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# The unexpected finding of a synchronous metastatic seminoma in para-aortic nodes excised in a case of clear cell renal cell carcinoma

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ABSTRACT

Testicular cancer is the most common form of cancer in young men aged 15–35 years and renal cell carcinoma accounts for 3% of all adult malignancy but a synchronous presentation is rare, especially a metastatic classical pattern seminoma with no testicular involvement. We report a case of metastatic seminoma in para-aortic lymph nodes after open radical nephrectomy and retroperitoneal lymph node dissection for a large left clear cell RCC. This case highlights the atypical presentation of testicular cancer, the consideration of a non-RCC associated lymphadenopathy and the importance of lymph node dissection as a treatment option for RCC-associated nodal disease.

## Introduction

Testicular cancer is the most common form of cancer in young men aged 15–35 years with seminomas accounting for 50% of germ cell tumours (GCTs).[1] Usually presenting as a painless unilateral testis mass, risk factors include a history of cryptorchidism, previous mumps viral infection and a positive family history.[1] GCTs may be associated with elevated serum alpha feta protein (AFP), human chorionic gonadotropin (HCG) and lactate dihydrogenase (LDH) levels but AFP is not raised in pure seminomas. More rarely, GCTs can present with a retroperitoneal or mediastinal primary in the absence of a palpable testicular malignancy.[1] GCTs typically metastasise to retroperitoneal lymph nodes or other viscera.

Accounting for 2–3% of adult malignancies, renal cell carcinoma (RCC) is increasing in prevalence with clear cell RCC being the most common subtype.[2] With 25–30% of patients with RCC presenting with metastatic disease at the time of diagnosis, the formally recognised triad of symptoms (haematuria, flank pain and a palpable flank mass) are only seen in 9% of cases with 20% of patients initially presenting with paraneoplastic manifestations such as cachexia, fevers, anaemia and hypercalcaemia.[3] The role of extended regional lymph node dissection in RCC remains controversial. In the context of oligometastatic RCC, retroperitoneal lymph node dissection (RPLND) may offer a 5-year survival advantage of 35%, although this is contentious.[4]

## Case presentation

A 48 year old man presented with a reduced appetite and unintentional weight loss of 1 stone over four months. He described an ache and a fullness in his left abdomen and was also concerned that his left testis felt smaller. He denied haematuria. He was fit and walked 10,000 steps daily, a non-smoker and his only other medical conditions included hypothyroidism and hypercholesterolaemia. He had a BMI of 27 and reported no family history of renal cancer.

Clinical examination revealed a palpable left renal mass and a left varicocele but an otherwise normal left testis. Urgent blood tests showed a microcytic anaemia (Hb 118 g/L, MCV 78.9 fL) with renal impairment (creatinine 125 μmol/L, egfr 54).

Ultrasound showed a 15cm heterogenous left renal mass and computed tomography (CT) scan of his chest, abdomen and pelvis confirmed a large heterogenous mass (11 × 11 × 11cm) arising from the lower pole of the left kidney with probable infiltration of the collecting system and proximal left renal vein involvement (Fig. 1). There was associated retroperitoneal lymphadenopathy, the largest left para-aortic node measured 26mm (Fig. 2). Suggested radiological staging was T3a N1 M0.

After MDT discussion and patient counselling he was booked for an open radical nephrectomy and RPLND. A surgical planning renal MRI highlighted the suspicious left para-aortic and aortocaval nodes and confirmed invasion of the left renal vein.

He underwent open left radical nephrectomy with dissection of para-

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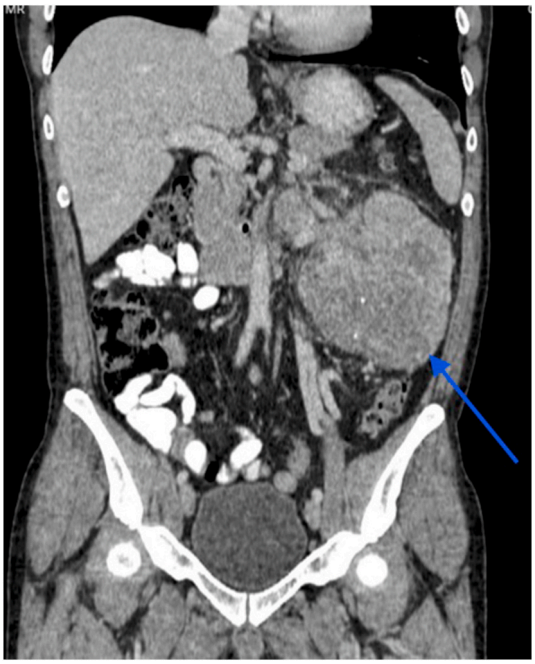

