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Original Research Paper

Pathology

"INCIDENCE OF SALIVARY GLAND TUMOURS WITH EMPHASIS ON PLEOMORPHIC ADENOMA IN A TERTIARY CENTRE IN JHARKHAND"

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ABSTRACT

Introduction: Majority of SGTs in adult patients are benign. A majority of SGTs occurs in the parotid or submandibular glands which can be easily evaluated by FNAC. Surgery remains the mainstay for SGTs and the surgical approach basically depends on the tumour type. It is important to distinguish SGTs from its non neoplastic swellings to avoid unnecessary surgeries. Because of high sensitivity and specificity of FNAC for salivary glands has proved its utility in diagnosis of salivary gland lesions.

Methods and material: It was retrospective study in which reports of FNA specimens from salivary gland lesions were retrieved from the archives of department of Pathology, RIMS, Ranchi. Major and minor salivary gland swellings, including intraoral lesions, were aspirated via a direct percutaneous or transoral route with a 22- or 23-gauge needle.

Result: A total of 70 cases were evaluated. Out that out of 70 neoplastic conditions, 59 (84.29%) cases were benign and 11(15.71%) cases were malignant. The age of the patients ranged from 14 to 80 years, and the mean age was 37.75 years. The male-to female ratio was 1.19.

Conclusion: FNAC of salivary gland lesion is quite helpful in preventing the patients from surgeries in non neoplastic conditions and differentiating as benign or malignant, if found to be neoplastic. Varied site and presentation of pleomorphic adenoma is a corner of concern as many a times it can be missed.

KEYWORDS : salivary gland tumours, pleomorphic adenoma.

Introduction:

Salivary gland tumours (SGTs) arise mostly from parotid gland (64-80%). Minor salivary glands form the 2nd most common site, among which palate is most frequently involved. Pleomorphic Adenoma is the most common SGT. Studies state that a relatively high proportion of tumours arising from minor salivary glands are malignant (about 50%). So, for SGTs, smaller the gland, more is the chance of being malignant [1].

Majority of SGTs in adult patients are benign. A majority of SGTs occurs in the parotid or submandibular glands which can be easily evaluated by FNAC. Aspiration can be done either directly by palpation if the swelling is obvious or by an ultrasound guided approach if needed [2-15].

Surgery remains the mainstay for SGTs and the surgical approach basically depends on the tumour type. As such, for benign neoplasms like pleomorphic adenoma, we go for a conservative excision, whereas for malignant neoplasms like mucoepidermoid carcinoma aggressive surgical resection with free margins is recommended with lymph node dissection in high grade types [16]. In addition, it is important to distinguish SGTs from its non neoplastic swellings to avoid unnecessary surgeries. Among malignant tumors, it is also important to distinguish primary and metastatic lesions because the treatment options, including the type and extent of surgery, differ significantly [17].

Here, comes the role of FNAC, which provides us with the preoperative diagnosis of salivary gland swellings, further being beneficial to the patient by avoiding surgeries in non neoplastic salivary gland swelling and appropriate surgical approach for neoplastic conditions [18].

The diagnosis of salivary gland lesions by fine-needle aspiration (FNA) cytology is a challenging area in cytopathology because of the diversity of SGTs with the addition of new entities recognized by the latest World Health Organization classification of head and neck tumors, the intratumoral heterogeneity of salivary gland tumors, and the morphological overlap that exists between many salivary gland tumors [17,19].

Inspite of the above mentioned challenges, because of high sensitivity and specificity of FNAC for salivary glands has proved its utility in diagnosis of salivary gland lesions.

Method and materials:

It was retrospective study in which reports of FNA specimens from salivary gland lesions from July 2019 to August 2021 were retrieved from the archives of department of Pathology, RIMS, Ranchi. Major and minor salivary gland swellings, including intraoral lesions, were aspirated via a direct percutaneous or transoral route with a 22- or 23-gauge needle. There was no involvement of any extra-invasive procedures. There were no ethical violations and oral informed consent was obtained from each patient before performing the FNAC.

A detailed history of the patients along with clinical examination was done. Duration and site of the swelling, its consistency, size, tenderness, mobile or fixed, temperature were some of the important points that were sought for. Patients were asked if the swelling is associated with symptoms like evening rise of temperature, night sweats, malaise, loss of weight etc. Laboratory investigations were thoroughly studied and checked for any abnormalities. Under available aseptic precautions, aspiration was done by inserting 22 G needle attached with 10 ml disposable plastic syringe into the salivary gland swelling. After developing a negative pressure in the syringe, it was inserted in the salivary gland swelling. The needle was passed in and out multiple times, without exiting the node. The aspiration was repeated, if found insufficient. The gross appearance of the aspirate was described, as thick mucoid like material, turkey/thick greenish brown dirty fluid or admixed with blood. The aspirates were used to make 5 to 6 smears, one for Leishman & Geimsa (L&G) stain which was air dried, one for Hematoxylin & Eosin (H&E) stain which was mixed immediately using alcohol.

