



*Case Report*

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**Squamous Cell Carcinoma of the External Auditory Canal:  
A Case Report**

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**Abstract**

*Tumors of the external acoustic meatus are very rare tumors of the ENT sphere, often diagnosed late due to their non-specific symptomatology. This case describes a 45-year-old adult with squamous cell carcinoma of the external auditory meatus. Surgical resection was not an option due to the extent of the tumour. The patient was treated with radiotherapy and concomitant chemotherapy. He is in clinical and radiological remission 1 year after completion of treatment. This case highlights a minimally invasive strategy with a favorable response for the treatment of rare tumors of the external acoustic meatus in close contact with critical structures. The clinical and radiographic features of malignant tumors of the external auditory meatus are also reviewed, and the various treatment options reported in the literature are discussed.*

**Introduction**

The external ear is made up of the auricle and the external auditory canal (EAC), which is formed of cartilage on the outside and bone on the inside, both covered by skin.

Apart from skin tumours of the auricle, which are the most common, ear cancers also include tumours of the auditory canal, which are very rare and can be aggressive.

**Observation**

We report the case of Mr A.K, aged 45, a chronic smoker in the process of weaning himself off the habit with no other particular pathological antecedents. The patient consulted the ENT department at the Hassan II University Hospital in Fez after 8 months of chronic purulent otorrhea of moderate abundance following cotton-tipped trauma, associated with intense otalgia, retroauricular swelling and left-sided hypoacusis which worsened over the months, all evolving in a febrile context with deterioration of general condition.

On physical examination on the day of the consultation, the patient had a purplish-red mass covered with a spontaneously painful purulent secretion filling the external ECA down to the concha. The left retroauricular skin was swollen and painful, with stitches from the ENT biopsy (image 1).



**Image 1:** initial lesion on the day of the first consultation

The CT scan of the rocks showed an infiltrate centred on the left EAC and the soft parts of the external ear, containing fluid collections within it, responsible for condensation of the temporal bone opposite with periosteal reaction in places, measuring 44x46x44 mm in diameter TxAPxH. Mediolaterally, the process fills the left CAE as far as the tympanic membrane, resulting in tissue filling of the mastoid antrum and tympanic case, with blunting of the wall of the logette, respecting the tegmentum tympani and antri. Anteriorly, it extends retromandibularly as far as the temporomandibular joint. Posteriorly, it extends to the retro-mastoid region and inferiorly, it infiltrates the parotid gland. It is associated with a 15 mm short-axis neighbouring ADP.

The patient underwent a retroauricular biopsy of the tumour process described above, the results of which were consistent with a moderately differentiated, infiltrating squamous cell carcinoma.

The patient's case was discussed at an ENT multidisciplinary consultation meeting, and the decision was taken to perform concomitant chemoradiotherapy, given the non-resectability of the tumour process.

The therapeutic strategy, the course of the radiotherapy sessions and the concomitant chemotherapy, as well as the possible side effects of the treatment, were explained to the patient.

Once the biopsy site had healed, the patient underwent a centring CT scan. He was positioned supine, with his arms at his sides, in a comfortable, reproducible position. Immobilization was performed using a thermoformed mask covering the head, neck and shoulders, with four

wall-mounted lasers (2 lateral and 2 transverse) aligned with anatomical landmarks. Two-step CT acquisition of 3 mm sections from vertex to thorax, with and without contrast medium injection, followed by image transfer to the TPS.

Organs at risk and target volumes were delineated. A total dose of 66Gy was delivered in 33 daily fractions of 2Gy. Ballistics required 6 Mev photon beams using an intensity-modulated conformal technique.

Treatment was spread over fifty days, with no interruption of more than two days. The patient received seven courses of weekly cisplatin chemotherapy. During treatment, solid dysphagia and grade II radiodermatitis were detected and managed.

Post-treatment evaluation by physical examination 1 month after the end of irradiation revealed significant regression of the retroauricular mass, with visualization of the external auditory canal.



**Image 2:** the last day of radiotherapy

Three months after the end of radiotherapy, there was a clear improvement in the initial symptomatology. He underwent a CT scan 6 months after the end of treatment, which showed almost complete regression of the tumour process centred on the external auditory canal and the soft tissue of the left external ear, The left jugulo-carotid adenopathy had clearly regressed, giving way to a lymph node formation measuring 5 mm in minor axis.

## Discussion

Malignant tumors of the ear are uncommon regardless of histopathological type. They account for less than 1% of head and neck cancers(1). Tumors of the external acoustic meatus are even rarer (less than 0.2% of ENT tumors) (2).

They are often diagnosed late due to their rarity and non-specific symptomatology (1).

