CASE REPORT

The truth is in the water: metastatic prostate cancer presenting as an intermittent facial nerve palsy

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SUMMARY

An elderly man presented to the acute ear, nose and throat (ENT) services with a history of intermittent, self-limiting facial nerve palsy. Full ENT examination was normal, with all cranial nerves and peripheral neurology intact. Multiple imaging modalities suggested an aggressive bony lesion, secondary to locally advanced prostate malignancy with extensive metastatic infiltration. Prostate cancer is known to preferentially metastasise to bone and has been known to cause multiple cranial nerve palsies and ophthalmoplegia. This is the first case described in the literature of metastatic prostate cancer presenting with intermittent facial nerve palsy.

BACKGROUND

This case is the first ever described in the literature of metastatic prostate malignancy presenting with fluctuating facial nerve palsy.

It is a timely reminder of the multisystem effect of malignancy, and the wide spectrum of presentations it may have. Malignancy must always be considered in a patient with facial nerve symptoms, especially if it has unusual characteristics.

CASE PRESENTATION

An elderly man was referred to the acute ear, nose and throat (ENT) services with a 4-week history of intermittent facial nerve palsy manifesting predominantly as a left facial droop. The episodes lasted for an average of 10 minutes and occurred approximately five times a day. They were self-limiting with complete resolution between each episode. There was associated left-sided hearing loss over the preceding year, but no tinnitus, balance disturbance or headache. A non-specific history of sporadic weight loss was also described.

On admission, the full otolaryngology examination was normal including otoscopy, with all cranial nerves and peripheral neurology intact. The CT scan showed opacification of the left middle ear and mastoid air cells, and a concurrent destructive bone process invading the occipital condyle and jugular bulb (figure 1).

Following admission, the man developed acute urinary retention requiring urethral catheterisation. Subsequent per rectum examination of the prostate revealed a high prostate with hard lobes but no nodules. The patient divulged that he had undergone prostate operation decades previously, but there was no patient's history or medical documentation of malignancy.

MRI confirmed a bony left posterior skull base lesion, with likely involvement of the left mastoid

Figure 1 Axial CT showing opacification of the left middle ear and mastoid air cells, and a concurrent destructive bony process invading the occipital condyle and jugular bulb.

segment of the facial nerve (figures 2 and 3) and a left sigmoid sinus thrombosis (figure 4). This was felt to represent an aggressive bony lesion.

A prostate-specific antigen (PSA) level of over 3000, and a full body CT helped confirm a diagnosis of locally advanced prostate malignancy with extensive metastatic infiltration.

DIFFERENTIAL DIAGNOSIS

On presentation, differential diagnosis focused on the concurrent left-sided hearing loss and intermittent lower motor neuron facial palsy, but included transient ischaemic attacks. The differential diagnoses also included local malignancy arising from the internal auditory meatus, cerebellopontine angle, glomus or neural crest, metastatic infiltration and benign processes such as Paget's disease and facial nerve neuroma.

Following CT imaging, the distribution, erosive nature of the lesion and uptake of contrast focused the diagnoses to; mastoiditis with concurrent osteomyelitis and metastatic disease infiltration.

OUTCOME AND FOLLOW-UP

The patient was transferred to the care of the urology and discussed at the urological malignancy multidisciplinary team meeting.

On the basis of the PSA level of 3786 combined with the radiological findings the patient was

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Figure 2 Coronal MRI showing a large left mass lesion in the posterior skull vault involving the petrous, mastoid, clivus and occipital condyle.

started on degarelix, a testosterone antagonist which he receives on a monthly basis in the community. This has reduced his PSA level to 166 confirming the diagnosis of metastatic prostate cancer, negating the requirement for biopsy.

Additionally, he also received palliative radiotherapy to his skull base metastasis.

Oncology will continue on follow-up with serial PSA levels.

Figure 3 Axial MRI demonstrating the extension of the lesion into the middle ear, the area of likely facial nerve involvement.

Figure 4 MR venography demonstrating absence of flow in the region of the left sigmoid sinus and transverse sinus consistent with a left sigmoid sinus thrombosis.

DISCUSSION

This is an extremely unusual presentation of metastatic prostate cancer. A PubMed literature review using the search terms ‘prostate cancer’ and ‘facial nerve palsy’ revealed this to be the third case to describe a facial nerve paralysis as the presenting feature for metastatic prostate malignancy.^{1 2} Uniquely, it is the first case of fluctuating facial nerve paralysis as the presenting symptom.

Prostate cancer accounts for 13% of the cancer burden in the UK and is the second commonest cause of cancer death among men.³ Prostate cancer is known to metastasise to bone; however, there are less than 15 cases in the literature of metastatic disease presenting with multiple cranial nerve palsies or ophthalmoplegia,⁴ and an isolated facial nerve involvement, as we have described, is rarer still.^{1 2}

The facial nerve follows a complex pathway from the lower pons to its terminal branches in the parotid gland providing motor function to the face.⁵ Hence there are multiple sites where lesions or injury can arise to produce lower motor neuron facial nerve palsies and in less than 10% of cases an upper motor neuron palsy.⁶ Bell’s palsy accounts for 55% of facial nerve palsies, but is often misunderstood as it is crucially a diagnosis of exclusion, which is not appropriate for any palsy with atypical features.^{6 7}

Diagnostic certainty in facial nerve palsy aetiology can be difficult to establish despite a full otolaryngology examination, and radiology adjuncts.¹ Despite imaging, skull metastasis across multiple malignancies can be diagnostically challenging radiologically, with MRI offering the best definition.¹ Some

institutions advocate facial nerve exploration in cases of atypical palsy, should imaging and clinical examination not reveal a cause.⁶

Learning points

- ▶ Malignancy must be considered as an important differential in any persistent facial nerve palsy.
- ▶ Imaging alone cannot be relied on to diagnose the cause of facial nerve palsy.
- ▶ Metastatic prostate cancer is a multisystem disease, which can have significant effects outside the pelvis, abdomen and trunk.

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Competing interests None.

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