lesion

Abscess formed a majority of the non-neoplastic group with 4 out of 7 cases.

Sex	No. of Cases	Percentage	Overall Percentage
MALE	2	28.57%	4.44%
FEMALE	5	71.43%	11.11%

Sex Incidence

Women were more affected by non-neoplastic parotid lesions than men having 71.43% of the lesions.³

FNAC

In the cytological analysis, it was noted that though there was a higher rate of lesions which were positive the true positives were lesser.^{4,5}

Lesion	Positive FNAC	Accuracy
Chronic sialadenitis	2	50%
Abscess	5	100%
Cystic lesions	2	50%
Reactive adenitis	1	100%

FNAC

On further evaluation, 3 lesions turned out to be non-Hodgkin's lymphoma, mucoepidermoid carcinoma and pleomorphic adenoma. Hence, the overall accuracy of FNAC is around 30%.⁶

In the data set of our study, it was found to be highly sensitive and specific. Positive predictive value of the 77% was found with this data.⁷

Presentation	No. of Patients	Percentage
Painful swelling	1	14.29%
Painless swelling	6	85.71%
Discharge	Nil	---
Facial nerve palsy	Nil	---
Node enlargement	Nil	---

Presentation

Treatment	Percentage	Overall %
Incision and drainage	42.86%	6.66%
Superficial parotidectomy	57.14%	8.88%

Treatment

COMPLICATIONS

Significant complications noted in this was seen only in one case where seroma and parotid fistula developed. This resolved on its own with time and consecutive medial management.

B). Neoplastic Lesions

Benign Lesions

It was seen that among the benign lesions, pleomorphic adenoma was a dominant lesion. A total of 22 benign neoplasms were present in the study, which comprised of 48.88% of all lesions in the study.⁸

Lesion	No. of Cases	%	Overall %
Pleomorphic Adenoma	20	90.9%	44.44%
Warthin's tumour	1	4.55%	2.22%
Lipoma	1	4.55%	2.22%

Lesion Incidence

Sex	No. of Cases	%	Overall %
Male	10	45.45%	22.22%
Female	12	54.55%	26.66%

Sex Incidence

In this category it was seen that though the incidence was marginally more among females, males too were maximum affected by benign lesions.⁹

Age Group	No. of Patients	Percentage
10-19	1	2.22%
20-29	2	4.44%
30-39	6	13.33%
40-49	4	8.88%
50-59	4	8.88%
60-69	4	8.88%
70-79	1	2.22%

Age Incidence

Therefore, the age group most susceptible to benign lesions is in the 4th decade. The youngest patient seen was a 16-year-old male with a lipoma.

Lesion	Total No. Detected
Pleomorphic Adenoma	19
Warthin's tumour	1
Lipoma	1

FNAC

In one patient, FNAC showed a cystic aspirate when it was actually a pleomorphic adenoma.

Treatment

Surgery was the mainstay treatment of the benign lesions. Most underwent superficial parotidectomy barring the case of lipoma who underwent excision of the lesion alone.¹⁰

Surgery	No. of Cases	Percentage Overall	Percentage
Superficial Parotidectomy	21	46.67%	95.45%
Excision	1	2.22%	4.55%
Treatment			

Complications	No. of Patients	Percentage
Seroma	4	18.18%
Facial nerve palsy	1	4.54%
Parotid fistula	1	4.54%
Post-Operative Complications		

Malignant Lesions

A total of 17 cases of malignant parotid tumours were there in our study of which the predominant type seen was mucoepidermoid carcinoma comprises of 7 cases.¹¹

Lesion	No. of Cases	Percentage	Overall Percentage
Mucoepidermoid carcinoma (Low grade)	4	23.54%	8.89%
Mucoepidermoid carcinoma (High grade)	3	17.66%	6.67%
Acinic cell carcinoma	1	5.88%	2.22%
Adenoid cystic carcinoma	2	11.76%	4.44%
Carcinoma ex pleomorphic adenoma	2	11.76%	4.44%
Undifferentiated	1	5.88%	2.22%
Lymphoma's(NHL)	1	5.88%	2.22%
Adenocarcinoma	2	11.76%	4.44%
Incidence			

Sex	No. of Cases	Percentage	Overall Percentage
Male	8	50%	17.78%
Female	8	50%	17.78%
Sex Incidence			

It was seen that the malignancies of the parotid affected men and women with equal incidence.

Age	No. of Cases	Percentage	Overall Percentage
10-19	NIL		
20-29	2	12.5%	4.44%
30-39	3	12.5%	4.44%
40-49	1	6.25%	2.22%
50-59	2	12.5%	4.44%
60-69	5	31.25%	11.1%
70-79	4	25%	8.88%
Age Incidence			

The maximum incidence of malignancies was noted to be in the 7th decade seen in 31.25% of malignancies followed by 8th decade.

Presentation	No. of Cases	Percentage	Overall Percentage
Swelling with pain	4	25%	8.88%
Painless swelling	12	75%	26.67%
Facial nerve palsy	6	36.5%	13.33%
Nodes	8	50%	17.78%
Skin involvement	4	25%	8.88%
Deep lobe involvement	2	12.5%	4.44%
Discharge	1	6.25%	2.22%
Recurrence	6	37.5%	13.33%
Mobility restricted	5	31.25%	11.11%
Presentation			

It was noted that half the cases of malignant parotid tumours presented with enlarged cervical nodes and a significant number of cases (37.5%) had associated facial palsy.

