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Case Report

Metastatic prostate cancer presenting as incidental pelvic lymphadenopathy – a report of three cases with literature review [☆]

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ABSTRACT

The presence of metastatic lymph nodes is a poor prognostic factor in patients with prostate cancer. Currently, there is no national prostate cancer screening program through prostate-specific antigen testing and the benefits of initiating such a scheme have not yet been proven. However, an informed choice program is in place, on request, for men over the age of 50, following discussion with a healthcare professional and an assessment of the potential benefits. This test is also available to men presenting with lower urinary tract symptoms. We report three cases in men who were imaged for non-specific reasons and found to have pelvic lymphadenopathy. The patients reported no urinary symptoms and all were subsequently diagnosed as metastases from a prostatic primary. As this diagnosis was not considered at an earlier stage, there was a delay in initiating appropriate treatments.

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Introduction

Malignant cells from the early stages of advanced prostate cancer (PCa) often migrate locally, invading blood vessels and, potentially, spreading to other sites. Bones are the most commonly recognized site in metastatic prostate cancer and the presence of sclerotic lesions in the skeleton on imaging will alert the reporter to a diagnosis of disseminated prostate malignancy [1].

Metastatic lymph nodes comprise the second most common site for prostate cancer, after bone [2]. It is also a poor prognostic factor for the disease, and survival rates are significantly reduced in patients showing large lymph nodes [3]. Previous studies have demonstrated that the most common nodes involved are those in the pelvis and retroperitoneum [4]. Currently, no screening programme is in place in the UK, however, prostate-specific antigen (PSA) tests are offered in specific situations including in men over the age of 50 or patients presenting with worrying lower

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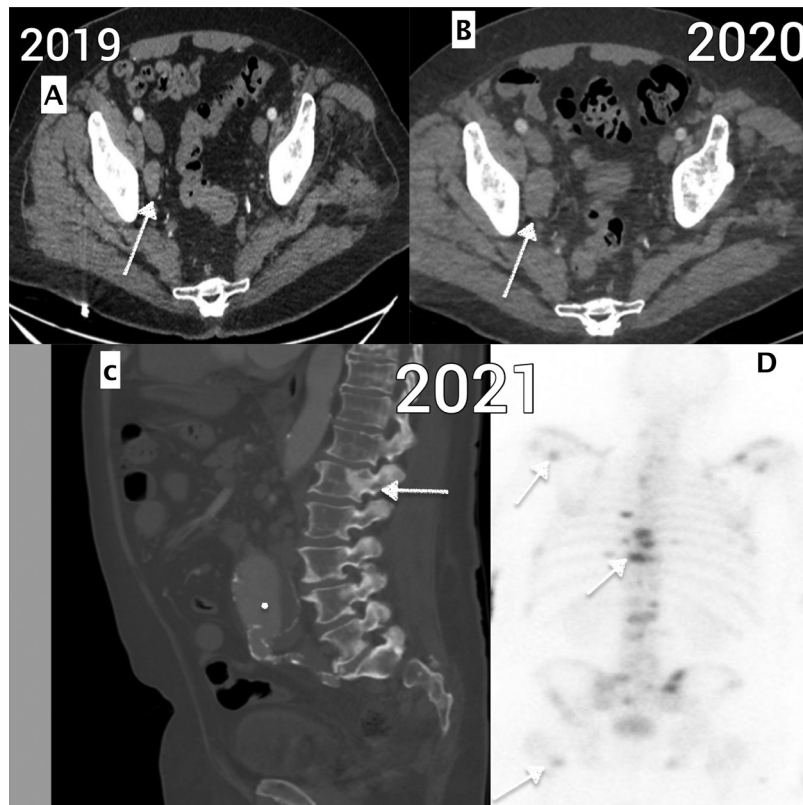


Fig. 1 – A: Contrast enhanced CT scan, axial sections, done in 2019. It shows enlarged right pelvic side wall node (white arrow). B: Contrast enhanced CT scan, axial sections, done in 2020. It shows the right pelvic side wall node has increased in size (white arrow). C: Bone window, Sagittal reconstruction of Contrast CT done in year 2021 showing infrarenal aortic aneurysm (white dot) and sclerotic bone metastasis (white arrow). D: Bone scan of the patient done in 2021, showing uptake in spine, femur and scapula (white arrows) confirming metastasis.

urinary tract symptoms or bone pain suggesting metastatic disease [5].

