Int. J Med. Pharm. Res. (P-ISSN: 2958-3675 | E-ISSN: 2958-3683)
Available on: https://ijmpr.in/

International Journal
of Medical and Pharmaceutical Research

ORGINAL ARTICLE **OPEN ACCESS**

Role of Milan system reporting for categorizing salivary gland lesions in cytopathology

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Received: 20-11-2024
Accepted: 25-12-2024
Available online: 31-12-2024

A B S T R A C T

Introduction: Salivary glands are exocrine organs responsible for the production and secretion of saliva and consist of the parotid, submandibular, sublingual and minor salivary glands that are numerous and widely distributed throughout the mouth and oropharynx.
Salivary glands neoplasms accounts for less than 3% of all the head and neck tumors. (1)
FNAC is a useful method for evaluating suspicious salivary gland lesions due to its low cost, minimum morbidity, rapid turn around time, high specificity and sensitivity. (2)
Among the primary epithelial tumors, 64-80% occurs in the parotid glands, 7-11% occurs in the submandibular, less then 1% occurs in the sublingual and 9-23% occur in the minor salivary glands. (3)
Material and Method: The study was conducted on salivary gland lesions over the period of 6months, with total number of 35cases in the Department of Pathology.
Results: There is a definite male predominance in lesions of salivary glands.
Parotid is the most common site for occurrence of salivary gland lesions.
Benign neoplasm more common in age group below 50years and malignancies in above 50years of age groups.
A total 35 salivary gland lesions were examined and 22 were males and 13 were females
According to MILAN system majority of cases belongs to Neoplasm benign (37%) followed by non neoplastic(28.6%), malignant(25.7%), non diagnostic(5.8%) and Suspicious of malignancy(2.9%).
Conclusion:FNAC has an immense significance as a primary and most effective as well as cost effective screening test in detecting and differentiating salivary glands lesions.
The high sensitivity, specificity and diagnostic accuracy of cytologic reporting of salivary gland lesions based on Milan nomenclature in our study reflect the positive contribution of the MSRSGC towards accurately categorizing the lesions by which risk of malignancy can be assessed. This helps the clinicians for further management

Keywords: MILAN-Salivary gland, FNAC, Diagnostic accuracy

INTRODUCTION

Fine Needle Aspiration Cytology (FNAC) is a minimally invasive technique. FNAC is a useful method for evaluating suspicious salivary gland lesions due to its low cost, minimum morbidity, rapid turn around time, high specificity and sensitivity. (2)
To address the need for a diagnostic framework, the Milan System for Reporting Salivary Gland Cytopathology was developed in 2015 by an international task force of cytopathologist, surgical pathologist and head and neck surgeons through the American Society of Cytopathology and International Academy of Cytology.(4)

This comprised of six categories;

1. Non diagnostic (category I)
2. Non- neoplastic (category II)
3. Atypia of undermined significance(category III)
4. Benign neoplasm (category IVa)
5. Salivary gland neoplasm of uncertain malignant potential(SUMP) (categoryIVb)
   Suspicious for malignancy (category V)
6. Malignant (category VI)

MATERIALS AND METHODS

During this study 35 patients with salivary glands lesions, of all ages and both gender were included.
Prior informed consent was also taken after explaining the whole procedure. No anesthetic medication was used during the procedure.
FNAC was performed after evaluating detailed clinical history and clinical examination using 22 gauge needle and 10ml plastic syringe with a detachable syringe holder.
All the smears were stained with Haematoxylin and Eosin stain and Giemsa stain and PAP stain.
Site and gender wise distribution of the salivary gland lesions along with the cytomorphological features were charted in the table format.
Further this lesion categorized using Milan system for reporting and compared with other study.

RESULTS

Site wise incidence of salivary swellings

Cytodiagnosis	Parotid gland	Submandibular gland	Total	
	No. of cases	No. of cases	No. of cases	%
Sialadenosis	0	2	2	5.7
Acute sialadenitis	0	1	1	2.85
Chronic Sialadenitis	1	1	2	5.7
Tuberculous Abscess	1	3	4	11.43
Cystic lesion	2	0	2	5.7
Pleomorphic adenoma	9	2	11	31.4
Warthin's tumor	2	0	2	5.7
Granulomatous sialadenitis	0	1	1	2.85
Suspicious malignancy	0	1	1	2.85
Mucoepidermoid Carcinoma (MEC)	1	0	1	2.85
SCC salivary gland	3	4	7	20
Adenoid cystic Carcinoma	0	1	1	2.85
Total	19	16	35	100

Site wise distribution:

Site	No. of cases	%
Parotid	19	54.28
Submandibular	16	45.72

Gender wise distribution:

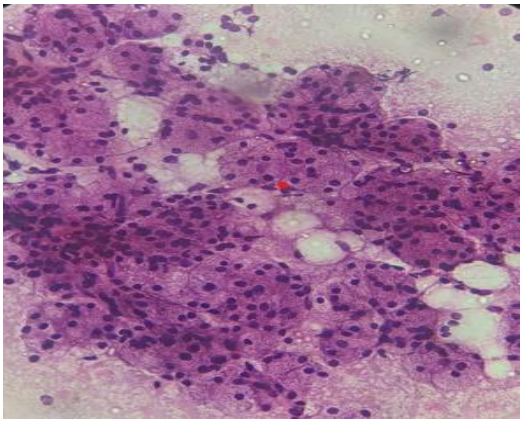
Sex	No. of cases	%
Male	22	69
Female	13	31

