Petrous metastasis of a lung small cell carcinoma

Métastase pétreuse d'un carcinome pulmonaire à petites cellules

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Abstract

Les tumeurs malignes de l'os temporal sont rares et comportent une grande variété histologique. Il s'agit majoritairement de tumeurs primitives avec une incidence estimée à 0,8-1,0 pour 1 000 000 habitants par an [1]. Les métastases en forment un sous-groupe rare. Les signes cliniques de ces métastases osseuses temporales sont non spécifiques et consistent principalement en, une perte auditive, des vertiges, une paralysie faciale, des acouphènes, des céphalées, une otalgie ou une otorrhée [2].

Le but de notre publication est de rapporter un cas rare de métastase dans l'os temporal, comme manifestation initiale d'un cancer du poumon.

Notre patient, de sexe masculin et âgé de 44 ans, s'est présenté pour œdème mastoïdien droit avec paralysie faciale périphérique droite grade VI de House Brackmann. L'imagerie et la biopsie ont confirmé le diagnostic de métastase pétreuse d'un carcinome pulmonaire à petites cellules. Le traitement a été palliatif.

Une lésion ostéolytique de l'os temporal chez l'adulte peut correspondre à une tumeur primitive de l'os temporal, mais elle doit aussi faire évoquer le diagnostic de métastase. La tumeur maligne la plus fréquemment responsable de métastases temporales est le cancer du sein, mais le cancer du poumon doit également être évoqué chez les patients fumeurs.

Mots clés : os temporal, tuméfaction mastoïdienne, métastase, cancer du poumon.

Résumé

Malignant tumors of the temporal bone are rare. They include a wide histological variety. They are mostly primary tumors with an estimated incidence of 0.8-1.0 per 1,000,000 inhabitants per year [1]. Metastases form an uncommon subgroup. The clinical features of these temporal bone metastases are nonspecific and predominantly consist of hearing loss, vertigo, facial palsy, tinnitus, headache, otalgia or otorrhoea [2].

The aim of our publication is to report a rare case of metastasis in the temporal bone as initial manifestation of lung cancer. Our patient was a 44-year-old man who presented for a right mastoid swelling with a grade VI right facial nerve palsy. Imaging and biopsy confirmed the diagnosis of small cell lung carcinoma petrous metastasis. The treatment was palliative.

An osteolytic lesion of the temporal bone in an elderly patient may fit with a primary tumor of the temporal bone. It must, also, suggest the diagnosis of metastasis. The malignant tumor most frequently responsible is breast cancer, but lung cancer must also be considered in smoking patients.

Key words: temporal bone, mastoid swelling, metastasis, lung cancer.

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INTRODUCTION

Temporal bone malignancies (TBMs) are rare. They account for approximately 0.2% of all head and neck malignancies [3]. They can arise from practically all parts of the temporal bone including the external and internal auditory canals, middle ear, mastoid, endolymphatic sac and the petrous apex [3]. Squamous cell carcinomas, the most common histological type, represent 60-80% of all histologies [1]. Metastatic lesions in the temporal bone are very rare and usually originate from primary breast, lung, or kidney tumors [1]. These metastases have no specific clinical manifestations including hearing loss, tinnitus, vertigo, facial palsy, otalgia, otorrhea and headache.

In this publication, we present a rare case of metastasis in the temporal bone as initial manifestation of lung cancer.

CASE REPORT

A 44-year-old man, 20 pack-year smoker, presented with a 1-month history of facial asymmetry and right mastoid swelling (Figure 1). Physical examination showed a grade VI right facial nerve palsy. Otoscopic and parotid gland examination were normal. There was no palpable cervical lymphadenopathy and the rest of the neurological examination was normal. This clinical presentation was suggestive of an atypical necrotizing external otitis but also some malignancies including lymphoma, Langerhans cell histiocytosis and Sarcoma originating from the mastoid.

Thus, a Brain CT scan was performed. It showed a well-circumscribed tumor centered on the right mastoid with extensive bone lysis affecting the third portion of the facial nerve (Figure 2). We suspected a tumoral origin, then an MRI was requested. It showed a T1 and T2 hyper-signal tumor with homogeneous and insignificant post-contrast enhancement (Figure 3).

A biopsy under local anesthesia was subsequently taken. Histological examination confirmed the diagnosis of small cell lung carcinoma petrous metastasis. In fact, a right basal lung tumor of 2 cm was present on the chest CT-scan requested later.