Result :

A prospective study of salivary gland FNA specimens over a period of 2 years was performed, and a total of 70 cases were evaluated. As already mentioned, only neoplastic lesions of salivary glands were included in our study. Metastatic lesion in the head and neck region were excluded. From our study we can make out that out of 70 neoplastic conditions, 59 (84.29%)

cases were benign and 11(15.71%) cases were malignant. The age of the patients ranged from 14 to 80 years, and the mean age was 37.75 years. The male-to female ratio was 1.19. The parotid gland was most commonly involved (29), and it was followed by the submandibular gland (22) and the minor salivary gland (19). There were no post-FNA complications in any of these cases. In the parotid gland neoplasms, 29 cases were benign consisting of 25 cases of pleomorphic adenoma, 3 cases of Warthin's tumour and 1 case of myoepithelioma. The malignant lesions in parotid gland counted to 6.

Among the malignant tumours of salivary gland, mucoepidermoid carcinoma was the most common (4 cases) followed by carcinoma ex pleomorphic adenoma and acinic cell carcinoma, with 3 cases each and only one case of adenoid cystic carcinoma. Metastatic carcinomas, lymphomas both Hodgkin's and non Hodgkin's were not the part of our study.

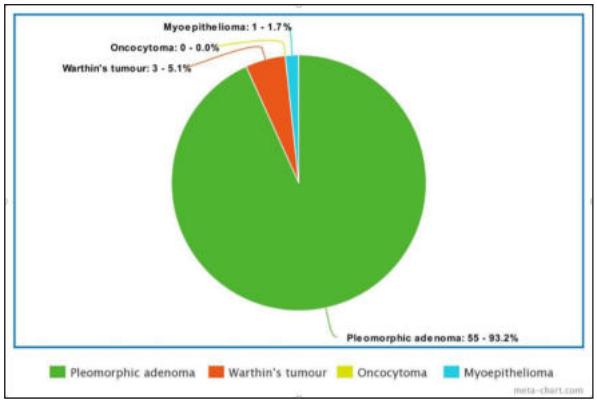

Fig 1: Distribution of benign salivary gland tumours.

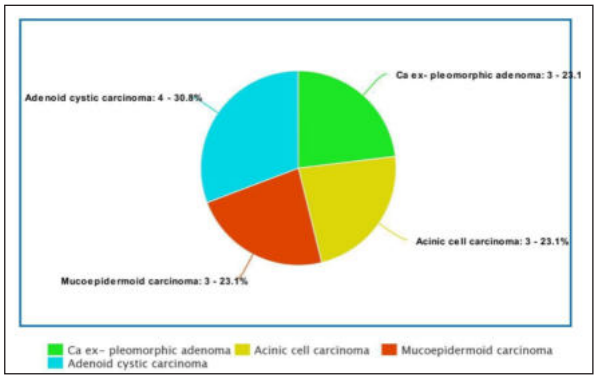

Fig 2: Distribution of malignant salivary gland tumours

Site	No. of cases
Parotid gland	25
Submandibular gland	10
Angle of mandible	5
Post auricular swelling	2
Temporomandibular joint	2
Neck swelling	3
Palate	3
Lip	2
Face	2
Below eye	1

Table no. 1: Pleomorphic adenoma present on various sites:

Pleomorphic adenoma (PA) is the most encountered salivary gland tumour in our study (55 out of 70 cases). PA can occur at wide variety of locations with parotid gland being the most common. In our study 25 cases out of 55 cases of PA were sited in parotid glands. Other locations such as angle of mandible, temporomandibular joint neck and face swellings may be of parotid gland origin, as swellings of deep lobe and tail of parotid gland usually presents as swelling in the angle of mandible and neck, and may mimic lymph node swelling. So, 5 cases at angle of mandible, 2 post auricular cases, 2 cases at temporomandibular joint, 3 cases of neck swelling, 2 cases of face swelling may be of parotid gland origin.

2nd most common site of PA in our study is submandibular gland.

Similar to varied locations of PA, variety of cytomorphological features of PA have be noted in our study. The most constant cytomorphologic finding being clusters and discrete spindle shaped myoepithelial cells embedded in chondromyxoid stromal matrix.

The diagnosis of PA on cytology was at times difficult due to various cytomorphological features overlapping with other SGTs.

Few cases with atypical cells with significant changes in nuclear size, shape and chromatin pattern were noted but these cells were ignored in the absence of necrosis and were diagnosed as PA.

Although, very few cases with some areas showing various metaplasia were present like squamous, mucinous or oncocytic metaplasia. PA with extensive squamous metaplasia were confused for epidermoid component of Mucoepidermoid Carcinoma (MEC). PA showing oncocytic metaplasia were difficult to distinguish from Warthin's tumour.

Rarely, cystic lesions were present in cases of PA in our study. In these cases on aspiration, fluid was aspirated and on smear we found histiocytes and debris.