**Fig. 1.** Coronal view of CT abdomen & pelvis showing the large left renal tumour.

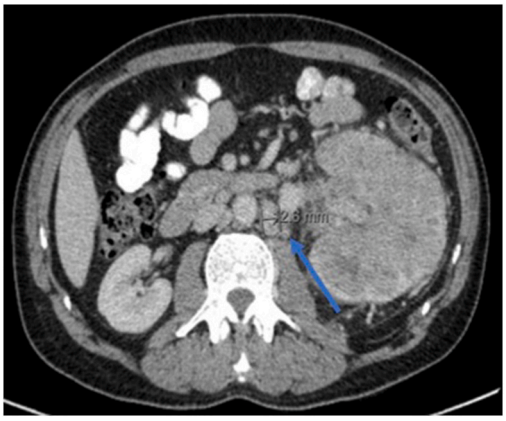

**Fig. 2.** Axial CT of left para-aortic node (26mm).

aortic and aortocaval lymph nodes (RPLND). There were no intra-operative complications and his uncomplicated recovery allowed discharge 3 days post-operatively.

Histopathology confirmed an International Society of Urological Pathology (ISUP) Grade 3 clear cell renal cell carcinoma (pT3a N0) with clear resection margins. 5 lymph nodes were identified at the renal hilum, none of which contain metastatic renal cell carcinoma but 3 lymph nodes unexpectedly showed involvement by a germ cell tumour with features of classical pattern seminoma (Fig. 3). This was confirmed by positive immunohistochemical expression of octamer binding transcription factor (OCT) 3/4 and CD117 by the tumour cells. No other germ cell components were identified.

In view of this unexpected finding of synchronous metastatic seminoma in his para-aortic lymph nodes he was re-examined and underwent testicular ultrasound and serum tumour marker measurement. On examination his left testis was slightly smaller but no palpable mass was evident in either testis. Ultrasound features corroborated this examination and found no focal intratesticular lesions or associated varicocele. Tumour markers performed a month after surgery were not elevated; HCG 0.5 iu/L, AFP 1.42 ku/L, LDH 233 U/L.

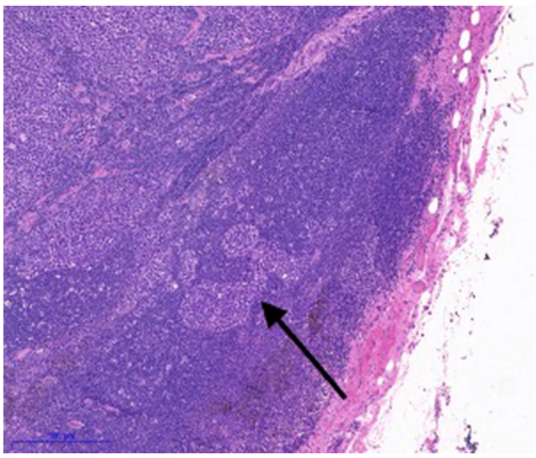

**Fig. 3.** Histology slide of classical pattern seminoma in para-aortic lymph node.

He is currently under surveillance for two presumed concomitant pathologies which involves regular CT scans, serial testicular tumour markers and annual ultrasound testes, and has been taught testicular self-examination. No evidence of recurrence of either tumour has been seen to date (18 months post-operation). He has received no adjuvant therapy.

## Discussion

The abnormal para-aortic lymph nodes were presumed to be likely low-volume metastases from a bulky left renal cancer, hence RPLND being indicated. The finding of metastatic classical pattern seminoma in these nodes, particularly in the absence of any clinical or radiological testicular signs suggestive of a gonadal primary and no evidence of an extra-gonadal primary, highlights the atypical presentation of testicular cancer. Counterintuitively, this finding is likely to significantly improve the patient's prognosis in comparison to a diagnosis of metastatic RCC. Targeted adjuvant therapy for a presumed metastatic RCC may result in an unfavourable outcome.

A literature search revealed only 12 reports of metachronous testicular and renal malignancy; the majority diagnosed as mixed germ cell tumours.[5] There with no cases of metastatic pure seminoma and RCC cited. Cases most commonly reported the finding of an RCC on staging investigations of a testicular mass, contrasting to our case in which the metastatic lymph node was removed as part of staging and treatment of oligometastatic RCC. Germ cell tumour markers (specifically HCG and LDH) taken at the time of presentation and weekly post-RPLND might have helped quantify the tumour burden and risk stratify into prognostic groups. The return to normal levels post-excision is expected but regular monitoring of these tumours markers may aid in early identification of recurrence.

## Conclusion

In conclusion, the unexpected finding of metastatic classical pattern seminoma in para-aortic lymph nodes excised for a large renal RCC is a rare but prognostically preferred finding to metastatic RCC. There was no evidence of a seminomatous extra-gonadal primary and no indication for testicular biopsy on clinical or radiological assessment. This highlights the possibility of a non-RCC associated lymphadenopathy in patients presenting with metastatic RCC and the importance of considering lymph node dissection in these cases. A coordinated MDT approach to simultaneous surveillance of both tumours is required for follow-up, as well as patient education on self-examination.

## Consent

Written consent gained.

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## Declaration of competing interest

None.

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