



RETROSPECTIVE ANALYSIS OF MALIGNANT PAROTID TUMORS AND THEIR OUTCOME:- A SINGLE CENTRE STUDY

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ABSTRACT

AIM:-To assess the outcome of malignant parotid tumor cases operated in our institute and the lessons learnt.

MATERIAL & METHODS:- A retrospective observational study of 31 patients presenting with malignant parotid masses were analyzed over 4 years. Patients were investigated, diagnosed and staged according to AJCC 7th edition staging classification and the treatment modality selected on that basis. Postoperatively patients were assessed for complications like facial nerve palsy and Frey's syndrome etc. Patients were followed up every 3-6 monthly and their outcomes assessed.

RESULTS & DISCUSSION:- Males comprised 61.29%. Most of the patients were in middle age group and main symptom was swelling at parotid site with an average duration of 2.5 months. 19.5% of patients had facial palsy at the time of presentation and around 86% of them had high risk features with most of them developing metastasis. 78% of patients presented in clinical stage 1 & 2. All patients were treated with surgery. Elective neck dissection was done in 11 patients. The most common malignancy found was mucoepidermoid carcinoma (67%). Facial Palsy developed in 12 patients. A Total of 8 patients (25%) developed Freys syndrome which was managed conservatively. 18 patients received PORT. The lowest mean disease free survival was seen in high grade mucoepidermoid cancer (9.1 mths), while others had almost 2 years of disease free survival. 5 patients developed lung metastasis, With the Mean duration being 20.4 months.

Conclusion:- Malignancies of the major salivary glands form a rare and diverse group of cancers. The extent of surgery is dictated by the stage of the tumour which can be superficial or total parotidectomy. LVI+, PNI+, facial nerve palsy and advanced stage are factors which indicate bad prognosis. Consideration should be given for neck dissection in N+ patients and in N0 neck, if associated with high risk features.

KEYWORDS :

METHODOLOGY - This study is a retrospective observational study. Patients presenting with malignant parotid masses were analyzed over the time period for this study (January 2013 – December 2016). Patients were investigated thoroughly with FNAC or trucut biopsy, sonography (USG) parotid and neck or computed tomography (CT) or magnetic resonance imaging (MRI). They were staged according to the AJCC 7th edition staging classification and the treatment modality selected on that basis. Upfront resectable patients were offered surgery. Tumors of salivary glands other than parotid, Benign parotid masses, Metastatic lesions to parotid, Parotid lymphomas, Patients with locoregionally advanced and unresectable disease and patients with distant metastasis are excluded from study.

Postoperatively patients were assessed for wound infections, facial nerve palsy, hospital stay, day of drain removal and complications like Frey's syndrome etc. Patients were followed up after surgery to look for recurrence every 3-6 monthly with Local USG parotid region and neck. A routine x ray chest was also done to rule out distant lung metastasis. At the end of the study disease free survival was calculated. Results were tabulated according to the aims set for the study.

RESULTS-The gender distribution was males -19 and females -12. In 17 cases right parotid gland was involved and in 14 left side was involved. All patients presented with a parotid region swelling and palpable cervical nodes if present. The mean duration of time to presentation was 2.5 months.

Total six (19.5%) patients had facial palsy at presentation. Five out of six patients (16%) had high grade tumors. Three had LVI+ and two had PNI+ showing that these features indicated aggressive disease with advanced presentations. Four of the total five patients who presented with preoperative facial palsy developed distant lung metastasis thus indicating that it is a bad prognostic marker. Two patients - clear cell carcinoma and poorly differentiated (PD) carcinoma each had palsy of all facial branches. Three had marginal mandibular branch palsy. (two adenoid cystic carcinoma and one mucoepidermoid carcinoma). One patient with PD carcinoma had buccal branch palsy only. So the most common malignant lesions presenting with facial palsy in decreasing order were PD

carcinoma (2 pts) > adenoid cystic carcinoma (2 pts) > mucoepidermoid carcinoma (1 pt) > clear cell carcinoma (1 pt).

FNAC had to be used in 26 patients and trucut biopsy in five patients as FNAC was inconclusive in these patients. The imaging modality used in all patients was ultrasonography of parotid gland. In 24 patients MRI and in 7 patients CECT was done of parotid region and neck for staging. Clinical staging was done according to AJCC 7th edition staging criteria.

STAGES	NO. OF PATIENTS(31)
STAGE 1	2 (7%)
STAGE 2	9 (29%)
STAGE 3	7 (23%)
STAGE 4	13 (42%)

Table 1- Clinical Stage wise Distribution

Where as in the study by ketan shah et al [4] it was as follows - 22 (44%) patients had T1 disease, 17 (34%) had T2 5 (10%) had T3 and, 6 (12%) had T4a.

No neoadjuvant chemotherapy was given. Only one patient had received preoperative radiotherapy as he was not fit for surgery due to bad pulmonary function and was subsequently operated upon. 16 patients undergone superficial parotidectomy, total conservative parotidectomy was done in 11 patients and 4 patients underwent radical parotidectomy. In one patient distal mandibulectomy had to be done along with radical parotidectomy. In all patients in whom radical parotidectomy was done had preoperative facial nerve palsy due to tumor involvement clinically and all were stage pT4 and all were high grade tumors. Three of these developed lung metastasis later on.