Cases of PA present on unusual sites in our study were the other areas of challenge. As there was a swelling present just below the left eye, whose final diagnosis was made as carcinoma ex pleomorphic adenoma. Another case of swelling over the lip was thought to be haemangioma clinically but on FNAC the diagnosis was PA. Other cases diagnosed as PA from unusual sites, were from palate, neck region resembling lymph node swelling, and post auricular swellings.

Another area of challenge was cases with predominance of cellular component only on smear, here the epithelial component mainly formed the tumour mass. On the other hand cases with abundant chondromyxoid stromal component and less cellularity were encountered.

So, to diagnose PA with atypia, metaplasia, cystic changes or unusual sites was quite challenging. But, hurdling these was possible because of repeated aspiration from multiple sites, if in doubt repeat aspiration was done and cases in doubt of malignancy were suggested for excision biopsy to rule out malignancy.

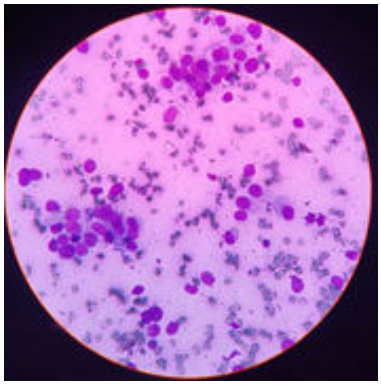

Fig 1: Acinic cell carcinoma

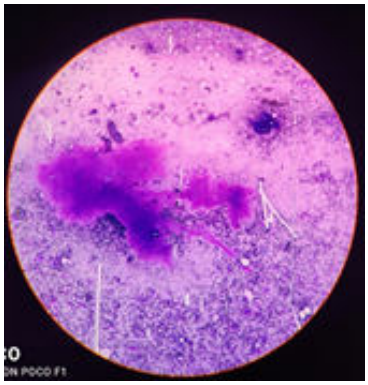

Fig 2: Pleomorphic Adenoma

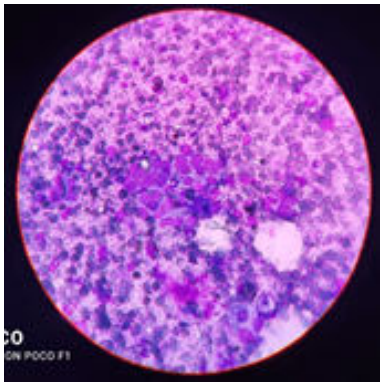

Fig 3: Mucoepidermoid carcinoma

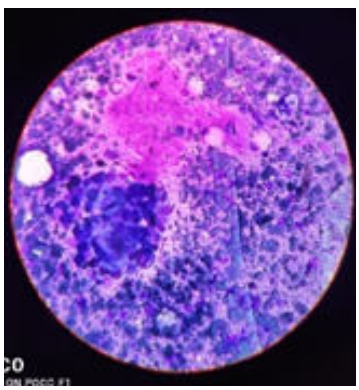

Fig 4: Pleomorphic adenoma with few atypical cells

Discussion :

FNAC being safe, minimally invasive, cost effective, readily accepted by the patients and effective diagnosis, has proved to be an important preoperative diagnostic tool for salivary gland lesions [20-26].

As this is a preoperative diagnostic tool, it has an edge over frozen sections, as it provides us with the nature of the lesion well before the surgery. Thus, avoiding the patients from unnecessary surgeries [27-30].

Cystic lesions in salivary glands have a long list of differential diagnosis ranging from non neoplastic to neoplastic including both benign and malignant. The non neoplastic cystic lesions include mucoceles , retention cysts and lymphoepithelial cysts. In the neoplastic section, the list includes cystic pleomorphic adenoma, cystadenoma, Warthin's tumour, MEC, acinic cell carcinoma etc [31].

The aspirates of cystic lesions are generally fluid, and with low cellularity on smear, as a result of which malignant cells can be missed, leading to false negative report. This can be improved by aspirating multiple times from different sites [32].

From the previous studies the sensitivity varies from 54% to 98% with high specificity of 88% to 99% for distinguishing benign from malignant [31,33-36].

Inspite of high specificity, the exact categorization of the salivary gland is quite difficult because of the significant cytomorphological heterogeneity within the same cell of origin, overlapping cytomorphological features, varied architectural pattern and the diversity of salivary gland tumors with newly added entities recognized by the latest World Health Organization classification of head and neck tumours [37].

Conclusion :

From previous studies and of ours, we can clearly make out that FNAC of salivary gland lesion is quite helpful in preventing the patients from surgeries in non neoplastic conditions and differentiating as benign or malignant, if found to be neoplastic. Varied site and presentation of pleomorphic adenoma is a corner of concern as many a times it can be missed. Although chondromyxoid background with mering myoepithelial cells is quite diagnostic for pleomorphic adenoma, sometimes in highly cellular smear the specific chondromyxoid background may be absent. Site of swelling, proper history and repeated aspiration from multiple sites, expert cytopathologist and proper staining are the important concerned area for diagnosing salivary gland lesions.

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