A STUDY OF PAROTID LESIONS AND THEIR SURGICAL MANAGEMENT FROM A TERTIARY MEDICAL CENTRE OF EASTERN INDIA

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ABSTRACT: BACKGROUND: The Parotid gland is commonly affected by swellings of diverse pathology which present as a mass in the retromandibular area. The pathology of these lesions are diverse varying from inflammatory lesions, cysts to benign and malignant tumors. In our study the commonest benign tumor is pleomorphic adenoma (76.69%) and commonest malignant tumor is squamous cell carcinoma (4.85%). METHODS: A retrospective study of 103 cases of parotid swellings was carried out in the department of Otorhinolaryngology & Head Neck Surgery, MGM Medical College & LSK Hospital Kishanganj, Bihar, India from April 2010 to March 2015. All the cases of parotid swellings which were admitted for treatment were analyzed taking detailed history, clinical features, ultrasonographic & CT scan findings, and FNAC. Surgical treatment was done for all cases in this study. Operated specimens underwent thorough histopathological evaluation. RESULTS: In our series there were 58 females (56.3%) and 45 males (43.6%) with a female to male ratio of 1.2:1. The mean age of presentation was 33.6 years with an age ranging from 3 years to 67 years. Most of the cases were in the third and fourth decade of life (65%). Mean age of presentation for benign tumors was 36 years and for malignant tumors was 57 years. KEYWORDS: Parotid gland, Pleomorphic adenoma, Mucoepidermoid tumour, USG, FNAC, CT scan, Facial nerve, Superficial parotidectomy,

INTRODUCTION: Parotid gland is commonly affected by swellings of diverse pathology which present as a mass in the retromandibular area. The pathology of these lesions is diverse varying from inflammatory lesions, cysts, benign and malignant tumors. Inflammatory lesions are painful while benign tumors are usually painless slow growing swellings; malignant tumors on the other hand have variable growth patterns usually associated with facial nerve palsy and regional lymphadenopathy. Commonest benign tumor is pleomorphic adenoma and commonest malignant tumor is mucoepidermoid carcinoma.

MATERIALS & METHODS: A retrospective study of various parotid swellings was carried out in the department of Otorhinolaryngology & Head Neck Surgery, MGM Medical College and LSK Hospital Kishanganj, Bihar, India from April 2010 to March 2015. All 103 cases of parotid swellings which were admitted for treatment were analysed taking detailed history, clinical features, ultrasonographic findings, and FNAC. Tumors underwent CT scans. Surgical treatment
was done for all cases in this study. Operated specimens underwent thorough histopathological evaluation, tumor margins were seen in all cases for assessing completeness of excision. The WHO (1991) classification of parotid tumors was followed.

RESULTS: Out of 103 cases there were 58 females and 45 males (F:M::1.2:1), ranging from 3 years to 67 years of age. Most patients were in third and fourth decade of life (65%). Most patients belonged to lower and lower middle socioeconomic class. USG and FNAC done preoperatively established the diagnosis in majority of cases. USG clearly showed the cystic, solid and heterogeneous swellings and also showed lymph node involvement in malignant cases. CT scan clearly demarcated the involvement of superficial, deep or both lobes and also showed lymph node skin and deeper plane involvement which was helpful to plan extent of resection. Most cases were done under general anesthesia except 6 cases of cystic well defined superficial pleomorphic tumors which were operated under local anesthesia with sedation.

Superficial parotidectomy was done for all limited benign tumors that involved superficial lobe only, giant parotid pleomorphic adenomas involving both lobes underwent total conservative parotidectomy. The malignant parotid tumors underwent radical parotidectomy (Sacrificing facial nerve) with modified neck node dissection. Facial nerve which was clinically involved (preoperative facial palsy, or nerve adherent to tumor) was sacrificed. One secondary parotid carcinoma from middle ear primary was treated with limited lateral temporal bone resection along with total parotidectomy, modified neck node dissection and excision of pinna. Post-operative radiotherapy was given to all malignant tumors. Final diagnosis was established by post-operative histopathology, resection margins were routinely checked for completeness of excision of tumors. All parotid abscesses were treated with incision and drainage under antibiotic coverage and they healed completely. Histopathology of swellings included acute abscess (4), tubercular cyst (1), lymphoepithelial cysts (3), lipoma (1), hemangioma (2), neurofibroma (1), pleomorphic adenoma (79), oxyphilic tumor (1), mucoepidermoid tumor(4), adenoid cystic carcinoma (1), squamous cell carcinoma (5), secondary parotid carcinoma (1). Corrugated drain was used in superficial parotidectomy and suction drain used for large tumors undergoing total conservatively or radical parotidectomy with neck dissection. Complications of surgery included temporary facial weakness in 12 cases that recovered fully conservatively.

COMPLICATIONS: Facial nerve was sacrificed in 6 cases of malignant tumors which underwent lateral tarsorraphy later. A temporary parotid fistula seen in 10 cases of superficial parotidectomy-healed by meticulous wound dressing over 2 weeks. One case of mucoepidermoid tumor had partial flap necrosis which responded to conservative therapy and dressing.

DISCUSSION: Lesions of parotid gland have a wide variety of presentation in relation to age, gender morphology and mode of presentation. In our series there were 58 females (56.3%) and 45 males (43.6%) with a female to male ratio of 1.2: 1. Lima et al and Musani M A et al[1] found a similar female predominance of 1.6:1 and 1.4:1 respectively. The mean age of presentation in our series was 33.6 years with an age ranging from 3 years to 67 years. Most of the cases were in the third and fourth decade of life (65%). This finding is comparable to the studies of Shah S A
et al[2] who showed a mean age of 41 years in their series. Mean age of presentation for benign tumors was 36 years and for malignant tumors was 57 years in our study. Lima et al[1] found a mean age of 40 years and 54.8 years for benign and malignant tumors in their series. Musani et al[3] found a mean age of 34 years and 42 years respectively for benign and malignant tumors in their series. The patients were from lower and lower middle socioeconomic background in our series which is the general profile of patients attending our institution.

