



Triceps mass – A rare presentation of renal cell carcinoma

Athul John^{a,b,c,*}, Nara Lee^{a,d}, Alicia Lim^{a,b,c}, Yung Tran^{a,d}, Jonathan Cho^{c,e}

^a Faculty of Health and Medical Sciences, University of Adelaide, Australia

^b Department of Surgery, The Queen Elizabeth Hospital, Australia

^c Urology, Central Adelaide Local Health Network, Australia

^d SA Pathology, Australia

^e Health and Medical Sciences, University of Queensland, Australia

ARTICLE INFO

Keywords:

Renal cell carcinoma
Skeletal muscle metastasis
Oligometastatic RCC
RCC

ABSTRACT

Renal cell carcinoma (RCC) can commonly metastasize to the liver, lungs, bones and brain. We herein report a rare presentation of oligometastatic RCC with isolated synchronous metastasis to the triceps. A 44-year-old male presented with an enlarging mass involving the right triceps. A biopsy revealed features consistent with metastatic clear cell RCC (ccRCC). Subsequent computed tomography (CT) imaging demonstrated a 6 cm right renal mass. He underwent a right laparoscopic radical nephrectomy which revealed a tumour stage 1b ISUP Grade 2 ccRCC. Clinicians should have a degree of suspicion for a metastatic lesion for an enlarging soft tissue mass.

1. Introduction

Renal cell carcinoma (RCC) accounts for 3% of all cancers diagnosed in Europe.¹ It can commonly metastasize to the liver, lungs, bones and brain. Cutaneous metastasis is a rare occurrence of RCC, reported in only 3.3% of metastatic RCC.² We report a rare presentation of synchronous RCC with single skeletal muscle metastasis to the triceps.

2. Clinical scenario

A 44-year-old man presented with a three-month history of progressively increasing painful soft tissue mass over the right triceps. He denied any haematuria, flank pain, or weight loss. He denied any previous personal or family history of malignancy. He underwent right upper limb ultrasound, which showed a 23 × 12 × 11 mm vascular and solid mass within the long head of the triceps muscle (Fig. 1). The possibility of schwannoma was considered based on initial appearance. He underwent an excisional biopsy which unexpectedly showed metastatic International Society of Urological Pathology (ISUP) Grade 2 clear cell renal cell carcinoma (ccRCC), surrounded by skeletal muscle fibres (Fig. 2) with clear surgical margins. Given no previous history of renal cell carcinoma (RCC), the patient underwent an urgent computed tomography (CT) scan of the chest, abdomen, and pelvis to identify a renal mass and complete further staging. This noted a 6 cm right renal hilar

mass with no other evidence of metastatic disease (Fig. 3). He subsequently underwent a right laparoscopic radical nephrectomy. Final pathology demonstrated a Stage 1b ISUP Grade 2 ccRCC confined to the kidney, in keeping with the histological subtype identified on the excisional biopsy of the triceps lesion (Fig. 2). The case was discussed at a multidisciplinary meeting where the decision was made for high-risk surveillance with a view towards commencement of systemic therapy if metastatic progression was noted. During his three-month follow-up review, a repeat examination of the right upper limb was conducted, which did not reveal any new mass or cutaneous lesions. Surveillance scans showed no evidence of any recurrent metastatic disease. He continues to undergo high-risk surveillance.

3. Discussion

We report a rare presentation of synchronous RCC with single skeletal muscle metastasis to the triceps. To our knowledge, this is the only case report highlighting synchronous presentation and diagnosis of oligometastatic RCC with Stage 1b tumour. The low tumour grade and stage of final pathology highlights the unusual nature of the disease. Several important lessons can be derived from this case. It highlights another unusual clinical presentation of oligometastatic RCC and serves as a reminder that RCC can metastasize to soft tissue, including skeletal muscle. Awareness of this potential site of metastasis should stress the

Abbreviations: ISUP, International Society of Urological Pathology.

* Corresponding author. 4 North Terrace, Adelaide, SA, 5000, Australia.

E-mail address: athul.john@adelaide.edu.au (A. John).

<https://doi.org/10.1016/j.eucr.2022.102079>

Received 13 March 2022; Accepted 10 April 2022

Available online 14 April 2022

2214-4420/© 2022 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

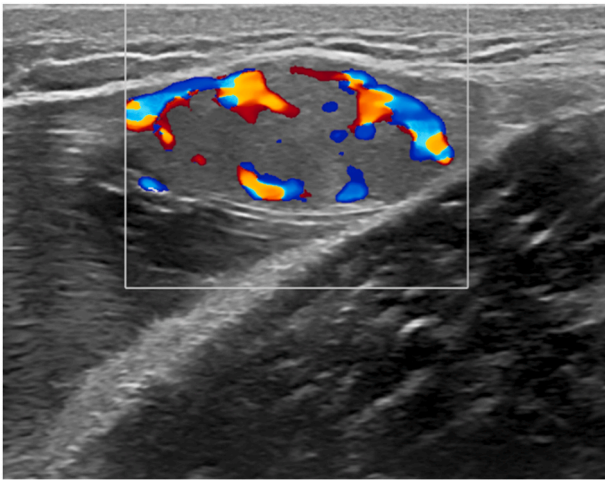


Fig. 1. Ultrasound image of over right triceps demonstrating a 2 cm vascular and solid soft tissue mass involving the long head of triceps.

importance of soft tissue history and examination as part of the surveillance process and consideration of a metastatic lesion as a differential diagnosis for a painful and progressively increasing soft tissue mass.

