Am J Clin Exp Urol 2022;10(2):119-122
www.ajceu.us /ISSN:2330-1910/AJCEU0137202

*Case Report*

# Synchronous RCC with multiple myeloma: vertebral lesion mandates evaluation not assumption!

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Received July 9, 2021; Accepted January 13, 2022; Epub April 15, 2022; Published April 30, 2022

**Abstract:** Vertebral lesions in patients with Renal Cell Carcinoma (RCC) are usually assumed to be metastatic. Synchronous malignancies are a rare occurrence. Association between Multiple myeloma (MM) and RCC has been described in the past. Common risk factors and similar cytokine growth requirements could be the linking factors. Here, we describe a patient who had RCC and on evaluation of the vertebral lesion, was found to have Multiple myeloma. We would like to highlight the fact that not all vertebral lesions in RCC are metastatic. Appropriate evaluation for the vertebral lesion would provide holistic treatment in such patients and improve outcomes.

**Keywords:** Multiple myeloma, renal cell carcinoma, secondary hematologic malignancy

## Introduction

Renal Cell Carcinomas (RCCs) result from malignant proliferation of epithelial cells in the nephron and represent majority (95%) of malignancies in the kidney. While it is known that patients with syndromic RCCs have a higher incidence of second primary tumors, a similar trend is rarely seen in sporadic RCCs [1]. Multiple myeloma (MM) occurs due to uncontrolled, malignant transformation of monoclonal plasma cells. Simultaneous presentation of RCC and MM is extremely rare, with very few cases reported in literature. It has been reported that RCC-MM link is bi-directional (one condition causing the other) due to shared risk factors such as cytokines (IL-6), age, lifestyle, environmental exposures and genetic mutations. However, no study has established the cause conclusively.

Here we describe a patient who was diagnosed to have RCC and was simultaneously found to have plasma cell myeloma on evaluation of the vertebral lesion. It is followed up by a review of literature on this interesting topic. To the best of our knowledge, this is the first reported Indian case in literature [2-4].

## Case history

A 66 year old Diabetic patient presented to the Urology outpatient department with complaints of increased urinary frequency and dysuria for 2 months. He also gave history of low back ache since 1 month, with pain and paraesthesia in both lower limbs. General physical examination and per abdominal examination were unremarkable. Digital rectal examination (DRE) was normal. On motor examination of the lower limbs, muscle power was found to be 4/5, tendon reflexes were normal. Sensory examination revealed a sensory loss of 50% for touch and pain below D6 dermatome. Posterior column sensations and anal tone were normal. His total counts, coagulation profile and creatinine were normal. Uroflowmetry was satisfactory and Urine routine, microscopy showed no abnormality.

On Ultrasound imaging of the kidney, ureters and bladder (KUB), a 5×3 cm heterogenous lesion was found in the lower pole of the right kidney. CT Urography revealed an exophytic heterogenous enhancing mass lesion measuring 5.5×4.3×5.2 cm arising from the cortex of lower pole of the right kidney. Lesion was seen abut-