Lesion	Total No. of Positives
Mucoepidermoid carcinoma	6
Acinic cell carcinoma	3
Adenoid cell carcinoma	Nil
Adenocarcinoma	Nil
Carcinoma pleomorphic adenoma	2
Malignant cells	3
FNAC	

With FNAC it was seen that 14 malignant tumours were detected. The final histopathology report showed that a total of 16 malignant parotid lesions were present.

It was seen that there were several errors in the detection of malignant lesions not only regarding the type of lesion that was detected, but in fact many were concluding a wrong result.

Treatment Modalities

Surgical modality was the mainstay treatment for most cases and the most commonly performed surgery was total parotidectomy. It comprised around 37.5%. Also neck dissection was performed in 31.5% of the cases.

Surgery	No. of Cases	Percentage	Overall Percentage
Total conservative parotidectomy	6	37.5%	13.33%
Radical parotidectomy	4	25%	8.89%
Completion parotidectomy	2	12.5%	4.44%
Neck dissection	5	31.25%	11.11%
Non-surgical management	4	25%	8.89%
Treatment Modalities			

Other Modalities

Radiotherapy was used in almost all cases, either in the form of palliation or postoperatively as an adjuvant. Adjuvant radiotherapy was given in 62.5% of the patients with malignancies and as palliation in 31.25% of cases. Chemotherapy was given as adjuvant in one patient where the

diagnosis was Non-Hodgkin's lymphoma (CHOP regimen) and as palliation in one case.

Post-operative Complications

The most common post-operative complication noted in this group of patients was facial palsy due to injury to the facial nerve seen in 50% of the cases. Also seroma formation was noted in 31.25% of the patients who underwent surgery.

One patient had vocal cord palsy due to the extensive dissection and resection of the infiltrative tumour.

Complication	No. of Cases	Percentage	Overall Percentage
Facial nerve palsy	8	50%	17.78%
Seroma	5	31.25%	11.11%
Flap necrosis	2	12.5%	4.44%
Vocal cord palsy	1	6.25%	2.22%
Post-operative Complications			

DISCUSSION

The comparative analysis of the study was made with other published studies and the following results were obtained.

Institution	MMCH	MD Anderson Cancer Centre	Shaw Thai
Male: Female	1:1.125	1.01:1	1.03:1
Male	20	77	53
Female	25	75	55
Comparison of Sex Incidence			

Centre	Superficial Parotidectomy	Total Conservative Parotidectomy	Total Parotidectomy Facial Nerve Resection	Radical	Neck Dissection	Others
MMCH	53.33%	13.33%		8.89%	11.11%	13.33%
Nagarkar et al	79.17%	12.5%		4.17%	4.17%	4.16%
Acar.A et al	74.4%	16.28%	6.98%	----	13.95%	2.32%
Surgical Management						

In our study it was found that the other surgeries performed were completion parotidectomy, incision and drainage and excision biopsies which correspond with other studies.¹³

Other Treatment Modalities

Radiotherapy was used as a postoperative adjuvant management in most cases of malignant tumours.^{14,15}

Centre	MMC	MD Anderson Cancer Centre	Govt. Medical College Chandigarh	Italy Piconi et al .
Specificity		86%		99%
Sensitivity		82%	97%	81%
PPV		85%	95%	93%
NPV		86%		98%
Overall Accuracy		84%		97%
FNAC Comparison between our Institution & Various Centres				

Centre	Non-Neoplastic Lesions	Benign Tumours	Malignant Tumours
MMCH	15.55%	48.89%	35.56%
MD Anderson	7.14%	43.51%	49.35%
Shaw Tsai et al	13.89%	77.81%	8.3%
Incidence of Various Lesions Among Institutions			

It was seen that among all the centres for most common benign and malignant lesions were corresponding with each other with pleomorphic adenoma and mucoepidermoid carcinoma respectively.¹²

Centre	Post Op Radiotherapy
MMCH	62.5%
Acar.A et al	84.4%
Nagarkar et al	20%
Other Treatment Modalities	

Post-Operative Complications

Most common complication was noted to be facial nerve palsy, transient or permanent.

Post Op Complications	Facial Nerve Palsy	Seroma/Haematoma	Flap Necrosis/Infection	Parotid Fistula
MMCH	20%	20%	4.44%	4.44%
Acar.A et al	30.1%	5.8%	4.6%	3.4%
Nagarkar et al	29.17%	Nil	Nil	8.33%
Post-operative Complications				

CONCLUSION

The Analysis of the Data of the Study Conducted at our Institution provided us with the following Results:

1. Parotid lesions comprised of the most common salivary gland lesion in our hospital.
2. Amongst the various lesions, it was noted that benign tumours were the most common and the least common were non-neoplastic disorders.
3. The sex incidence showed a similar distribution among both males and females with the ratio being 1:1.02.

4. The mean age of presentation was 49 years and it was seen that the 4th decade and 7th decades were the predominant age group for occurrence in case of benign and malignant tumours respectively.
5. The lesion which were predominant in the non-neoplastic, benign and malignant tumour groups were abscess, pleomorphic adenoma and mucoepidermoid carcinomas respectively. These were found to be consistent with the comparison made with world statistics.
6. FNAC correlated in a total of 39 out of 45 cases, i.e. 86.67% of the cases.
7. Patients presenting with facial nerve palsy was seen more among the malignant tumours.
8. Most commonly performed surgery was superficial parotidectomy. Completion parotidectomy was performed in 2 cases and both were malignant tumours.
9. Facial nerve palsy and seroma formation were the commonest complication noted post-operatively.
10. Radiotherapy was the most common non-surgical modality used and used more commonly in post-op.

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