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Original Research Article

Diagnostic Challenges in FNAC of Salivary Glands

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Abstract

Background: Fine-needle aspiration (FNAC) cytology is well established and widely used to evaluate palpable lesions and, with imaging studies as an adjunct, is equally applicable to deep-seated lesions. Although FNAC is considered quite a reliable procedure for diagnosing salivary gland lesions, one comes across frequent diagnostic challenges in diagnosing salivary gland lesion. ***Methods:*** **180** patients were enrolled in the study from January 2014 – august 2016 .Out of these 69 samples had histopathology samples. Special stains (PAS-D) and cell blocks were prepared wherever necessary. ***Results:*** Benign neoplastic lesions were (68.1%) found to be the most common with pleomorphic adenoma being predominant of all. Mucoepidermoid carcinoma was the most common malignant lesion followed by adenoid cystic carcinoma. ***Conclusion:*** Diagnostic dilemmas are commoner in certain lesions such as basaloid neoplasms, oncocyte lesions, mucus containing cysts and lesions with squamous cells or lymphocytes, spindle cells. These pitfalls can be reduced to minimum by adequate sampling by multiple passes from different areas along with thorough clinical and radiological examination.

Keywords: FNAC,Salivary gland, pitfalls.

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BACKGROUND

Fine-needle aspiration (FNAC) cytology as a sensitive and specific diagnostic procedure is well established and widely used to evaluate palpable lesions and, with imaging studies as an adjunct, is equally applicable to deep-seated lesions [1].Salivary gland tumors accounts for less than 3% of all head and neck lesions. FNAC being a cost effective and minimally invasive procedure forms the basic tissue investigation procedure [2, 3]. It can be repeated if adequate material is not aspirated.

Although FNAC is considered quite a reliable procedure for diagnosing salivary gland lesions, one comes across frequent diagnostic challenges in diagnosing salivary gland lesions. These could be due to similar cellular constituents and metaplastic changes in different tumors, benign and malignant tumors with similar cytology (e.g. basaloid neoplasms) [4] and suboptimal sampling. Several large published series have documented the accuracy and limitations of salivary gland FNA. The overall accuracy has been reported to be 87% to 100% in distinguishing benign from malignant lesions; FNA also has a reported sensitivity of 87% to 100% and a specificity of 90% to 100% [5-9]. The present study was conducted to study the cytomorphological features of various.

MATERIAL AND METHODS

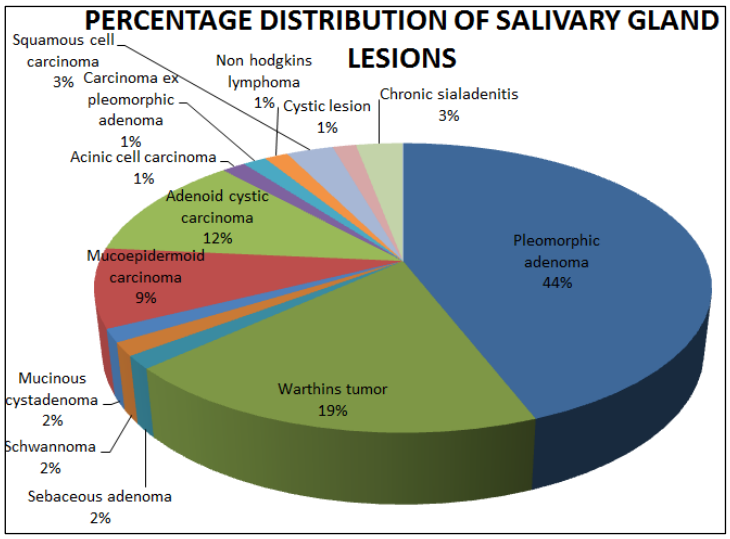
The present study was a prospective study of FNAC samples of salivary glands in Medanta, The Medicity, Gurugram. Records of 180 FNAC samples received in our department (January2014-August 2016) were retrieved .Out of these, 69 samples had available surgical specimens. Cytology and histopathology slides were reviewed.

Table-1: Fnac of Salivary Glands

NON NEOPLASTIC		NEOPLASTIC			
		BENIGN		MALIGNANT	
Cystic lesion	1	Pleomorphic adenoma	30	Mucoepidermoid carcinoma	6
Chronic sialadenitis	2	Warthins tumor	13	Adenoid cystic carcinoma	8
		Sebaceous adenoma	1	Acinic cell carcinoma	1
		Schwannoma	1	Carcinoma ex pleomorphic adenoma	1
		Mucinous cystadenoma	1	Non hodgkins lymphoma	1
		Basal cell adenoma	1	Squamous cell carcinoma	2
Total	3		47		19

RESULTS

Out of total 69 cases 3 cases were non neoplastic while 66 cases were found to be neoplastic. Out of the total 66 neoplastic cases,47 (68.1%)cases were benign while 19 (27.53%)cases were malignant. Pleomorphic adenoma is the most common benign salivary gland neoplasm. The most common malignant tumor is mucoepidermoid carcinoma, followed by adenoid cystic carcinoma in our study.