In a multi-disciplinary consultation meeting, a palliative chemotherapy was decided regarding the metastatic character of this aggressive lung cancer at the diagnosis time. The chemotherapy protocol was a Cisplatin and VP16 combination every 21 days. The evolution was marked by death within 5 months.

Figure 1: clinical presentation of our patient.

COMMENTS

The temporal bone is rarely the site of metastases, which are mainly located in petrous apex [2]. The most common primary cancer that results in temporal bone metastases (TBM) is breast cancer [2]. They also can be observed in the course of lung, liver, kidney, stomach or prostate cancers [2]. When associated to lung cancer, TBM seems to occur late in the disease process after the primary cancer first metastasized to other organs [4]. For our patient, the TBM revealed the lung cancer.

Otherwise, the context of the temporal bone malignancy should first suggest primary malignant tumors. In young patients, sarcoma, Langerhans histiocytosis or lymphoma must be suspected [2]. Multiple myeloma and plasmocytoma should also be suspected in elderly patients.

Clinical presentation of all TBM is misleading and nonspecific. Hearing loss, vertigo, facial palsy, tinnitus, headache, otalgia or otorrhoea are the predominant reported complaints [2, 4]. Clinical examination may reveal retro-auricular or external auditory canal swelling. This clinical presentation may be suggestive of external otitis or even otitis media [2]. The presence of symptoms suggesting local extension such as invasion of the cochlea-

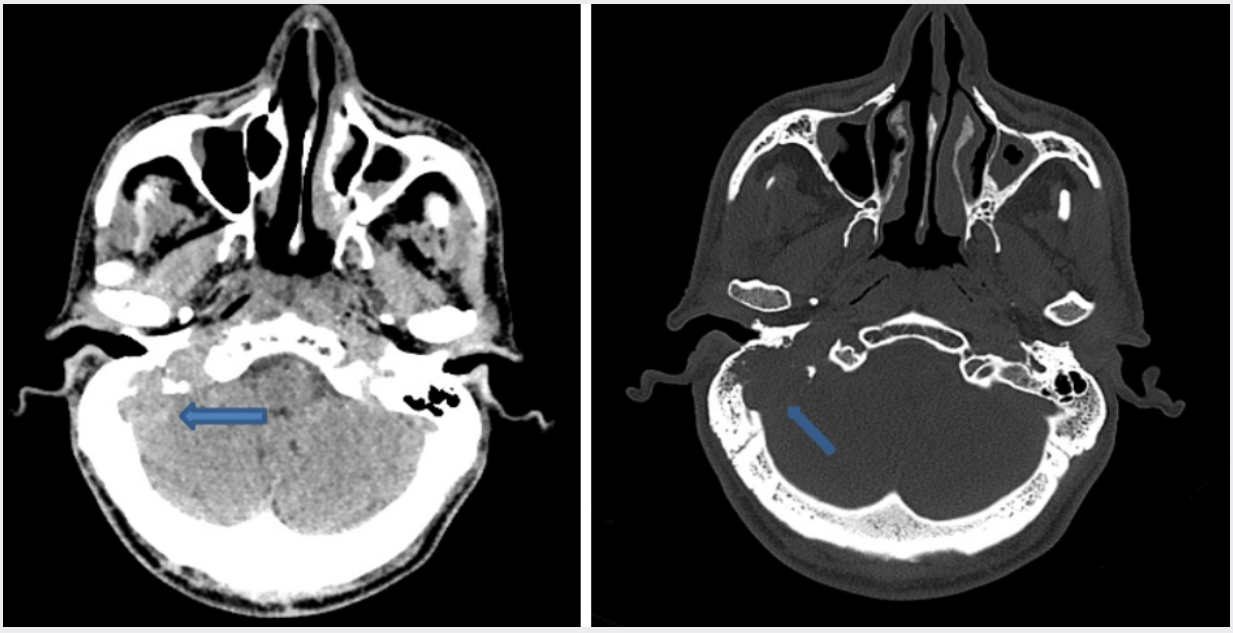

Figure 2: brain CT-scan (axial sections): right temporal lytic mass (blue arrows).