There are several differentials for incidental enlarged pelvic nodes [6]. In elderly male patients who are found to have enlarged pelvic nodes, however, PSA correlation should be considered. We present a series of three cases where pelvic lymphadenopathy was found on imaging in patients with no prostate-specific symptoms. Upon further investigation, these nodes were revealed to be metastatic prostate tumours. As the diagnosis was not considered at the outset, there was a delay in commencing treatment.

Case presentation

Case 1

A 74 year-old-man was under annual surveillance for an abdominal aortic aneurysm. A CT Aortic Angiogram was performed in 2020 (Fig. 1) and displayed enlarged lymph nodes in the right external iliac lymph node, right common iliac lymph node and aortocaval regions. The largest of these measured 23mm. Upon comparison with previous studies, it was appar-

ent that these lymph nodes had been present for the previous 2 years - albeit smaller - but were not present in 2017. The patient did not exhibit any urinary symptoms at the time. He was discussed at a haematology MDT and a contrast-enhanced scan of the thorax, abdomen and pelvis was arranged. Some time after 6 months, the patient developed mild symptoms of increased urinary frequency and slow urine flow with no reported haematuria. Clinical examination confirmed a mildly enlarged nodular prostate gland.

A multidisciplinary opinion was taken and subsequent re-examination of the patient's angiograms revealed multiple sclerotic bone lesions and enlarged nodes (Fig. 1). The prostate gland was not enlarged on any of the scans. Concerned about the possibility of metastasis from primary prostate cancer led to the measurement of patient's PSA concentration, and this was elevated at 737ng/m. The urology team then reviewed the patient and a whole-body bone scan was performed, which revealed multiple metastases in the spine, scapula and femur (Fig. 1).

Upon reviewing the CT scans, it was revealed that small bony metastases had been present in the scan done in 2020, but were not reported at the time of the original report. This individual was referred to a joint uro-oncology clinic and commenced on Bicalutamide and Goserelin.

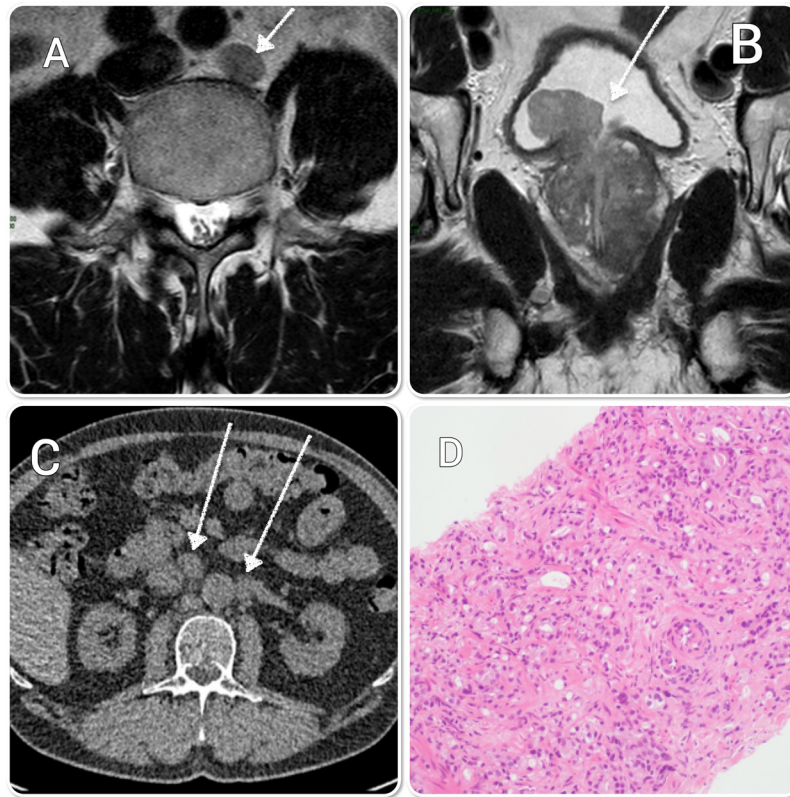


Fig. 2 – A: MRI LS spine T2 Axial section showing solitary enlarged node along the left common iliac artery (white arrow). B: MRI prostate done in 2021, T2 weighted images showing mass in prostate extending to bladder base (white arrow). C: CT abdomen axial section showed increase in size and number of the iliac nodes (white arrows). D: Histopathological examination of the specimen showed acinar adenocarcinoma at x200 magnification fixed with H&E stain. Gleason Score of 4+5.