DISCUSSION

The sensitivity of FNAC for the diagnosis of neoplasia is quite high being 93.65%.However the specificity of FNAC was found to be on the lower side being only about 60%.FNAC of salivary glands poses many diagnostic challenges. In our study there were ten cases which showed diagnostic discrepancy .One of the cases was reported Warthins tumor based on few lymphocytes, scant epithelial cells and few oncocyte like cells. However on histopathology, it turned out to be chronic sialadenitis. Another case which came for slide review showed abundant elongated myoepithelial cells with chondroid like matrix appearing intermingled with surrounding epithelial cells. However on histopathology, it turned out to be adenoid cystic carcinoma.

Table-2: Cases with Histo-Cyto Dicrepancy

S.No.	Site	Cytologic Impression	Histopathology
1	Submandibular LN.	Warthins tumor	Chronic sialadenitis
2	Left parotid swelling	Pleomorphic adenoma	Adenoid cystic carcinoma
3	Left intraparotid tissue	Pleomorphic adenoma	Low grade mucoepidermoid carcinoma
4	Parotid gland	Mucoepidermoid carcinoma	Warthins tumor
5	Parotid gland	1. Low grade mucoepidermoid carcinoma 2. Acinic cell carcinoma	Sebaceous adenoma
6	Parotid gland	1. Basaloid neoplasm- (adenoma / carcinoma) 2. Pleomorphic adenoma with sparse cellularity 3. Adenoid cystic carcinoma	Adenoid cystic carcinoma
7	Parotid gland	1. Low grade mucoepidermoid carcinoma. 2. Oncocytoma. 3. Acinic cell carcinoma	Mucoepidermoid carcinoma
8	Parotid gland	Myoepithelial cell rich neoplasm	Schwannoma
9	Submandibular gland	Low grade salivary gland neoplasm with extensive mucinous changes.	Warthins tumor with cystic degeneration
10	Parotid lump	Low grade salivary gland neoplasm with cystic and inflammatory changes	Retention cyst

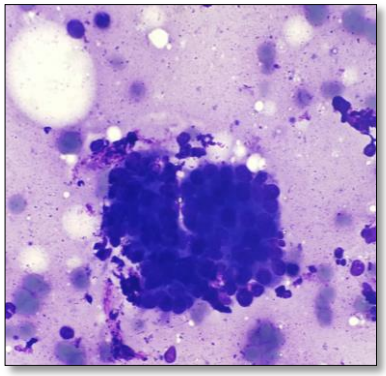


Fig-1(A): 400x, giemsa stain, moderately cellular smear, with
Lymphocytes, epithelial cells and occasional oncocyte like cells

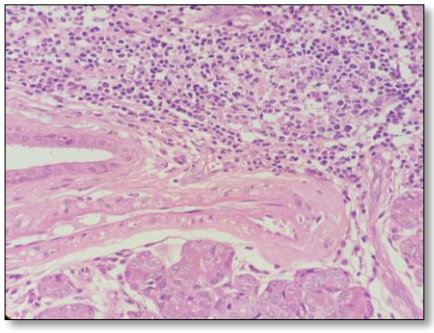


Fig-1(B): 400x, histopathology revealed chronic sialadenitis

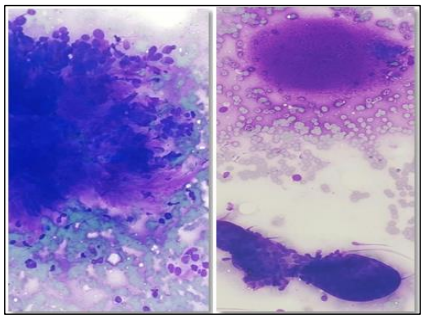


Fig-2(A):400x, giemsa stain, epithelial cells intermingled with
chondroid like matrix suggested pleomorphic adenoma

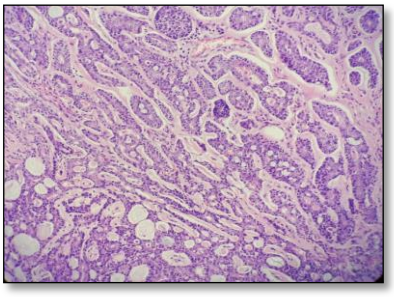


Fig-2(B):400x,H&E,histopathology showed adenoid cystic carcinoma

CONCLUSION

Diagnostic dilemmas are commoner in certain lesions such as basaloid neoplasms, oncocyte lesions, mucus containing cysts and lesions with squamous cells or lymphocytes, spindle cells. It was inferred that false negatives were frequent in cases with inadequate sampling & interpretation error. False positives were mostly seen in Warthins tumor with squamous metaplasia and / or inflammation.

So these pitfalls can be reduced to minimum by adequate sampling by multiple passes from different areas. Thorough clinical and radiological correlation is advised in all cases. Both Giemsa & Papanicolaou stains along with special stains (e.sg.PAS-D) wherever necessary if mucoepidermoid carcinoma is a differential. Cell block should be prepared whenever possible. In absence of specific diagnosis, appropriate differential diagnosis and conservative approach is suggested.

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