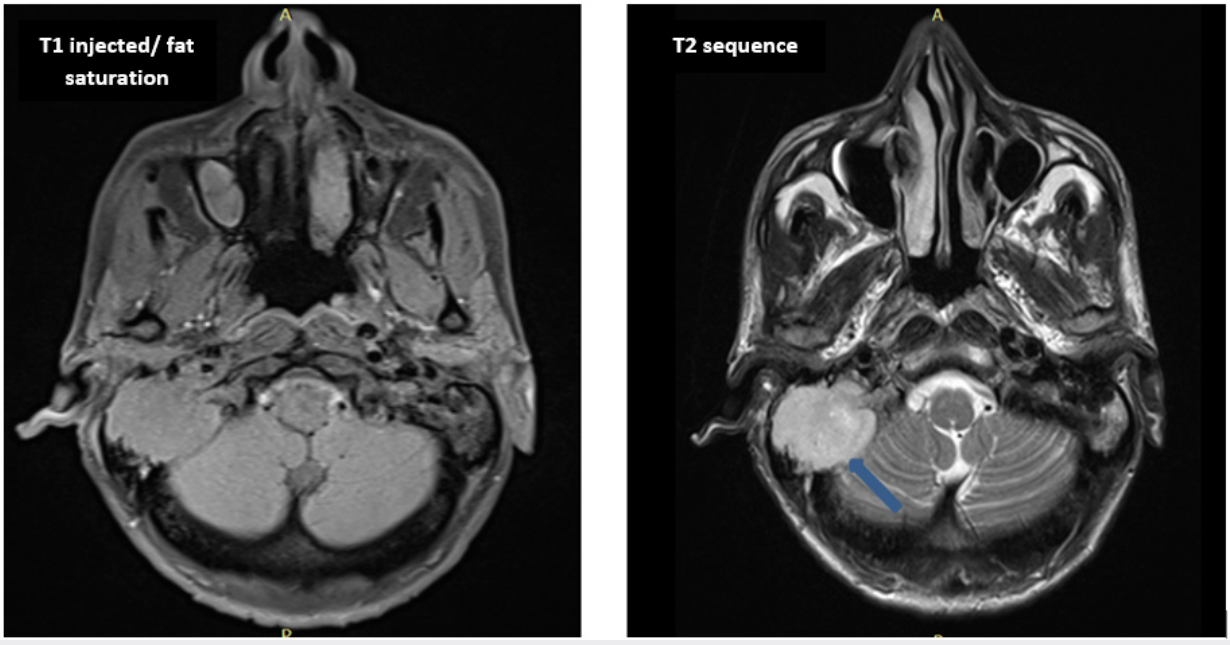

Figure 3: brain MRI (axial sections): hyper-intense tumor of the right temporal bone (blue arrows).

vestibular apparatus, intra-petrous facial nerve or internal auditory canal is associated with a poor prognosis [2]. Gradenigo syndrome (lesion of trigeminal and abducens nerves) may be observed when the apex of the petrous temporal bone is involved [5].

Sectional imaging (CT scan and MRI) is crucial for

positive diagnosis and allows a loco-regional extension assessment. CT of the petrous temporal bones often reveals an osteolytic lesion of the temporal bone. MRI can visualize invasion of the internal auditory canal, cochlea-vestibular apparatus, intra-petrous facial nerve and meninges. It also can help in tissue characterization and histology nature approaching. A temporal bone metastasis is suspected in both squamous cell carcinoma and adenocarcinoma of the temporal bone. Total body CT scan and PET-CT scan should then be performed to identify the primary cancer and other metastatic sites. Past medical history, habits and clinical presentation are helpful when seeking this primary lesion. Thus, TBM must be suspected in heavy smokers presenting otitis or oto-mastoiditis even before attempting symptomatic treatment [1].

Management consists of palliative chemotherapy and localized external beam radiotherapy [2]. Petrectomy can be considered for curative treatment depending on the extension of the primary cancer and the presence of other metastatic sites [2]. The overall survival remains poor.

CONCLUSION

Malignant tumors of the temporal bone are rare. They mainly consist of primary cancers and rarely of temporal metastases. Their initial presentation is often identical to that of inflammatory ear diseases. A careful clinical examination must always be performed. Some clinical presentations such as mastoiditis in heavy smokers must attract attention especially when there is no symptomatic improvement after conventional treatment. Lung cancer remains dreadful by its variable clinical presentations, including a revealing temporal bone metastasis.

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