A male patient aged 71 with a history of urothelial bladder cancer which was treated one year previously with a transurethral resection (stage pT1G3) and BCG intravesical instillations. He presented at the surgery with a week-long history of right eye closure failure and twitching of the corner of his mouth towards the left. He also stated a 3-month occurrence of earache and temporal right pain, which had been attributed to otitis media and arthritis of the temporomandibular joint in previous consultations. This had been treated with antibiotics and anti-inflammatory drugs, with no improvement.

A cranial CT scan showed a lytic lesion which covered part of the right temporal bone (squama and petrous) and the sphenoid bone, with soft part components, but with no encephalic lesions (Fig. 1). A blood count, biochemical testing including calcium, alkaline phosphatase, a proteinogram and tumour markers, and several urinary cytology tests were obtained, all of which tested normal.

A bone scan revealed a single pathological deposit in the right lateral area of the skull base. Findings from a chest, abdomen and pelvis CT scan were insignificant. A temporal craniotomy was performed to take a biopsy of the lesion, the anatomopathological report of which revealed bone tissue infiltrated by immunophenotyping cancer cells compatible with urothial origin (express CK7, CK20, p63 and EMA; do not express vimentin, S100) (Fig. 2). The patient received external radiotherapy on the bone cancer and has initiated chemotherapy with Carboplatin and Gemcitabine.

Figure 1 Axial (A) and coronal (B) imaging of the cranial CT scan in which a lytic lesion affecting the right temporal bone is shown.
Discussion

Bladder cancer is the second most frequent tumour of the urinary system after prostate cancer. The most common histologic type is urothelial cancer, the pattern of which may be aggressive and lead to metastasis, most frequently of the lymph nodes, liver, lung, and bone. Bladder cancer metastases to the temporal bone is an exceptional complication of this tumour, for which we could only find 3 references.\(^5\)\(^6\)\(^7\)

Malignant tumours which affect the temporal bone are infrequent.\(^5\) They are usually the direct invasion of a contiguous neoplasm located in the ear or periauricular skin (generally squamous cell carcinoma, basal cell or melanoma) or in the parotid gland.

Metastatic carcinoma of the temporal bone is very infrequent, referred to in the references as clinical cases or small series of cases.\(^5\)\(^6\)\(^7\) Factors which may contribute to the low incidence of clinical metastatic involvement of the temporal bone are the fact it may be carried asymptomatically, that its symptoms are regarded as less important than those of the primary tumour or other metastases, that the study of the spread of neoplasms does not systematically include the skull, nor do autopsies include the study of temporal bones. Thus, in the most widely published post-mortem series, Gloria-Cruz et al.\(^7\) found metastatic involvement in the temporal bone in 22% of 212 patients with a non-haematological neoplasm (18% of 415 temporal bones). Involution was bilateral in 62% of patients and located in the petrous segment in 83% of patients. Out of the 5 possible patterns of neoplastic involvement of the temporal bone described by Berlinger et al.,\(^1\) haematogenous spread presented in 76%. 36% of patients had not had auditory or vestibular symptoms, supported by the fact that the high incidence of metastatic involvement of the temporal bone observed in the study reflected the histological, not clinical, nature of the same. Hearing loss, present in 40% of cases, was the most frequent symptom, whilst the symptoms of the case study presented, facial paralysis and eye pain, occurred in 15% and 8%, respectively. Malignancies were of 20 different origins, the most common being of the breast (21%), lung (13%) and prostate (10%), whilst there was only one case (2%) of secondary bladder cancer. Furthermore, we only found references to 3 other cases of metastasis of the temporal bone from bladder cancer.\(^5\)\(^6\)\(^7\)

To conclude, we wish to highlight that metastatic carcinoma of the temporal bone should be considered in differential diagnosis of hearing loss and other otic and vestibular symptoms in patients with a past medical history of malignant neoplasm. Normal findings in specialised examinations of the hearing system are an indication that consideration of specific temporal bone CT scans or MRI scans should be carried out, so as to rule out metastatic tumour behaviour.

Conflict of Interests

The authors have no conflicts of interest to declare.

References