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Research Paper

Histocytological Correlation Study of Salivary Gland Lesions.

Medical Science

KEYWORDS : Histopathological, cytological correlation, salivary gland

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ABSTRACT

Background: Salivary gland neoplasm are characterised by their wide variety as well as histologic diversity within same tumour and insufficient tumor cells make their diagnosis difficult in some patients. The aim of this study was to evaluate the efficacy of fine-needle aspiration cytology (FNAC) in the diagnosis of salivary gland lesions and to correlate cytological findings with histopathology.

Materials and Methods: A prospective study of FNAC of salivary gland lesions was carried out along with its histopathological correlation starting from January 2011 to June 2013 at the P.D.U. Medical College and Hospital, Rajkot, Gujarat (India). Total 80 salivary gland aspirates were done and was followed by histopathological examination.

Results: FNAC categorized 46.2% lesions as non neoplastic and 53.75% as neoplastic. Histopathological examination revealed that 45% were Nonneoplastic Lesions and 55% were Neoplastic Lesions. Among the lesions 45% were Inflammatory, 46.25% were Benign and 8.75% were Malignant. Most common salivary gland to be involved was Parotid Gland (76.2%). Sensitivity of FNAC was 71.4%, Specificity was 95.9% and Diagnostic Accuracy was 93.75%.

Conclusion: Aspiration cytology is very useful and time saving and has high sensitivity, specificity and diagnostic accuracy. It is a cost effective procedure and cuts down the waiting period between the patient's first visit to the clinicians and establishment of definitive diagnosis and specific line of therapy. The main utility of FNAC of salivary gland lesions is to classify them in inflammatory, benign and malignant.

INTRODUCTION:

FNAC is a well known safe diagnostic procedure. It is very useful for diagnosis, treatment and management of the patient. In recent years it is preferred by clinicians and pathologists due to its simplicity, rapidity, safety, low cost, relatively good accuracy and effectiveness. Wide applicability of FNAC during recent years has reduced unnecessary surgical procedure and traumatic biopsy.

The aim of the present study was to evaluate the efficacy of FNAC in diagnosis of salivary gland lesions and to correlate cytological findings with histopathology.

MATERIALS AND METHODS:-

A prospective study of FNAC of salivary gland lesions was carried out along with its histopathological correlation starting from January 2011 to June 2013 at the P.D.U. Medical College and Hospital, Rajkot, Gujarat (India). Total 80 salivary gland aspirates were done and were followed by histopathological examination.76 cases were histocytologically correlated. Out of 80 cases 4 cases were not histocytologically correlated. The FNAC was performed using a 21 – 23 gauge needle attached to a 10 ml disposable syringe. Aspirates were smeared on clean slides which were dry and free of grease. Smears were wet fixed or air dried and stained by H & E (Hematoxylin and Eosin) and May-Grunwald-Giemsa (MGG) stains. The excised surgical specimens were fixed in 10% formalin, then routinely processed and stained by Haematoxylin and Eosin (H & E) stain.

We compared the histopathological findings with the findings of FNAC and calculated the sensitivity, specificity and diagnostic accuracy of FNAC for diagnosing benign and malignant diseases.

RESULT:-

FNAC categorized 37 (46.2%) lesions as non neoplastic and 43 (53.75%) as neoplastic [TABLE-1].Histopathological examination revealed that (36) 45% were Nonneoplastic Lesions and (44) 55% were Neoplastic Lesions [TABLE-2]. Among the lesions (36) 45% were Inflammatory, (37) 46.25% were Benign and (7) 8.75% were Malignant [TABLE-5]. Most common salivary gland to be involved was Parotid Gland (75%) [TABLE-3]. Sensitivity of FNAC was 71.4%, Specificity was 95.9% and Diagnostic Accuracy was 93.75% [TABLE-6].

DISCUSSION:-

FNAC is a safe and reliable and relatively painless procedure for the preoperative diagnosis of the salivary gland lesions[1]. The advantage of this technique have been emphasised by various workers in diagnostic ground .Its importance in diagnosing salivary gland lesions has been emphasised. In our study salivary gland lesions were found to be common in 3rd to 6th decade of life. Male: Female ratio in salivary gland lesions was 1.58:1[TABLE-4]. Among benign tumors ratio was 1.52:1 and among malignant tumors ratio was 2.5:1 [TABLE-4].