Neck dissection was done in clinically N+, T3/T4 N0 disease and high grade lesions. In 11 patients, neck was addressed. Mean number of nodes retrieved were 16.18 (min 3 and max 33) overall.

TYPE OF MALIGNANCY	NO. OF PATIENTS
MUCOEPIDREMOID	21 (67%)
LOW GRADE	14
INTERMEDIATE	3
HIGH	4

ADENOID CYSTIC	2 (6.4%)
SCC	2 (6.4%)
PD CARINOMA	2 (6.4%)
SALIVARY DUCT CARCINOMA	2 (6.4%)
ACINIC CELL CARCINOMA	1 (3.2%)
CLEAR CELL CARCINOMA	1 (3.2%)

Table 2- Different type of malignant pathologies

These were similar to study by Luutran et al.[3]

Only two patients had margins positive on final pathology and were also given PORT. Five patients (16.1%) had clinical node positivity as compared to study by ketan et al[4] who had 2% incidence only. Four patients had pathological N+ status and these were clinically N+ as well. No patient had occult pathological lymph nodes. Of the four pN+ patients, three had lymphovascular invasion.

PATHOLOGICAL STAGE	NO. OF PATIENTS
STAGE 1	2
STAGE 2	16
STAGE 3	4(3 T3N0, 1 T2N1)
STAGE 4	9(6 T4N0, 3 T4N1)

Table-3 Pathological stage distribution

Postoperative facial nerve palsy developed in 12 patients out of which four were treated by radical parotidectomy and all had palsy. All patients were given current therapy for nerve stimulation. Total eight patients(25%) developed freys syndrome and were managed conservatively. Six had total conservative parotidectomy done and two had radical parotidectomy done. Postoperative radiotherapy (PORT) was the only adjuvant treatment used.

A total of 18 patients took PORT. Seven had LVI+ status, six had pT4 and three had pT3 primary, five had PNI+, four had pN+ status, three had both pN+ and LVI+ disease status and one had margin positive disease. All patients were given 60 grays in 30 fractions conventional external beam radiotherapy. Two patient did not take radiotherapy and took discharge against medical advice.

TYPE OF MALIGNANCY	DISEASE FREE SURVIVAL
MUCOEPIDREMOID	
LOW GRADE	17 MONTHS
INTERMEDIATE	10.1 MONTHS
HIGH	9.1 MONTHS
ADENOID CYSTIC	25 MONTHS
SCC	13.5 MONTHS
PD CARINOMA	24 MONTHS
SALIVARY DUCT CARCINOMA	19.5 MONTHS
ACINIC CELL CARCINOMA	25 MONTHS
CLEAR CELL CARCINOMA	12 MONTHS

Pathology wise mean disease free survival were as follows

PATHOLOGICAL STAGE	MEAN DISEASE FREE SURVIVAL
STAGE 1	38.5 MONTHS (One lost to follow)
STAGE 2	40.3 MONTHS (Five lost to follow)
STAGE 3	428.25 MONTHS
STAGE 4	9.4 MONTHS (Four lost to follow)

Table 4- Mean disease free survival according to the pathological stage (combined)

Perineural invasion(PNI) was seen in four patients(13%) of which two were adenoid cystic carcinoma and two were mucoepidermoid carcinoma. Lymphovascular invasion(LVI) was seen in eight patients(26%) and absent in 23 patients. Mean DFS was 19.75 months in these LVI+ patients. Mean follow up of the patients was 15.5 months. Five patients developed lung metastasis, Four were pT4 disease and one was pT2 and three were pN1.

These five were patients with pathology mucoepidermoid carcinoma high grade, mucoepidermoid carcinoma intermediate grade, PD adenocarcinoma(two patients) and adenoid cystic carcinoma

Four patients(80%) had high grade tumors thus indicating high grade as poor prognostic marker. This was similar to the study by R.Lima et al in which grade and stage were most important prognostic markers as well[6],[7],[8],[9]. Three had LVI+ and one had PNI+. Four presented preoperatively with facial palsy. All patients had received PORT but they still developed lung metastasis thus highlighting LVI+,PNI+ and advanced stage as factors which indicate bad prognosis and might predict high risk for developing distant metastasis. Mean duration for development lung metastasis was 20.4 months thus showing that most of the distant recurrences occur within two years. There was no local recurrence in any patient in this study period.

CONCLUSION-

Malignancies of the major salivary glands represent a rare and diverse group of cancers. Most common malignant parotid mass is muco epidermoid carcinoma. Surgical treatment should be the primary therapy with removal of all gross disease as the surgical goal with preservation of a functioning facial nerve. Patients should receive postoperative radiation to the primary site if the tumor is stage III or IV, or if the pathology shows positive margins or PNI or LVI or histology like adenocarcinoma or adenoid cystic carcinoma or SCC. Preop presentation with facial nerve palsy is a bad prognostic marker indicating towards later development of distant metastasis and thus should be treated aggressively with multimodality therapy.

Careful consideration must be given to treatment of the neck, with clinical disease as definite indication for neck dissection and/or neck XRT. Consideration should be given for neck dissection in the N0 neck, especially if their exists high incidence of occult neck metastasis based on histology, stage, and grade.

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