Case 2

In 2015, a 71-year-old patient presented with a history of progressive symmetrical lower limb sensory disturbance in a stocking distribution. Initial haematocrits revealed low serum folate. A diagnosis of sensory-motor polyneuropathy was made. He was treated with Pregabalin and his symptoms stabilized.

Four years later, the patient's condition deteriorated, with neuropathy extending to the knees. He was referred to a peripheral nerve disorder specialist and, upon examination, there was diminished vibration sensation in his feet and distal loss of pinprick sensation in his lower limbs. The Pregabalin dosage was increased and a lumbosacral MRI scan was performed to exclude lumbar stenosis as a cause for the patient's deteriorating symptoms. He showed degenerative changes in the spine but no significant canal narrowing. However, the axial sequences revealed the presence of an enlarged lymph node along left common iliac artery measuring 14mm (Fig. 2). A CT scan of the thorax, abdomen and pelvis was subsequently performed but this did not reveal any other lymphadenopathy or primary malignancy.

The patient developed urinary symptoms of dribbling and hesitancy after about a year. The prostate was found to be

nodular and bulky on clinical examination. In early 2021, an MRI of the Pelvis and Prostate (Fig. 2) was performed which demonstrated the presence of a locally infiltrative mass lesion extending from the apex to the base of the prostate measuring 46 × 34 × 66 mm. The lesion had extended beyond the prostate capsule on the left side with imaging evidence of infiltration into the inferior bladder wall. In addition, there were several focal sclerotic lesions each measuring around 10 mm in the right femoral head, which were not characterized on the MRI. The PSA concentration was mildly elevated at 28 ng/ml. A staging CT scan was subsequently performed and showed an increase in the size of the previously seen node and new retroperitoneal lymph nodes. A prostate biopsy was performed and confirmed an acinar adenocarcinoma of prostate origin (Fig. 2).

Case 3

A 76 year-old-man first reported a left-sided sore throat and a left-sided supraclavicular lump in 2020. A series of investigations were performed, including a CT Neck, Thorax, Abdomen and Pelvis, (Fig. 3) which showed bilaterally enlarged lymph nodes in the neck, an enlarged right subpleural node, common iliac nodes and an enlarged right pelvic side wall node.

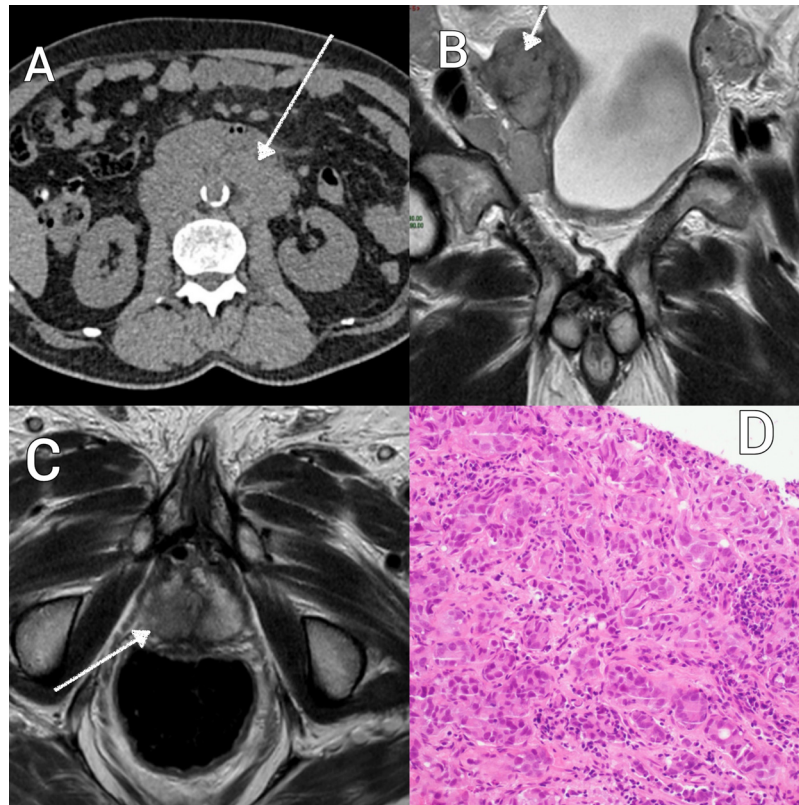


Fig. 3 – A: CT axial section shows enlarged nodal mass around the calcified aorta (white arrow). B: MRI T2 Coronal images shows enlarged right pelvic nodes indenting the urinary bladder (white arrow). C: MRI prostate showing T2 hypointense lesion in the right half of prostate (white arrow). D: Histopathological examination of the core biopsy lymph node showed fibrosis, lymphoid cells and adenocarcinoma cells at x200 magnification fixed with H&E stain.

