

## To Assess the Clinical, Cytological and Histopathological Findings of Salivary Gland Lesions: An Institutional Based Study

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### ABSTRACT

**Background:** Salivary gland swellings can arise from a number of aetiologies including tumours, inflammatory processes or cysts. Fine needle aspiration cytology is a popular method for diagnostic evaluation of salivary gland masses. The present study was conducted to assess the clinical, cytological and histopathological findings of salivary gland lesions.

**Materials and Methods:** A prospective study was carried out among 54 patients. All patients were clinically evaluated by detailed history and clinical examination. FNAC was carried out as per standard guidelines in all cases. Histopathology reports were compared to FNAC. The results were statistically analysed. Statistical analysis was performed with IBM SPSS Statistics (International Business Machines Corporation (IBM), New York, USA), version 22 for Windows.

**Results:** The study included 54 patients in 40.74% were males and 59.25% were females. Clinical findings showed that 33 patients had swelling on right side, 17 on left side and 4 had bilateral tumor. Of the 54 FNAC samples 22 (40.74%) cases were diagnosed as being benign, 10 (18.51%) as malignant, 14 (25.92%) as non-neoplastic lesion and 8 (14.81%) were inflammatory. Pleomorphic adenoma was the most common benign lesion as cytopathology shows its was 16 in number. Histopathologically it showed that 13 lesions show concordant cytology and 3 shows discordant cytology. Adenoid cystic carcinoma was the most common malignant lesion as cytopathology shows its was 6 in number. Histopathologically it

showed that 5 lesions show concordant cytology and 1 shows discordant cytology. Cytopathologically inflammatory lesions were 8 but concordant cytology shows 6 lesions and discordant cytology was found in 2 lesions. Cytopathologically non-neoplastic lesions were 14 but concordant cytology shows 9 lesions and discordant cytology was found in 5 lesions.

**Conclusion:** This study concluded that Fine-needle aspiration is useful for clinical management of patients with salivary gland lesions. FNAC can be used preoperatively to avoid unnecessary surgery and discomfort associated with open biopsy.

**Keywords:** FNAC Samples, Benign, Malignant, Non-Neoplastic Lesion, Inflammatory, Histopathology.


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### INTRODUCTION

Salivary glands are exocrine organs responsible for production and secretion of saliva and consist of the parotid, submandibular, sublingual, and the minor glands that are numerous and widely distributed throughout the mouth and oropharynx.<sup>1</sup> Salivary gland lesions form about 2-6.5% of all head and neck neoplasm in adults<sup>2</sup>, and present as enlarged masses which are usually accessible for FNAC. They are not generally subjected to incisional or needle biopsy techniques because of the risks of fistula formation, or in the case of neoplasm, of tumour implantation. There is no evidence that these complications occur with FNAC.<sup>3</sup> Fine needle aspiration cytology (FNAC) is a simple

and rapid technique. No expensive instruments are needed.<sup>4</sup> The FNAC procedure is relatively safe, easy to perform and causes little discomfort to the patients.<sup>5</sup> The single most important factor that determines accuracy is experience of the both pathologist and aspirator.<sup>6</sup> Fine needle aspirations (FNAs) are the most common cyto-methodology in salivary gland pathology practice.<sup>7,8</sup> FNA is a cytological method that is used to describe the morphological findings of individual cells, groups of cells, and microparticles in tissue from samples that were acquired using a needle.<sup>9</sup> The present study was conducted to assess the clinical, cytological and histopathological findings of salivary gland lesions.

**MATERIALS AND METHODS**

A prospective study was carried out among 54 patients. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute. In the present study, all patients undergoing surgery of salivary glands were included. The patients with the following were excluded that acute inflammatory lesions, frank pus obtained on FNAC, revision surgeries. All patients were clinically evaluated by detailed history and clinical examination. FNAC was carried out as per standard guidelines in all cases. Histopathology reports were compared to FNAC. The results were statistically analysed.

