

# High Grade Mucoepidermoid Carcinoma of the Middle Ear Treated with Extended Temporal Bone Resection

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## SUMMARY

We report a case of High grade Mucoepidermoid carcinoma of the middle ear. A 67 year old gentleman was referred to our centre for persistent otalgia associated with facial weakness for four months. Examination revealed a middle ear mass with House Brackmann Grade 3 Facial Palsy and ipsilateral lymphadenopathy. Biopsies suggested a squamous cell carcinoma of the middle ear, and he successfully underwent an Extended Temporal bone resection with External canal reconstruction and neck dissection. Postoperative Histopathology revealed that the tumour was in fact a High Grade Mucoepidermoid carcinoma. He received postoperative radiotherapy and is well one year post operatively.

## KEY WORDS:

Middle ear, High grade mucoepidermoid carcinoma, Temporal bone resection

## CASE REPORT

A 67 year old gentleman presented to our centre with persistent left sided otalgia of four months duration, associated with a mucopurulent otorrhoea and mild hearing loss. One month after onset of otalgia he noticed asymmetry of his face. He had no history of vertigo, headache, fever, skin rashes or head trauma or other neurological symptoms prior to the facial weakness. He had no history of associated nasal or pharyngeal symptoms. He did not have other chronic medical diseases apart from well controlled Hypertension on Metoprolol 200mg per day. On examination there was a fleshy, proliferative soft tissue mass occupying the left ear canal, with a House Brackmann Grade 3 lower motor neuron facial palsy. There were also 2 palpable upper cervical lymph nodes measuring 0.5cm each. The parotid gland was normal. A high resolution CT scan of the temporal bone revealed a soft tissue mass in the left external canal and middle ear, with intact incudo-malleolar complexes bilaterally and normal semicircular canals, cochlea, tegmen tympani. The CT scan also showed level II Cervical lymphadenopathy with central necrosis; one node was related to the posterior aspect of the left parotid gland and another one in the left upper part of the sternocleidomastoid muscle. Biopsies of the external ear canal mass, showed a poorly differentiated carcinoma, probably squamous in type. The patient was diagnosed as a case of poorly differentiated Squamous cell carcinoma of the left middle ear and external canal with left upper cervical lymph node metastasis and facial nerve palsy.

The patient subsequently underwent an Extended Left Temporal Bone resection and Left Radical neck dissection with Post auricular rotational flap reconstruction of the external canal. Intraoperatively, the tumour was noted to involve the external canal with bony erosion anteriorly, and involving the anteromedial aspect of the middle ear cavity and advancing anterolaterally to the Eustachian Tube and the parotid gland, subsequently a Left Parotidectomy was also performed after identification and preservation of the facial nerve. The patient had an uneventful post operative period, and was referred for radiotherapy soon after. Histopathological examination of the specimen revealed it to be a High grade Mucoepidermoid carcinoma, with involvement of the Level II cervical lymph nodes. There was no involvement of the Level III – V nodes and parotid gland. The patient is presently well, having successfully undergone radiotherapy with recovery of the facial palsy to Grade II and no evidence of recurrence till one year postoperatively.

## DISCUSSION

The common histopathological types of malignant tumours arising in the temporal bone are the squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, acinic cell carcinoma, adenoid cystic carcinoma, melanoma, osteosarcoma, chondrosarcoma, rhabdomyosarcoma, lymphoma, malignant neuroma, malignant paraganglioma<sup>1</sup>. By far the most common of these is squamous cell carcinoma

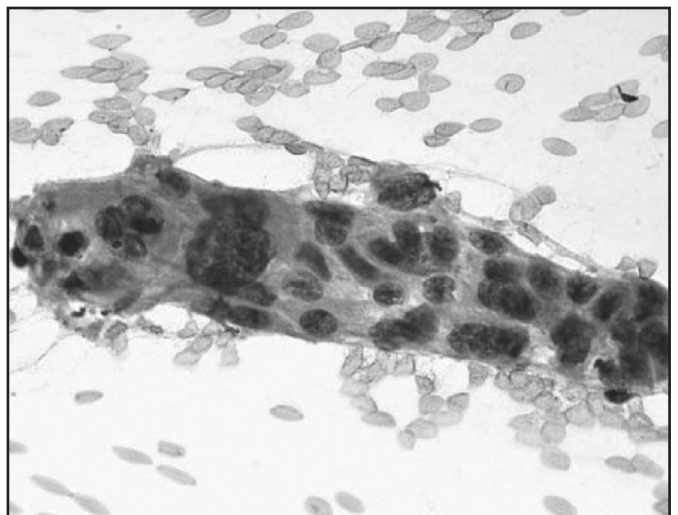


Fig. 1: High Grade Mucoepidermoid Carcinoma

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which accounts for approximately 90% of all cases<sup>1</sup>. In children, rhabdomyosarcoma is the most common malignancy of the temporal bone<sup>1</sup>. Tumors, such as meningioma, chordoma, parotid malignancy, and nasopharyngeal carcinoma, may spread to the temporal bone from contiguous sites. The temporal bone may also be a site for metastasis from lymphoma or malignant tumors of the breast, lung, kidney, or prostate<sup>1</sup>. High Grade Mucoepidermoid carcinomas involving the middle ear are rarely reported, possibly from being diagnosed as Squamous cell carcinomas. Young Ho Kim *et al* in 2003 reported an incidental finding of a mucoepidermoid carcinoma involving the middle ear in a patient undergoing surgery for chronic otitis media whom was treated with combined radiotherapy and chemotherapy<sup>3</sup>. Rancic *et al* in 2003 reported a case of high grade mucoepidermoid tumour of the middle ear that was treated surgically<sup>2</sup>. Mucoepidermoid carcinoma is a tumor characterized by the presence of squamous, mucus-producing cells and cells of intermediate type<sup>4</sup>. Microscopically, it is common practice to divide mucoepidermoid carcinomas into low, intermediate, and high-grade types<sup>4</sup> (Fig. 1).

A quantitative histological grading system was devised by Auclair *et al.* (1992)<sup>4</sup>. They analyzed the histological features most useful in predicting high-grade aggressive behavior: a cystic component of less than 20%, four or more mitotic figures per 10 high power fields (HPFs), neural invasion, necrosis and anaplasia. Each of these histological features was given a fixed score. A total score of 0 to 4 was considered low grade, 5 to 6, intermediate grade, and 7 or more, high grade<sup>4</sup>. Using this point system, the mortality rates were

3.3%, 9.7%, and 46.3% for low, intermediate, and high grade, respectively<sup>4</sup>. Complete excision with normal tissue margins is the ideal treatment. Radiotherapy is indicated for high-grade carcinomas, for tumors with extensive perineural or vascular invasion, and for incompletely excised tumors<sup>1,5</sup>. Although the histopathological report showed no evidence of malignancy of the parotid gland, the possibility that the tumour could arise from the parotid gland should be considered when managing these cases. The extended temporal bone resection, involving resection of the temporal bone until the petrous part with neck dissection and free flap or pedicled flap reconstruction and followed by postoperative radiotherapy for the advanced temporal cancer, gives a better outcome for these type of patients as evidenced by Moffat in 2003<sup>5</sup>. Our experience with this case has also shown that an Extended Temporal Bone resection provides for adequate tumor clearance minimizing the chances of recurrence.

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