

Leptomeningeal Metastasis with Urological Presentation

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ABSTRACT

The incidence of clinical leptomeningeal metastases from non-neurogenic solid tumour is generally increasing as a result of better survival of systemic cancer with chemotherapy. Their presentation varies according to the neurological involvement. A case of leptomeningeal metastasis from an unknown primary source presenting with urinary incontinence as the sole complaint is reported. While urinary incontinence is common in the community and is often functional, neurogenic causes must also be considered. Urodynamic study and electrophysiological assessment are useful investigations in the exclusion of a neurogenic cause. An MRI of the spine will be required to define any anatomic lesion.

Keywords: tumour, urodynamics, incontinence

INTRODUCTION

Leptomeningeal metastasis from non-neurogenic solid tumour is an important neurologic complication of systemic cancer. With better survival as a result of effective chemotherapeutic agents, they are becoming clinically significant. The common presentation include weakness of the lower limbs, paraesthesia in one or more extremities, pain in the back or neck, radicular pain and bladder and/or bowel dysfunction. Urinary incontinence is a common urological complaint, especially in the elderly. The causes vary from functional incontinence to organic lesions. While transient incontinence is common, causes of established incontinence requiring definitive treatment must be sought. We present a patient who was initially seen in our urologic clinic for urinary incontinence with subsequent investigations revealing intrathecal metastasis.

CASE REPORT

A 52-year-old Chinese male presented to the urology clinic at Tan Tock Seng Hospital in November 1993 with urinary incontinence after an acupuncture session for bleeding haemorrhoids.

Plain radiographs of the lumbosacral spine were normal except for mild degenerative changes. Standard urodynamic study showed a stable but low compliant bladder (Fig 1) with a low cystometric capacity of 200 mLs when leakage occurred. Intravenous urogram revealed a fir-tree appearance

consistent with a hyper-reflexic bladder. Subsequent contrast-enhanced computed axial tomogram and magnetic resonance imaging (MRI) of the lumbosacral spine showed an intrathecal soft tissue tumour in segments L5 to S2 (Fig 2).

The patient underwent lumbosacral laminectomy. During surgery, it was noted that the whole of the thecal sac from L5 to S3 was filled with tumour which had also infiltrated the nerve roots of the cauda equina. It extended out into the extradural space along the nerve root sleeves. The tumour was debulked and the histology was reported as metastatic adenocarcinoma. Post-operative dexamethasone and external beam radiation were administered.

Metastatic workup did not show any liver or lung involvement. Attempts at localising the primary source were not fruitful.

One month post-operatively, the patient complained of headache, giddiness and progressive bilateral lower limb weakness. Cerebral CT scan showed a 2 cm metastatic nodule in the right parietal lobe. Craniotomy and excision of the nodule confirmed the same histology as that from the lumbosacral segments. External beam radiation was given and the patient was discharged with minimal assistance in activities of daily living.

Three months later, he became bed-ridden and finally died from bronchopneumonia.

DISCUSSION

The incidence of central nervous system (CNS) metastases from non-neurogenic solid tumour ranged from 18% to 24%^(1,2). The incidence is generally increasing in most instances because control of systemic cancer has sufficiently prolonged survival to permit leptomeningeal metastases to become clinically significant^(3,4). The common primary malignancies implicated are bronchogenic, breast and melanoma^(2,5). However, any tumour is capable of seeding the leptomeninges with or without involvement of other CNS sites. Prognosis is usually dismal.

Cerebrospinal fluid examination, CT scan and MRI have been useful in the diagnosis of leptomeningeal metastases. Of these, magnetic resonance imaging is the preferred modality⁽⁶⁻⁸⁾.

