



Fine Needle Aspiration Cytology in Parotid Tumors

KEYWORDS

Parotid tumors, FNAC, Facial nerve

Dr.P.Venkateshwar

Associate Professor of surgery, Osmania Medical college, Hyderabad, Telangana

Dr.B.Ramesh

Assistant Professor of Surgery, Osmania Medical College, Hyderabad, Telangana

ABSTRACT Salivary gland tumors are relatively rare compared to other head and neck cancers. Parotid neoplasms are asymptomatic and account for 65% of salivary gland tumors. About 80% of parotid tumors are benign. Fine needle aspiration cytology is very useful diagnostic aid in parotid neoplasia. Fine needle aspiration cytology is helpful to diagnose benign and malignant tumors. If malignant tumor is established preoperatively, it helps to prepare patient and surgeon for possible deliberate sacrifice of facial nerve if indicated. This is a retrospective analysis of 20 cases of parotid tumors treated at our Hospital. All cases were subjected to fine needle aspiration cytology and operative specimens were sent for histopathological examination. The results of the study were compared with national and international studies.

INTRODUCTION

Salivary gland neoplasm constitute by virtue of their diverse histopathology and variable biological course, a fascinating and challenging subject both to the surgeons and pathologists in general and Head and Neck surgeons in particular. Parotid gland tumors are especially challenging because of the intimate anatomical relationship of the gland to the facial nerve, presence of intra parotid lymph nodes and presence of deep lobe. The consequences of sacrificing the facial nerve may at times constitute a deterrent to the performance of adequate surgery for tumors arising from parotid gland [1]. Moreover parotid gland malignancies have a variable biological course and do not follow the general similar survival pattern of squamous cell carcinomas of head and neck [2]. In the words of Ackerman and Del Riegatio the usual tumor of the parotid gland is tumor in which the variant is less benign than the usual benign tumor and the malignant variant, less malignant than the usual malignant tumor. Because of this variant, although predictable biological behaviors and expression of local control, the success of treatment and ultimate prognosis can be expressed, not in 5 years or 10 years but rather 20 years. Perhaps no tissue in the body is capable of producing such a diverse histopathological expression than the parotid gland tissue. This uniqueness is partly due to the presence of myo epithelial cells in the salivary glands. As with all other tumor surgery, the principles that were rather straight forward and dogmatic in previous years, have gradually been modified with blend with other forms of therapy which showed increasing promise, such as radiotherapy and chemotherapy [3]. Fine Needle Aspiration Cytology FNAC has of late become a very important and useful diagnostic aid [4]. It is an accurate non operative technique of diagnosing parotid tumors especially in the hand of experienced cytopathologist.

Traditionally, parotid tumors have not been subjected to needle biopsy or incision biopsy because the possible risk of fistula formation, injury to facial nerve and in case of neoplasm's risk of implantation along the track. However, there is no evidence that any of these complications occur with fine needle aspiration cytology. FNAC offers fairly accurate treatment which helps surgeon in planning treatment.

As greater understanding of the biological characteristics and behaviors of these tumors is gained the surgical philosophy and practice with regard to these tumors is bound to change, and has been changing gradually over the past few years. The various investigative modalities ranging from FNAC to CT and better understanding and application of Other forms of treatment like irradiation, chemotherapy and immunotherapy alone or in combination, have enlarged the therapeutic armamentarium of the clinician in management of these tumors.

MATERIAL AND METHOD

This is a retrospective analysis of 20 cases of parotid tumors admitted in Osmania General Hospital during July 2013 to September 2015. A clinical diagnosis was made after clinical examination. All cases were subjected to FNAC, operative specimens were sent to histopathological examination. The results of study were compared to similar studies nationally and internationally.

RESULT AND DISCUSSION

Total number of cases comprising the study material is 20 (n=20). Number of males 12, Number of females 8, Male: Female = 1.5:1. Incidence of benign tumors in male 7. Incidence benign tumors in females 7. Male: Female Incidence = 1:1. Incidence of malignant tumors in males 5. Incidence of malignant females 1. Male:Female 1:0.2. Number of benign tumors 14 (70%). Number of malignant tumors 6 (30%). FNAC correlation with histopathology 11. Sensitivity 55%. Number of benign tumors 14. FNAC correlated with histopathology 9. Sensitivity 65%. Number of malignant tumors 6. FNAC correlated with histopathology 2. Sensitivity 33%. CT scan of head and neck was done in five suspected cases of carcinoma parotid. Types of surgical procedures performed in our study, Superficial parotidectomy 14 cases, Radical Parotidectomy 4 cases, Total Conservative parotidectomy 1 case, Radical Parotidectomy with supra omohyoid neck dissection 1 case. Post operative complications were as follows Immediate post-operative facial nerve paralysis seen in 12 cases (60%), Left facial palsy 4, Right facial palsy 5, Right parotid fistula 1, Deviation of mouth 1 and Numbness behind the ear lobe 1.

DISCUSSION

The incidence of salivary gland tumors is about 3-6% of all

head and neck cancers and parotid gland tumors account for about 65% of these. About 80% of these are benign tumors and pleomorphic adenoma is the commonest accounting for 50% of all parotid tumors and of benign tumors [5]. The present day study of 20 cases exhibit incidence of 70% benign cases and 30% malignant tumors [6]. Pleomorphic adenoma was the commonest tumor accounting for 50% of all parotid tumors and 70% of all benign tumors. The most common malignant tumor in the series is Mucoepidermoid carcinoma (3/6). The distribution of various tumors as compared to other series is as follows.