Several case reports are reported in the current literature documenting the history of metastatic deposits to skeletal muscle. According to a combined cohort study and literature review, RCC was the second most common cause of soft tissue metastasis.² Most case reports discussing RCC skeletal muscle metastases were either metachronous and identified during surveillance or noted on presentation with a locally advanced and widespread synchronous metastatic disease.^{3,4} One case report discussed synchronous single metastatic disease of gastrocnemius metastasis on presentation. This was managed with radical nephrectomy and resection of the gastrocnemius metastasis. This was a larger primary tumour (Stage T2) and required adjuvant radiotherapy to the left gastrocnemius muscle.³ Another case report highlighted a metastasis to the triceps; however, it had synchronous metastasis to adrenals and vascular invasion identified on the pathology (Stage T3).⁴ These cases highlight that although metastatic RCC to skeletal muscle is rare, a metastatic lesion should be considered with a higher degree of clinical suspicion for a progressively enlarging soft tissue mass. This will facilitate an expedited diagnosis and management of metastatic RCC.

In this case, the patient was managed with resection of triceps metastatic deposit and a cytoreductive right laparoscopic nephrectomy. Ideal management of RCC with solitary metastasis remains in question in the era after the CARMENA trial.⁵ Prognosis of patients with isolated

synchronous skeletal muscle metastasis remains to be explored given the rarity, however, successful resection of the metastatic lesion (if feasible) and the primary tumour remains standard of care in patients with oligometastatic disease and good performance status.¹ Longer-term studies are required to determine the prognosis of individuals with solitary skeletal muscle metastasis.

4. Conclusion

We report a rare presentation of oligometastatic RCC with single synchronous metastasis to the triceps. The low tumour grade and stage of final pathology demonstrate the peculiarity of this case. We have shown successful disease control with excision of triceps lesion and cytoreductive nephrectomy.

Funding

The authors did not receive any financial sponsorship.

Declaration of competing interest

The authors have no conflict of interest to declare.

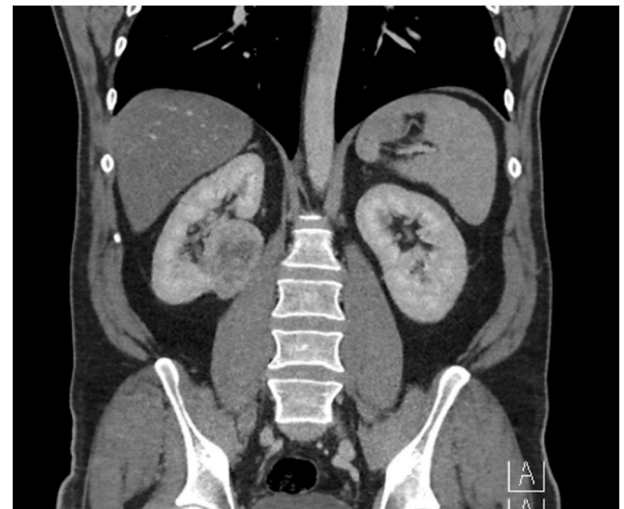


Fig. 3. Computed tomography Coronal view of Abdomen demonstrating a 6 cm mass right renal mass.

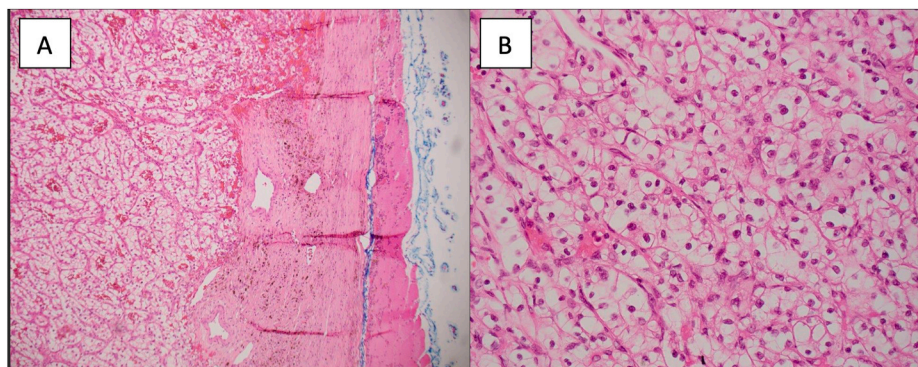


Fig. 2. A - Hematoxylin and eosin stain demonstrating clear cell RCC ISUP Grade 2 deposit (Left) and skeletal muscle (Right). B - Hematoxylin and eosin stain demonstrating clear cell RCC ISUP Grade 2 after right radical nephrectomy.

References

1. Ljungberg B, et al. European association of urology guidelines on renal cell carcinoma: the 2019 update. *Eur Urol.* 2019;75(5):799–810.
2. Damron TA, Heiner J. Distant soft tissue metastases: a series of 30 new patients and 91 cases from the literature. *Ann Surg Oncol.* 2000;7(7):526–534.
3. Gözen AS, et al. Painful leg: a very unusual presentation of renal cell carcinoma. Case report and review of the literature. *Urol Int.* 2009;82(4):472–476.
4. Alexiou G, Papadopoulou-Alexiou M, Karakousis CP. Renal cell carcinoma presenting as skeletal muscle mass. *J Surg Oncol.* 1984;27(1):23–25.
5. Méjean A, et al. Sunitinib alone or after nephrectomy in metastatic renal-cell carcinoma. *N Engl J Med.* 2018;379(5):417–427.