

Temporal bone squamous cell carcinoma - Penang experience

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SUMMARY

Temporal bone squamous cell carcinoma (TBSCC) is rare and poses difficulties in diagnosing, staging and management. We describe a case series with six patients who were diagnosed TBSCC, from January 2009 to June 2014, with median age of 62 years old. All patients presented with blood-stain discharge and external auditory canal mass, showing that these findings should highly alert the diagnosis of TBSCC. Three patients staged T3 and another three with T4 disease. High-resolution CT (HRCT) temporal findings were noted to be different from intraoperative findings and therefore we conclude that MRI should be done to look for middle ear involvement or other soft tissue invasion for more accurate staging. Lateral temporal bone resection (LTBR) and parotidectomy was done for four patients with or without neck dissection. Patients with positive margin, perineural invasion or parotid and glenoid involvement carry poorer prognosis and postoperative radiotherapy may improve the survival rate. One patient had successful tumor resection via piecemeal removal approach in contrast with the recommended en bloc resection shows that with negative margin achieved, piecemeal removal approach can be a good option for patients with T2-3 disease. In general, T4 tumor has dismal outcome regardless of surgery or radiotherapy given.

KEY WORDS:

Temporal bone, squamous cell carcinoma, case series, lateral temporal bone resection

INTRODUCTION

Temporal bone carcinoma is rare accounting for less than 0.3% of all cancer of the head and neck.¹ It can be classified into primary tumor arising from external auditory canal (EAC), middle ear, mastoid and petrous apex, direct invasion from surrounding structures or distant metastasis. The commonest histological type of temporal bone carcinoma is squamous cell carcinoma. Chronic otorrhea secondary to inflammation may be associated risk factor.² Common presentation includes chronic otorrhea, otalgia, blood-stain discharge and hearing loss with EAC mass mimic otitis externa, often leads to delayed diagnosis therefore poor prognosis following advanced disease. Tissue biopsy is mandatory when patient failed to respond to initial antimicrobial treatment. Pittsburg Staging System is widely accepted and correlates with prognosis prediction.³ En Bloc resection with negative margin is the preferred treatment for

early disease limited to EAC; postoperative radiotherapy is effective if presence of nodal disease, positive margins and perineural or perivascular invasions.^{4,5} We are reporting a case series analyzing the diagnosis, management and outcome.

CASE REPORT

Six cases of TBSCC were diagnosed in our center from January 2009 till June 2014, including four male and two female with median age of 62 years old. The patients' data were depicted in Table I.

DISCUSSION

All six patients in this case series presented with blood-stained ear discharge and EAC mass were noted however only two patients with preceding one-year history of otorrhea and otalgia. This does not correlate with the finding which shows that chronic inflammatory process and chronic otorrhea is the risk factor.¹ However, this shows the importance to have high index of suspicion and positive tissue biopsy of the EAC mass must be obtained in patients with blood-stain ear discharge and EAC mass. Repeated biopsy may be necessary to obtain a positive result as inflammatory process may mask the actual findings of carcinoma.

All the patients were staged T3 and T4 at the time of diagnosis, due to the symptoms which mimic otitis externa therefore delaying the diagnosis. HRCT temporal showed middle ear, condyle and parotid involvement in our patients however intraoperative findings only noted tumor confined to EAC alone. Study showed that CT has limitation in differentiating fluid and inflamed mucosa from tumor in middle ear or soft tissue involvement.³ MRI on the other hand is useful to evaluate soft tissue extension and to differentiate the contents of the middle ear. This shows that both HRCT and MRI should be done for accurate staging before surgical planning. However due to long waiting time for MRI, our staging is only based on clinical and CT findings.

We performed LTBR, parotidectomy, with or without neck dissection for most cases. Patients with positive margin or perineural invasion have dismal outcome. This correlates with study supporting LTBR as primary intervention and showing significant survival benefit in patients with negative margin.⁴ Another study showed 5-year disease-specific survival rates and recurrence-free survival rates as high as 100% and 92.9% in patients with negative margin,

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Table I: Patient's Data

No.	Age/gender	Symptoms/signs	HRCT findings	Staging	Procedure	Operative findings	Margin	RT	Outcome
1	59/Male	Ear itchininess, blood-stain discharge/EAC mass	EAC, ME	T3N0	LTBR, P, MRND	EAC, attic	Positive margin, perineural invasion	Yes	DOD
2	64/Male	Recurrent otorrhea, otalgia, blood-stain discharge/ME mass	EAC, ME	T3N0	CM, AT, WE	EAC, ME	Clear	Yes	NED
3	75/Male	Blood-stain discharge/EAC mass	EAC, ME, PN	T3N1	LTBR, P, MRND, PMF	EAC	Clear	No	NED
4	57/Male	Blood-stain discharge/EAC mass	EAC, condyle, parotid	T4N0	LTBR, P	EAC, PN	Clear, Perineural invasion, RMV, glenoid	No	RD
5	68/ Female	Otorrhea, hearing loss, blood-stain discharge/EAC mass	EAC, ME, condyle, parotid	T4N0	LTBR, P	EAC	Positive margin	No	DOC
6	55/ Female/ Treated Ca tongue	Otalgia, blood-stain discharge/EAC mass, facial paresis	EAC, ME, MA, parotid	T4N0	no	NA	NA	RRT	RD

EAC, external auditory canal; ME, middle ear; PN, parotid node; MA, mastoid; LTBR, lateral temporal bone resection; P, parotidectomy; MRND, modified radical neck dissection; CM, cortical mastoidectomy; AT, atticotomy; WE, wide excision of EAC; PMF, pectoralis major flap; RMV, retromandibular vein; RRT, radical radiotherapy; DOD, died of disease; NED, no evidence of disease; RD, residual disease; RT, postoperative radiotherapy; DOC, died of other cause.

significantly better compared to 57.9% and 55.3% in patients with positive margin.⁵ Postoperative radiotherapy is effective and should be offered to all patients with T2-4 disease who are fit for treatment to eradicate micro-deposits.¹ Patient case no.4 did not receive postoperative radiotherapy due to non-healing wound and this lead to residual disease which has spread extensively within 6 months of operation. On the other hand, the patient (case no.3) with tumor limited to EAC and negative margin has achieved good outcome even without postoperative radiotherapy.

Patient case no.2 had T3 disease (middle ear involvement), underwent cortical mastoidectomy, atticotomy and wide excision of EAC followed by postoperative radiotherapy. To date, no disease recurrence noted in two years postoperative. Piecemeal resection of the tumor involves removal of the gross tumor followed by further resection of the adjacent structures in a piecemeal fashion. Negative margin may be achieved by intraoperative frozen section. This method was proposed by Kinney and Wood (1987) for tumors that involved the middle ear and mastoid, which often required a more aggressive and high morbidity approach for example subtotal or total temporal bone resection. Postoperative radiotherapy following piecemeal resection was shown to be an alternative to total temporal bone resection in advanced disease. Zhang et al found 69% and 20% 5-year survival for T3 and T4 disease, respectively, in patients treated with

piecemeal technique. However, en bloc resection in favored to produce negative margin remains the standard surgical approach especially for tumor confined to EAC.²

In conclusion, blood-stain discharge with EAC mass should highly alert the diagnosis of temporal bone squamous cell carcinoma and biopsy is a must. Both CT and MRI should be done for all suspected patient to achieve an accurate staging of disease and surgical planning. Lateral temporal bone resection remains the primary treatment. Postoperative radiotherapy is effective in T2-3 disease. T4 disease, positive margin, perineural invasion carries poor prognosis.

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