Urinary incontinence is a common urological complaint with the incidence variously reported ranging from 5% to 10% in the community and rising with age. The problem is worse among

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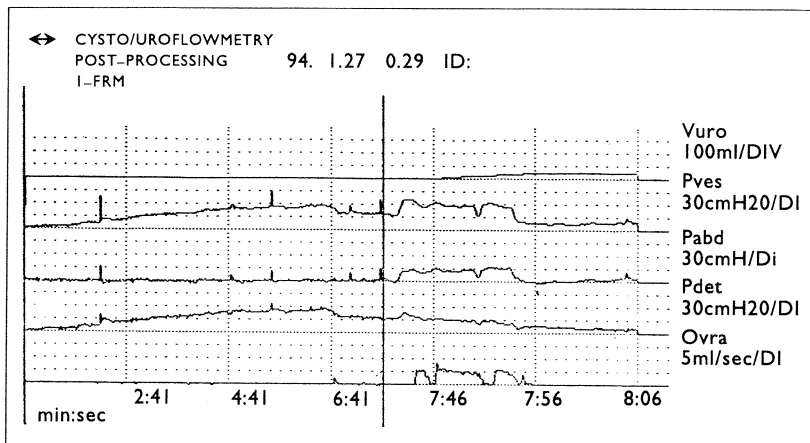


Fig 1 - Urodynamic study showing a low compliant, low capacity with an intravesical pressure of 60 cm H₂O at cystometric capacity of 200 mLs. Voiding is mainly by abdominal straining leaving a residual volume of 160 mLs.

institutionalised geriatric populations with reports of up to 50%. Our local prevalence is 4.8% among the elderly⁽⁹⁾. While most have functional incontinence, causes of established incontinence must be excluded. In the workup of these patients, urodynamics form an integral part of the investigations to determine the type of established incontinence viz overflow, stress, urge or true incontinence. Among the underlying pathology, neurological lesions should be considered and further evaluation of the CNS will be required if there is suggestion of hyper-reflexic detrusor or an acontractile bladder on the urodynamic study as illustrated in our case. Electrophysiological assessment, if available, will help to define any neurological involvement.

The urodynamic findings in this patient were unusual in that the low bladder compliance indicated a hyper-reflexic bladder although the surgical finding pointed to a cauda equina lesion. The most probable explanation is irritation of the autonomic nerves to the bladder by infiltration of the tumour down the dural sleeves.

CONCLUSION

This case illustrates the need to be thorough in the investigation of urinary incontinence. While many cases of incontinence are transient and can be treated with simple measures, cauda equina syndrome with bladder involvement from compression by a prolapsed intervertebral disc or an unsuspecting tumour should not be forgotten.

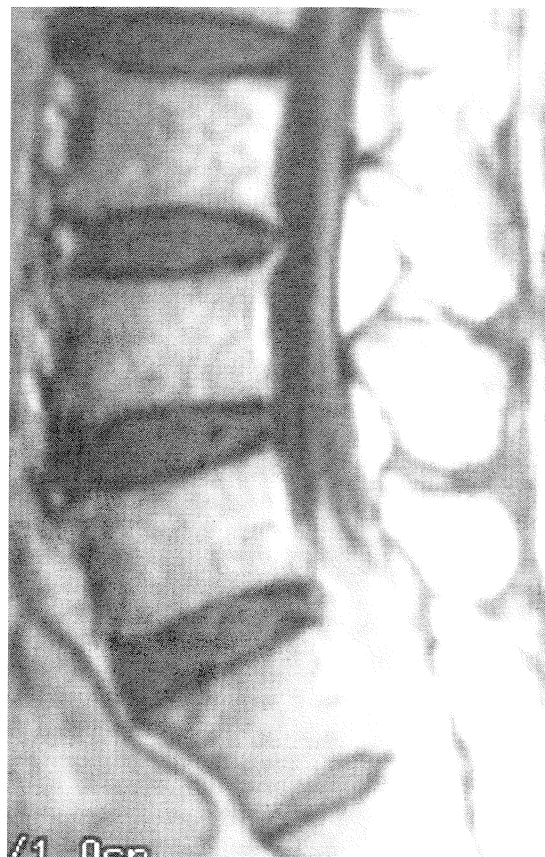


Fig 2 - MRI showing the intrathecal tumour extending from vertebra L5 to S2.

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