The pelvic node measured 15mm on the short axis. An imaging diagnosis of lymphoma was considered likely. The patient declined the offer of a biopsy due to the ongoing COVID-19 pandemic. He displayed no urinary symptoms.

In 2021, the patient re-presented with a reported weight loss of 3 kg and had developed mild signs of nocturia and hesitancy. He was referred to the head and neck oncology team and a PSA was requested but he was still reluctant to have a biopsy. His PSA concentration was significantly elevated at 526 ng/m. An MRI Pelvis and Prostate (Fig. 3) was subsequently performed and showed a 21cc prostate, with bilateral nodal enlargement. A whole-body bone scan was negative for metastasis. A lymph node core biopsy performed later was consistent with metastatic prostatic adenocarcinoma (Fig. 3).

Discussion

PCa is the most common cancer in men with approximately 52,300 new cases diagnosed in the UK every year. The incidence rate is highest in males in their late 70s [7]. The cancer is usually diagnosed early through symptoms and routine PSA measurements but, in some cases, patients may not present

with symptoms [7]. The presence of lymph node metastases is a poor prognostic sign and mortality rates are often higher in those with nodal involvement [8].

PCa spread can be local, following extra-capsular spread to adjacent structures such as the seminal vesicles or the bladder [9]. Lymphatic dissemination results in nodal involvement, usually commencing in the pelvic nodes and spreading cranially to involve retroperitoneal nodes at a later stage [9,10]. PCa mainly spreads through the lateral route, to the obturator nodes (the medial chain of the external iliac), then to the middle and lateral chains of the external iliac nodes. The second most common route is the internal iliac (hypogastric) route. Drainage can also occur along an anterior route, via nodes located anterior to the urinary bladder and a presacral route anterior to the sacrum and the coccyx [9–11]. Haematogenous spread is the cause of bone, lung and hepatic deposits [9].

Saeter et al. [12] studied 47 patients with prostate carcinoma, who at the time of diagnosis had involved lymph nodes. They also reported that the supraclavicular fossa was the most common site of extra-skeletal non-regional lymphatic spread and that the survival rates in these patients were similar to those who presented with skeletal metastases. Both groups of patients will respond similarly to hormonal therapy.

Platania et al. [13] reported a case of prostate cancer presenting with enlarged left supraclavicular lymph nodes. Ahn

et al. [14] reported a case of prostate cancer in a 34-year-old man that initially presented with a diagnosis resembling lymphoma. This patient had bilateral supraclavicular lymph nodes with mediastinal, abdominal and pelvic disease. The patient had no urinary symptoms, a normal DRE, but a markedly elevated serum PSA concentration, bearing a marked resemblance to Case 3 in our series. Other authors have also reported sporadic cases and case series of prostate cancer metastasising to the lymph nodes with unusual presenting symptoms [15–17].

Not all enlarged nodes can be attributed to the presence of metastatic disease, as demonstrated by Young et al., who found the incidence of metastatic prostate carcinoma at staging lymphadenectomy to be a mere 4.6% [18].

Localized adenopathy should ideally prompt a search for an adjacent precipitating lesion and an examination of other nodal areas to rule out generalized lymphadenopathy. Most patients can be diagnosed based on a careful history and physical examination [19]. In many instances, as in the cases we present, the diagnosis may not be clinically evident at presentation. In our view, this should prompt biochemical analysis in addition to other investigations to reveal the nature of the enlarged adenopathy.

Whilst the patients in our case studies displayed no urinary symptoms, all three demonstrated the presence of enlarged lymph nodes and were presumed to have haematological malignancies. Prostatic malignancy was not considered at the outset. This resulted in a delayed diagnosis and a delay in definitive therapy.

We propose that prostate cancer should be considered as a differential when enlarged pelvic lymph nodes are found in male patients in the absence of another primary. A digital rectal examination and serum PSA estimation should be performed at an early stage in the patient's management.

Author contributions

Nilu Malpani Dhoot, Maria luiza Yamada, Ramkumar S, contributed manuscript drafting and interpreted the image findings; Gamal Ghazala, Seyan Dattani reviewed the literature and contributed to the manuscript; Adam Levene performed the histological analysis of the surgical specimen. All authors issued the final approval for the version to be submitted.

Patient consent

We confirm that consent for publication has been obtained from the patient or his/her representatives.

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