In our study, a high diagnostic efficacy of FNAC in diagnosing both benign and malignant lesions was achieved. Overall, for both neoplastic and non neoplastic lesions, FNAC showed a sensitivity of 71.4%, specificity of 95.9% and diagnostic accuracy of 93.75%. These results were comparable to previously reported results [TABLE-7][2-10].

CONCLUSION:-

Aspiration cytology is very useful and time saving and has high sensitivity, specificity and diagnostic accuracy. It is a cost effective procedure and cuts down the waiting period between the patient's first visit to the clinicians and establishment of definitive diagnosis and specific line of therapy. The main utility of FNAC of salivary gland lesions is to classify them in inflammatory, benign and malignant.

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TABLES:-

TABLE-1

CYTOLOGICAL DIAGNOSIS OF VARIOUS SALIVARY GLAND LESIONS

CYTOLOGICAL DIAGNOSIS	NO. OF CASES	PERCENTAGE
NON NEOPLASTIC LESIONS OF SALIVARY GLAND	37	46.25%
NEOPLASTIC LESIONS OF SALIVARY GLAND	43	53.75%
TOTAL	80	100%

TABLE-2

HISTOLOGICAL DIAGNOSIS OF VARIOUS SALIVARY GLAND LESIONS

HISTOLOGICAL DIAGNOSIS	NO. OF CASES	PERCENTAGE
NON NEOPLASTIC LESIONS OF SALIVARY GLAND	36	45%
NEOPLASTIC LESIONS OF SALIVARY GLAND	44	55%
TOTAL	80	100%

TABLE-3

LOCATION OF SALIVARY GLAND LESIONS

LESION	TOTAL NO. OF CASES	PERCENTAGE
PAROTID GLAND	60	75%
SUBMANDIBULAR GLAND	19	23.75%
SUBLINGUAL GLAND	00	00%
MINOR SALIVARY GLAND	01	1.25%
TOTAL	80	100%

TABLE-4

SEX	BENIGN SALIVARY GLAND LESIONS	MALIGNANT SALIVARY GLAND LESIONS
MALE	44	05
FEMALE	29	02
RATIO (M:F)	1.52:1	2.5:1

TABLE-5

CORRELATION OF THE FNAC WITH THE HISTOPATHOLOGY

	HISTOPATHOLOGY								
FNAC	PLEOMORPHIC ADENOMA	WARTHIN'S TUMOR	INFLAMMATORY / CYSTIC/EPI. LESION	MUCOEPI-DERMOID CA	ADENOID CYSTIC.CA	CA -EX P.A	BASAL CELL ADENOMA	POORLY DIFF. CA.	TOTAL
PLEO-MORPHIC ADENOMA	21	-	-	-	-	01	-	-	22
WARTHIN'S TUMOR	-	12	01	-	-	-	-	-	13
INFLAM-MATORY CYSTIC/EPI. LESION	01	-	35	-	01	-	-	-	37
MUCOEPI-DERMOID CA	01	-	-	02	-	-	-	-	03
ADENOID CYSTIC.CA	-	-	-	-	01	-	01	-	02
CA EX PLEOMORPHIC ADENOMA	-	-	-	-	-	01	-	01	02
POORLY DIFF. CA.	-	01	-	-	-	-	-	-	01
TOTAL	23	13	36	02	02	02	01	01	80

TABLE-6

SENSITIVITY, SPECIFICITY AND DIAGNOSTIC ACCURACY OF FNAC

Value	Formula	Percentage
Sensitivity	TP(05)/TP(5)+FN(02) x100	71.4%
Specificity	TN(70)/TN(70)+FP(03) x100	95.9%
Accuracy	TP(05)+TN(70)/ TP(05)+FP(04)+TN (70)+FN (02) x 100	93.75%

TABLE-7

COMPARISON OF MAJOR STUDIES OF SALIVARY GLAND FNAC

Author	year	No. Of cases	Sensitivity (%)	Specificity (%)	Diagnostic accuracy (%)
Lincoln et al.[2]	2003	68	100	100	89.7
Momhad sohial et al.[3]	2004	50	70	97	92
Awan et al.[4]	2004	50	47	97	-
Das D.K.et al.[5]	2004	712	94.6	75	81
LU BJ Zhonghua et al.[6]	2005	113		97.4	90.3
Balakrishanan et al.[7]	2005	-	79	84	-
Anjali bandyopadhyay et al.[8]	2005	185	98.4	96.4	-
Tan L.G [9]et al	2006	114	100	100	89.7
Lukas J.et al.[10]	2006	136	85	97.5	89.2
Present study	2013	80	71.4	95.9	93.75

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