**RESULTS**

The study included 54 patients in 40.74% were males and 59.25% were females. Clinical findings showed that 33 patients had swelling on right side, 17 on left side and 4 had bilateral tumor. Of the 54 FNAC samples 22 (40.74%) cases were diagnosed as being benign, 10 (18.51%) as malignant, 14 (25.92%) as non-neoplastic lesion and 8 (14.81%) were inflammatory. Pleomorphic adenoma was the most common benign lesion as cytopathology shows its was 16 in number. Histopathologically it showed that 13 lesions shows concordant cytology and 3 shows discordant cytology. Adenoid cystic carcinoma was the most common malignant lesion as cytopathology shows its was 6 in number. Histopathologically it showed that 5 lesions shows concordant cytology and 1 shows discordant cytology. Cytopathologically inflammatory lesions were 8 but concordant cytology shows 6 lesions and discordant cytology was found in 2 lesions. Cytopathologically non-neoplastic lesions were 14 but concordant cytology shows 9 lesions and discordant cytology was found in 5 lesions.

**Table 1: Distribution of patients according to gender**

Gender	N (%)
Males	22(40.74%)
Females	32(59.25%)
Total	54(100%)

**Table 2: Clinical findings of salivary gland**

Swelling	N
Right side	33
Left side	17
Bilateral	4
Total	54

**Table 3: Distribution of disease on histopathology in salivary gland**

Type of lesion	N (%)
<b>Neoplastic lesion</b>	
Benign	22(40.74%)
Malignant	10(18.51%)
<b>Non-neoplastic lesion</b>	
Inflammatory	8(14.81%)
Total	54(100%)

**Table 4: Cytohistological correlation in salivary gland lesions**

Diagnosis	Cytopathology No. of cases (n=54)	Histopathology(n=54)	
		Concordant cytology	Discordant cytology
<b>BENIGN</b>			
Pleomorphic adenoma	16	13	3
Basal cell adenoma	2	2	0
Warthin's tumor	2	1	1
Vascular tumor	1	1	0
Lipoma	1	0	1
<b>MALIGNANT</b>			
Adenoid cystic carcinoma	6	5	1
Mucoepidermoid carcinoma	3	1	2
Acinic cell carcinoma	1	1	0
Pleomorphic adenoma Ex carcinoma	0	0	0
<b>METASTATIC TUMORS</b>	0	0	0
<b>INFLAMMATORY</b>	8	6	2
<b>NON- NEOPLASTIC LESINS</b>	14	9	5

## DISCUSSION

In the diagnosis of salivary gland lesions, FNAC has gained the popularity as diagnostic tool due to its low cost and safe procedure with minimal risk to the patient<sup>10</sup> and aid to the clinicians in the management planning. The rate of unsatisfactory samples on FNAC is varied from 3% to 12%.<sup>11-14</sup>

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The incidence of benign neoplasm has been reported as 40%, 61% and 69% by different authors.<sup>15,16</sup> Malignant lesions were reported as 37% and 13% by other authors.<sup>15,16</sup> In Other studies 40% of cases have been reported as non-neoplastic.<sup>15</sup>

Some of the studies show female preponderance where as others shows slight excess in male but sex differences are not significant.<sup>17-19</sup>

The sensitivity of diagnosing Pleomorphic adenoma by FNAC is up to 94% in various studies.<sup>20,21</sup> Al-khateeb and Ababneh<sup>22</sup> and Vargas *et al.*<sup>23</sup> described male:female ratio varying from 1:1.2 to 2:3. Zbaren *et al* performed preoperative FNAC in 228 patients and the results of FNAC were analyzed and compared with the corresponding histopathological diagnosis. Histological evaluation revealed 65 malignant tumors and 163 benign lesions. The cytological findings were non-diagnostic in 13 (5.7%). The accuracy, sensitivity, and specificity were 86%, 64%, and 95% respectively in their study.<sup>24</sup>

In a retrospective study on 249 patients the sensitivity of FNAC for the diagnosis of malignancy was 80% with a specificity of 89.5%.<sup>25</sup>

## CONCLUSION

This study concluded that fine-needle aspiration is useful for clinical management of patients with salivary gland lesions. FNAC can be used preoperatively to avoid unnecessary surgery and discomfort associated with open biopsy.

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