Distribution of all cases according to the MILAN

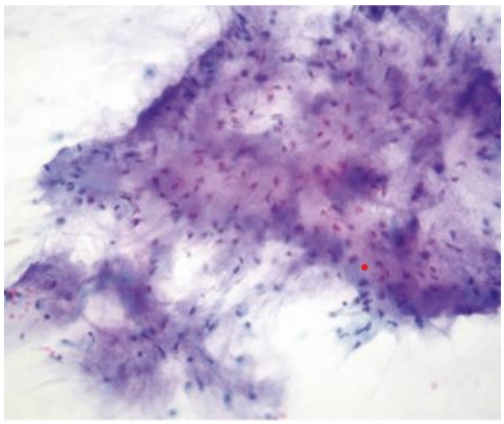
Category		No. of cases	%
I	Non-Diagnostic	2	5.8
II	Non-neoplastic	10	28.6
III	Atypia of undermined significance	00	00
IVa	Neoplasm Benign	13	37
IVb	SUMP	0	0
V	Suspicious of malignancy	1	2.9
VI	Malignant	9	25.7

Categorizing of FNAC cases according to MILAN System

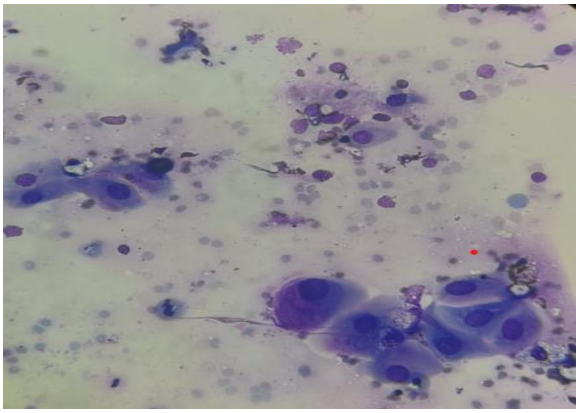
Milan Category	No. of cases	Primary FNAC diagnosis	No. of cases
I	2	Cystic lesion	2
II(Non neoplastic)	10	Acute Sialadenitis	1
		Chronic Sialadenitis	2
		Tubourculous abscess	4
		Granulomatous Sialadenitis	1
		Sialadenosis	2
III(AUS)	0	Atpia of undermined significance	0
Iva(Benign Neoplasm)	13	Pleomorphic adenoma	11
		Warthin'sTumour	2
V(Suspicious for malignancy)	1	Suspicious looking squamous cells	1
VI(Malignancy)	9	MEC high grade	1
		Salivary duct carcinoma	8



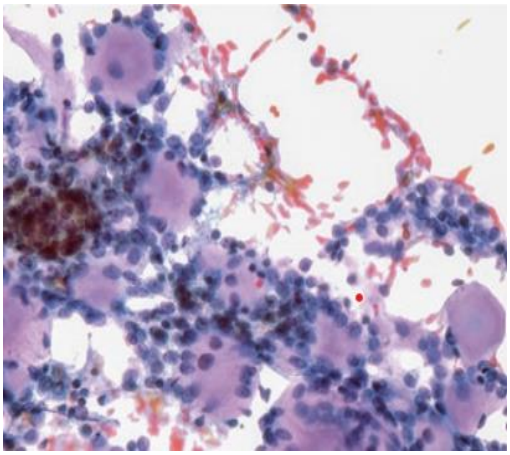
Sialadenosis(cluster of large vacuolated acinar cells (H & E 40x)



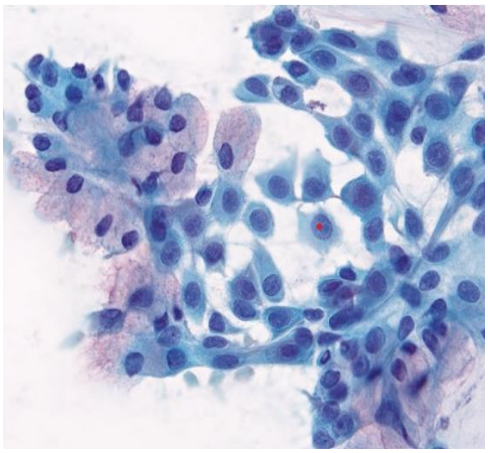
Pleomorphic Adenoma(fibrillary matrix with myoepithelial cells) (Giemsa 40x)



Warthin Tumor (oncocytic cells with abundant granular cytoplasmandwell defined borders in a background of lymphocytes) (Giemsa 40x)



Adenoid cystic tumor (Basaloid cells surrounding acelluarmetrix with cibriform pattern(PAP 40x) and mucus cells contain delicate pink mucinous cytoplasm (PAP 40x)



Mucoepidermoid carcinoma (Bland epidermoid cells with moderate amount of dense cytoplasm

DISCUSSION

- FNAC has been used widely for over five decades in the initial evaluation and triage of patient with salivary gland lesions.
  MSRSGC (Milan system for reporting salivary gland carcinoma) is a six tier system for reporting salivary gland lesions according to risk stratification to provide better communication between clinicians and cytopathologists and ultimately improve patient care.
- In our study, 35 salivary gland lesions were studied using Milan system 22male (69%) and 13females (31%) identified , with a male to female ratio of 2:1 this is comparable with a few other published literature
  Benign neoplasm is highest diagnosed followed by non neoplastic category (II) followed by Malignancy category (VI) which is similar to study done by northeast India as a retrospective study[6].

CONCLUSION

FNAC has an immense significance as a primary and most effective as well as cost effective screening test in detecting and differentiating salivary glands lesions.

The high sensitivity, specificity and diagnostic accuracy of cytologic reporting of salivary gland lesions based on Milan nomenclature in our study reflect the positive contribution of the MSRSGC towards accurately categorizing the lesions by which risk of malignancy can be assessed. This helps the clinicians for further management[7]

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