The main functional signs are chronic hemorrhagic otorrhea and disproportionately intense otalgia on otoscopy, which is strongly suggestive of the diagnosis of an external auditory meatus tumor, in particular adenoid cystic carcinoma(3). The presence of peripheral facial nerve palsy is a major finding, as it suggests a locally advanced tumour (4). Otoscopy often reveals a superinfected polypoid mass and stenosis of the EAC, which may wrongly suggest otitis externa and lead to delayed management. A directed biopsy of the polyp with fresh anatomopathological analysis, if necessary in the operating theatre, should be performed systematically when it is found (5).

The various anatomopathological types are squamous cell carcinoma, which is the most frequent, verrucous carcinoma, which is slower-growing and has no metastatic potential, basal cell carcinoma, basaloid squamous cell carcinoma, adenoid cystic carcinoma and ceruminous adenocarcinoma (6).

To assess local extension, CT or MRI scans are performed to look for tumour invasion of the temporal bone, parotid gland or dura mater. The assessment of distant extension is considered in secondary metastatic forms, and relies essentially on PET-CT, bone scintigraphy and thoracoabdominal-pelvic CT (5).

As no consensus on TNM classification has yet been reached (5), the Pittsburgh classification, based on clinical and radiological findings, is used for TNM staging of malignant tumors of the external auditory canal (7).

### **Carcinomas of the external auditory meatus extend**

Forwards and downwards, to the temporomandibular joint and the contents of the parotid lodge, then to the skin of the cervico-parotid region.

Externally, to the auricle and mastoid region.

Inwards, to the tympanic cavity and middle ear cavities, as well as to the facial nerve, labyrinth, internal auditory meatus and dura mater of the cerebellopontine angle.

Upwards and forwards to the infratemporal region.

The tip of the rock is reached from the middle ear cavities through the auditory tube and labyrinth.

Invasion of the infratemporal fossa is underestimated by CT imaging, and requires MRI assessment.

Anterior extension is often difficult to assess, as it passes through fissures, cartilage, vascular or nerve canals without obvious bone erosion at its onset.

On the other hand, the presence of metastatic adenopathy is an infrequent and always unilateral event (5-15% of cases) (6).

Surgery remains the treatment of choice (8), and is reserved for primary forms, provided that total excision is possible (2). It consists of either:

- Lateral resection of the temporal bone (external petrectomy), encompassing the exofacial parotid gland and possibly including the mandibular condyle due to potential anterior permeations. Invasion of the skin lateral to the external auditory meatus requires wide resection of the concha and reconstruction, in particular with a musculocutaneous flap.

Limited resection of the external auditory meatus, whatever the technique, is reserved for very select cases: T1 tumors of the roof or posterior bony wall of the external auditory meatus.

- Subtotal petrectomy.
- Total petrectomy, requiring sacrifice of the internal carotid artery, tracheotomy and enteral feeding.

For a number of lesions, particularly those involving the infratemporal fossa or middle ear, resection is extended depending on the extent of the tumour.

Associated with homolateral lymph node dissection of the cervical areas IIa, IIb and III, as well as the lymph nodes of the mastoid region, which represent the ear's first lymph node drainage relays (6).

These procedures must be decided in a multidisciplinary meeting. (6) Our patient would therefore be a candidate for total petrectomy, which is highly mutilating and a source of considerable functional handicap. Radiotherapy is therefore a conservative treatment, and is the option chosen by the RCP in order to preserve a good quality of life.

Radiotherapy is usually indicated as adjuvant treatment for most T2-T4 tumours (according to the Pittsburg classification), all tumours with lymph node invasion and certain T1 tumours with insufficient or positive surgical margins (9).

Exclusive radiotherapy is indicated in the case of unresectable tumours, or when surgery is not feasible due to other morbidities or, as in our patient's case, when surgery is very mutilating (9), but few studies have demonstrated the benefit of radiotherapy in such cases (10).

Target volume delineation in the case of exclusive radiotherapy using CT or MRI is easier, but tumoricidal dose delivery of 66 Gy to 70 Gy to achieve optimal results is complicated by proximity to neurological, bone and soft tissue structures.

The role of radiosensitizing chemotherapy concomitantly with radiotherapy remains controversial, particularly with regard to the ototoxicity of cisplatin. Nevertheless, our patient was selected on the basis of the results of numerous studies showing its efficacy in head and neck tumors.

The incidence of toxicities remains variable: osteoradionecrosis of the temporal bone, auditory toxicity secondary to radiotherapy, epithelitis and xerostomia have been reported with radiotherapy (11) (12).

Intensity-modulated radiotherapy offers greater therapeutic gain for optimal target volume coverage and reduced treatment-related toxicity (13).

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## Conclusion

The diagnosis of cancer of the external auditory canal is difficult to establish in the presence of otitis externa or non-invasive forms. Early diagnosis of these lesions is essential to ensure good control of the disease and avoid mutilating treatment. Optimal management is a combination of radical surgery and radiotherapy. However, when the tumor is locally advanced, exclusive radiotherapy can be considered, with very satisfactory results in terms of local control. A centralization of cases could enable prospective data collection with a view to establishing a good level of proof.

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