Tumors in our series constituted 88.42% cases of which majority of the tumors were epithelial in nature 88.3%. Out of epithelial tumors 87.91% were benign tumors and 12.09% were malignant tumors. Musani et al[3] in their series of parotid tumors found 74.5% and 25.5% of benign versus malignant tumors. Benign tumors range from 67- 88% as sited by Loyola A M et al.[4] Other nonepithelial benign tumors in our series were lipoma, neurofibroma and hemangioma. The commonest benign tumor found in our series was pleomorphic adenoma (83.1%) followed by sporadic presence of other types. These observations are comparable to the studies of Musani et al, Shah et al and Lima.

USG was done for all lesions which clearly depicted the morphological nature of lesion clearly differentiating between cystic and solid swellings, and defining the extent of lesion in superficial, deep parts or in both parts which provided preliminary guideline in planning surgery. Echogenicity of malignant tumors was distinctly different from benign tumors and this helped in selecting patients for CT studies. The echogenic patterns of parotid swellings have been similarly reported by Sridhar and Gunasundaram.[5] CT scan was done for large tumors and suspected malignant tumors additionally to see for extent of disease and involvement of other structures. CT scan accurately shows the morphology of tumors and associated tissue involvement and remains the gold standard for preoperative diagnosis of tumors especially malignant ones.

FNAC was routinely done for all lesions and was fairly sensitive in preoperative diagnosis of lesions.

Superficial parotidectomy was the primary surgery done for most cases of benign tumors and cystic lesions involving superficial part of gland. The main challenge was identification of branches of facial nerve which was done by using standard surgical markers for identifying facial nerve trunk of which most dependable one was tragal and external ear canal pointers. In our series we did not use facial nerve monitor for nonavailability. Of the 12 patients who had temporary facial nerve paresis, all recovered fully. Most probably neurapraxia due to mechanical handling of nerve during surgery was the cause. Use of bipolar cautery and gentle dissection was the key to saving nerve injury during dissection. Patients needed facial nerve sacrifice due to nerve involvement and these patients underwent additional lateral tarsorraphy. One patient developed a temporary parotid fistula which responded to conservative treatment. Flap necrosis was seen in one patient of malignant parotid tumor.

The small number of inflammatory lesions which presented with painful parotid swellings was nonspecific parotitis and only one case of tubercular parotitis with fistula was seen. These healed completely with incision and drainage, specific antibiotic and sialogogue therapy.

CONCLUSION: Parotid gland lesions present as wide variety of pathological diseases which present as swellings of parotid gland. Benign tumors are painless and slow growing and show a
female predominance. Malignancy shows a change of growth pattern with involvement of facial nerve and loco regional lymphadenopathy. Inflammatory lesions are severely painful and tender. Pain, skin induration rapidness of growth and facial paresis are the indicators of malignant disease. Diagnosis is mainly clinical which is confirmed by USG, CT scan and FNAC for planning of surgical treatment. Saving the facial nerve remains the challenge in surgery of parotid gland swellings.

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DISCLOSURE: Prior to submitting this paper for publication, approval of the ethical committee was duly obtained from the institution authority. This paper is original and it, or any part of it, has not been previously published, nor it is under consideration for publication elsewhere. This paper has not been presented in any meeting. None of the authors has any conflict of interest, financial or otherwise.

| Age          | No. of Parotid Lesions | Percentage |
|--------------|------------------------|------------|
| 0 to 10 years| 2                      | 1.94%      |
| 11 to 20 years| 3                      | 2.91%      |
| 21 to 30 years| 15                     | 14.15%     |
| 31 to 40 years| 67                     | 65%        |
| 41 to 50 years| 7                      | 6.8%       |

Graph 1: Pie chart showing gender distribution
Table 1: Age distribution

| Age Group     | No. of Case | Percentage |
|---------------|-------------|------------|
| 51 to 60 years | 5           | 4.85%      |
| 61 to 70 years | 4           | 3.90%      |

Table 2: Histopathological types

| Histopathological types of parotid lesions | No. of case | Percentage |
|-------------------------------------------|-------------|------------|
| Acute abscess                             | 4           | 3.88%      |
| Tubercular cyst                           | 1           | 0.97%      |
| Lymphoepithelial cysts                    | 3           | 2.91%      |
| Lipoma                                    | 1           | 0.97%      |
| Hemangioma                                | 2           | 1.94%      |
| Neurofibroma                              | 1           | 0.97%      |
| Pleomorphic adenoma                       | 79          | 76.69%     |
| Oxyphilic tumor                           | 1           | 0.97%      |
| Mucoepidermoid tumor                      | 4           | 3.88%      |
| Adenoid cystic carcinoma                   | 1           | 0.97%      |
| Squamous cell carcinoma                    | 5           | 4.85%      |
| Secondary parotid carcinoma               | 1           | 0.97%      |

Graph 2: Frequency of different parotid lesions according to the age
Pleomorphic adenoma of left parotid gland

Acute abscess of left parotid gland
Squamous cell carcinoma of right parotid

Huge Tubercular cyst of left parotid

Giant pleomorphic adenoma of right parotid

Exposure of the parotid gland

Closure of the incision with corrugated rubber drain in place

Branches of Facial nerve damage following total parotidectomy
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