TABLE -1
PATHOLOGICAL DETAILS OF PAROTID TUMORS IN DIFFERENT SERIES

Type of tumor	Present series	Spiro series[23]	Eneroth series
Pleomorphic adenoma	50%	45.4%	45.7%
Other benign tumors	20%	2.2%	3.3%
Mucoepidermoid carcinoma	15%	15.7%	20.9%
Myoepithelial carcinoma	5%	0.07%	0.11%
Salivary duct carcinoma	10%	0.1%	0.25%

Other benign tumors include 1 case of chronic sialadenitis with benign lymphoepithelial lesion, 1 case of Lipomatsis of parotid gland, 1 case of Warthins tumour. Parotid tumors in this series were found in age groups of 20 -70 years of age. The youngest patient in this series is 28 years old and the oldest is 65 years. In this series benign tumors share the same ratio in both male and female i.e. 1:1, whereas malignant tumors are more common in males with male to female ratio 1:0.2. FNAC has become an established procedure in the pre-operative diagnosis of parotid tumors. A correct cytological diagnosis helps in planning appropriate treatment. Accuracy of diagnosis depends on experience of pathologist. In

this study FNAC was done in all cases, results compared to histopathological features concurrences studied and compared to other series. FNAC correlated with histopathology in 55% of cases. For benign tumors FNAC correlated with histopathology in 65% of cases and for malignant tumors FNAC correlated with histopathology in 33% of cases. In one case FNAC is false negative for malignancy and in one case it was inconclusive. There were no false positive results.

TABLE-2
SENTIVITY OF FNAC IN VARIOUS STUDIES

Sensitivity	Present study	J.P.Shah &Jan-ett lhde	Jayar-am verma	Deans Breggs et al
Overall diagnostic accuracy	55%	88%	91%	87%
Sensitivity for benign tumors	65%	95%	100%	88%
Sensitivity for malignant tumors	33%	65%	87%	66%
False -ve for malignancy	16%	-	-	4%

All cases were treated primarily by surgery. Surgical procedures offered in this series are Superficial parotidectomy in 14 cases. Radical Parotidectomy in 4 cases with Free flap reconstruction.Total Conservative parotidectomy in 1 case. Radical Partidectomy with supra omohyoid neck dissection in 1 case. For benign tumors superficial parotidectomy was done in 13 cases[7]. Total Conservative parotidectomy for deep lobe tumors was done in 1 case.For malignant tumors 4 cases were treated with Radical Parotidectomy with free flap reconstruction,two cases were FNAC showed Pleomorphic adenoma were treated by superficial parotidectomy.One case of Carcinoma parotid in which there was cervical lymphadenopathy was treated with Radical Parotidectomy with Supromohyoid neck dissection.In 5 cases facial nerve was sacrificed as it was infiltrated by tumor, and in 2 cases of Pleomorphic adenoma one of the branches was sacrificed as it was infiltrated by tumor. Immediate post operative facial nerve paralysis was found in 10 out of 20 cases (50%).This includes 5 cases operated for malignant tumor and 5 cases of benign tumors. In 3 cases branches of facial nerve was deliberately sacrificed as it was infiltrated by tumor. Three patients had recovery from facial palsy [8].Other complications noted One case of parotid fistula was seen which resolved spontaneously after a period of 20 days. Two cases developed wound infection which was treated with daily dressing and appropriate antibiotic. One patient complained numbness of ear lobe and was managed by reassurance.

CONCLUSIONS

Parotid gland tumors are relatively rare compared to other Head and Neck cancers

A total of 20 cases from Osmania General Hospital, for a period for 3 years (2013-2015) were studied.

Parotid tumors occur in all age groups ranging from 28 years to 65 years. Mean age incidences in males was 49 years and in females 45.Traditionally parotid glands are not subjected to FNAC for fear of fistula formation and increase of neoplasm, tumor implantation along needle tract. The histology and FNAC correlated in 95% of benign lesions but this proved true in only 65% of malignant lesions providing an overall accuracy rate of 85%. The highest diagnostic errors in most of the cases are between pleomorphic adenoma and mucoepidermoid carcinoma. Likewise chronic sialadenitis and lymphoma are frequent cause of diagnostic error. FNAC may be helpful if an inflammatory or neoplastic process is suspected in lymph nodes or in patient with clinical suspicion of malignant tumor or when facial nerve function is intact. If the diagnosis of malignant tumor is established preoperatively, in this setting it helps to prepare the patient and the surgeon for possible deliberate sacrifice of the facial nerve if indicated.

REFERENCE

- [1] Christopher JK, Buh sture and D.Ronano O'Connell : Norman. S. Williams Bailey and Love's Short cut of surgery - 25th ed.(2008) 758 – 769. | [2]Schwartz : Principles of Surgery - 8thed (2005)pg 538 -540. | [3]Sabiston – text book of surgery - 17thed (2007) pg 852 to 863. | [4] Batsakis JG,1992 " Fine needle aspiration of salivary glands – its utility and tissue effects" 101:185-188. | [5] Spiro RH ,1986, "salivary neoplasms: over view of a 35 year experience with 2807 patients". Head and neck surgery 8:177-184. | [6]Shintani S et al, 1997,"Fine needle aspiration of salivary gland tumors" international journal of oral and maxilla-facial surgery,26(4):284-6. | [7] Leverstein H et al ,1998, "Malignant epithelial parotid gland tumors :analysis and results in 65 previously untreated tumors" british journal of surgery ,85:1267-72 | [8]Owen ERTC et al, 1989 "complications of parotid surgery: the need for selectivity." British journal of surgery,76:1034-1035. |]