

# Renal cell carcinoma presenting as recurrence in vastus intermedius after 22 years of long-term disease free survival: A rare metastatic presentation

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## ABSTRACT

Renal cell carcinoma (RCC) has widespread and unpredictable metastatic potential, even when the curative nephrectomy is performed. RCC can metastasize via venous and lymphatic routes virtually to any site but commonly metastasizes to lungs, lymph nodes, bones, liver, and brain. Muscular metastases are rare from RCC. After 22 years of curative radical nephrectomy and disease-free follow-up, the patient presented with discomfort on walking and climbing upstairs and also complained of thigh swelling confirmed on clinical examination. Noncontrast computed tomography showed mass lesion in quadriceps muscle (vastus intermedius), fine needle aspiration cytology revealed metastatic deposits of RCC. Rest of the metastatic evaluation was normal. In long-term survivors of RCC, skeletal muscle survey (SMS) should be included in addition to metastatic evaluation for other sites, as the current case is an eye opener for the inclusion of SMS in the metastatic evaluation of such patients.

**Key words:** Curative radical nephrectomy, muscle metastasis, renal cell carcinoma, vastus intermedius

## INTRODUCTION

Renal cell carcinoma (RCC) account for approximately 3% of adult malignancies and occur in a male-female ratio of 1.6:1. They are more common among urban than rural residents. Most of the cases of renal carcinoma occur in persons aged 50–70 years.<sup>[1-3]</sup> RCC may be asymptomatic initially or may present as an incidental finding on imaging, or may present as multiple signs and symptoms caused either by local extension or by metastatic spread, however, classical

triad of hematuria, flank pain, and abdominal mass may rarely be present.<sup>[1-4]</sup>

All patients with RCC resected by partial or radical nephrectomy face the risk of metastasis, and it is not unusual for such metastases to be found in follow-ups. The most common sites for metastases are lung, liver, bones, and brain.<sup>[1-5]</sup> muscular metastasis is rare and few cases are reported in literature.

Here, we present a case of 72 years ex-smoker Asian male who was treated with curative nephrectomy for RCC in March 1993 and was followed up closely for 22 years when, the patient showed the metastatic recurrence at the unusual

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distant site in the vastus intermedius (VI), which is the first report of RCC metastasis in VI in literature.

## CASE REPORT

A 72-year-old ex-smoker Asian male, a farmer by occupation was diagnosed in February 1993 as a case of RCC on the right side Stage II (T2a, N0, M0), was treated by curative Radical nephrectomy on March 1993, the histopathology examination revealed Clear cell carcinoma. The patient was on regular follow for the last 22 years when in June 2015 he presented with discomfort on walking and climbing upstairs. The patient also complained of thigh swelling, confirmed on clinical examination. The patient was advised noncontrast computed tomography right leg that showed mass lesion in quadriceps muscle (VI) [Figures 1 and 2].

After patient's refusal for biopsy, fine-needle aspiration cytology of the swelling revealed metastatic deposits of RCC. The patient was also subjected to rest of the body scan to rule out any other metastatic sites, and the scan was normal for other sites. Whole-body imaging was done for evaluation of primary and other potential sites of metastasis that was normal except the involved site.

## DISCUSSION

RCC has widespread and unpredictable metastatic potential, even after the curative nephrectomy is performed. RCC can metastasize via venous and lymphatic routes.<sup>[1-3]</sup> RCC is able to metastasize to virtually any site but commonly metastasizes to lungs, lymph nodes, bones, liver, and brain.<sup>[1,3,5-8]</sup>

However, many unusual sites of metastasis of RCC have been cited in literature, namely stomach, gallbladder, oropharynx, left ventricle, skin, tonsils, spleen, pancreas,

pituitary gland, thyroid, breast, testicles, ciliary body, and small intestine.<sup>[9]</sup> The metastasis to the skeletal muscle is rare in literature <1%.<sup>[10,11]</sup> In several autopsy series, about 0.4% of cases with RCC had skeletal muscle metastases.<sup>[8,12]</sup> However, few reports show RCC metastasis to skeletal muscle in literature.<sup>[8,13]</sup> Despite rich blood supply, the metastases to skeletal muscle are very rare. The reasons for the rarity can be explained hypothetically as follows; high pressure of tissue due to exercise-related, increased blood flow preventing implantation, and growth of tumor cells, prevention of tumor cell growth by lactic acid production, inhibition of the metastasis by skeletal muscle-derived peptidic factor, protease inhibitors found in the extracellular matrix of muscle tissue might be protective factor against tumor metastasis, and antitumor activity of the lymphocytes and natural killers.<sup>[10,14,15]</sup>

## CONCLUSION

In long-term survivors of RCC, skeletal muscle survey (SMS) should be included in addition to metastatic evaluation for other sites, as the current case is an eye opener for the inclusion of SMS in the metastatic evaluation of such patients.

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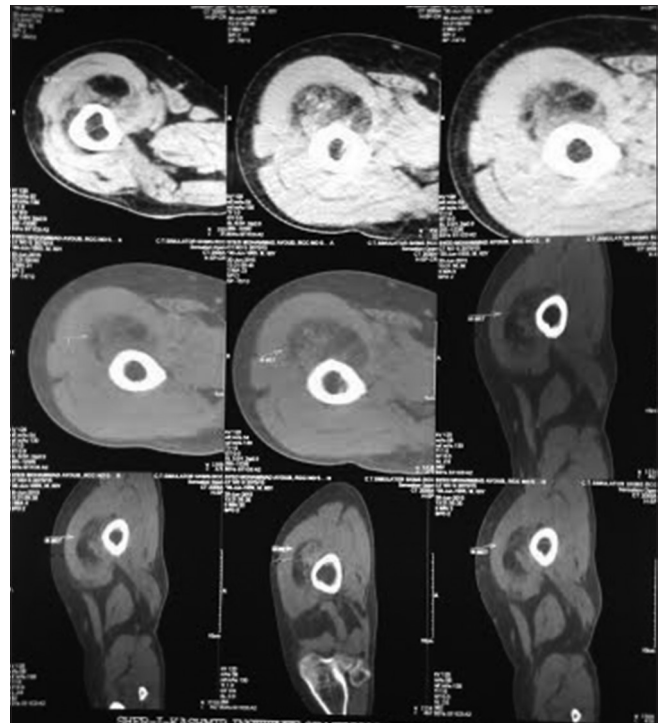
Nil.

### Conflicts of interest

There are no conflicts of interest.



**Figure 1:** Noncontrast computed tomography of thigh showing skeletal muscle metastasis (M mets) in vastus intermedius in transverse view



**Figure 2:** Noncontrast computed tomography of thigh showing skeletal muscle metastasis (M mets) in vastus intermedius in transverse and longitudinal view

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