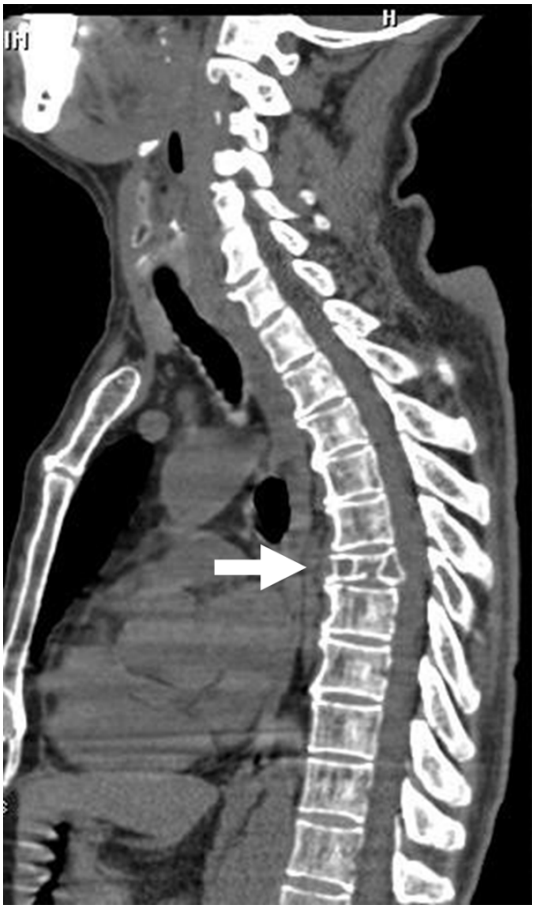

**Figure 1.** MRI image of the spine (Sagittal section).

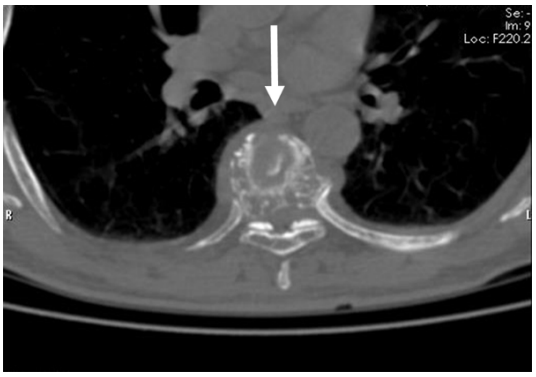

**Figure 2.** MRI image of the spine (cross sectional view).

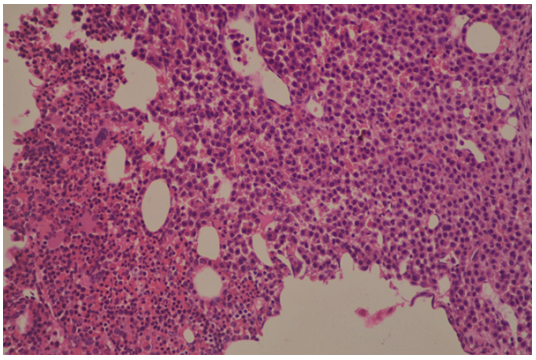

**Figure 3.** Histopathology of the spinal lesion showing sheets of plasma cells amid fibrocollagenous, fibroadipose tissue on the right and normal marrow elements on the left, H&E, 400× magnification.

ting the lower group of calyces with encroachment of renal pelvis. There were no radiologically enlarged lymph nodes. A neurosurgical consultation was obtained and an MRI of the spine revealed complete collapse of the D6 vertebral body with cord compression [**Figures 1**, **2**].

He underwent a right open partial nephrectomy. Intra operatively, tumour measuring 4.5×3 cm in the lower pole of right kidney was found. Biopsy report showed Clear cell carcinoma (Fuhrman grade II) with no lymphovascular invasion, pT1b and the margins were clear. He was discharged on post op day 6 after an uneventful post op period. One month later, patient underwent D6 laminectomy, decompression and D5-7 stabilization under neurosurgery. His vertebral body biopsy revealed a neoplasm comprising sheets of plasma cells amid fibrocollagenous, fibroadipose tissue and bony trabeculae. The cells had eccentric round nuclei and moderate cytoplasm. IHC showed positivity for CD 138, kappa and lambda suggestive of plasma cell neoplasm [**Figure 3**]. Serum electrophoresis showed characteristic 'M' band in the gamma region. Urinary Bence Jones protein was negative. A bone marrow biopsy confirmed multiple myeloma and he was given radiotherapy for the spine and started on chemotherapy with bortezomib, thalidomide and dexamethosone. Patient was lost to follow up 4 months post nephrectomy.

## Discussion

There have been reports in literature which have described multiple myeloma developing in patients with a prior history of RCC or vice versa. However, simultaneous occurrence of MM and RCC is extremely rare.

Oztuk et al. [2] described two cases with synchronous RCC and MM. They found that IL-6, could possibly fuel the development or progres-

sion of MM. There was a tendency of RCC to precede MM in the reported metachronous cases and most metachronous patients were male. A familial tendency to carcinogenesis was considered as the etiology in their patients. Our patient had synchronous RCC with MM but had no familial history of malignancies.

Cielińska et al. [3] reported a 59-year old patient who had renal clear cell carcinoma and IgG kappa multiple myeloma. Post nephrectomy, progression of multiple myeloma was seen with development of renal failure and hence full dose chemotherapy could not be given. Our patient was a 66 year old and till 3 months post op, he had no fresh bony lesions.

Gaixiang Xu et al. [5] reported a case clear cell RCC 9-months following chemotherapy for MM. He was followed up to a period of three years and was in a stable condition. He was treated with Interferon-alpha and this was proposed as a possible remedial therapy for such individuals. In our patient, the lesion was detected at the same time as the renal pathology and we were able to treat the spinal lesion with surgery followed by adjuvant chemoradiotherapy.

Padhi et al. [1] reported two Indian cases of plasma cell myeloma with prior history of renal cell carcinoma. They concluded that RCC-MM association had few unique features which included shared risk factors like obesity, hypertension, smoking; similar cytokine requirements among others. They found such renal lesions to be commoner on the right side. Both malignancies benefitted from therapies directed against cytokines (TNF-α receptor blocker), immunomodulators drugs like thalidomide/lenalidomide, proteosome inhibitor (bortezomib), and autologous stem cell transplantation. Such therapies were more effective for MM than RCC. Our patient was a diabetic and had history of tobacco chewing with renal mass diagnosed in the right kidney. No other risk factors existed. However, immunomodulators were not given to our patient due to financial constraints.

Other factors attributed to lead to these malignancies have been postulated to be genetic alterations, environmental factors, immune-mediated, interleukins, metabolic syndrome, previous medical treatment especially chemotherapeutic agent exposure, sex and hormonal factors. Such factors promote carcinogenesis in the nephrons as well bone marrow and explain the bidirectional nature of the association between RCC and MM. However, till date, there has been no common etiologic factor isolated.

It is important to rule out any familial malignancies in patients with RCC. Also, renal preservation in such cases would help keep the option of chemotherapy/treatment with molecular agents open for these patients. This would increase chances of complete cure. Nephrometric scores can be made use of to decide which patients are eligible for nephron sparing surgery. A multidisciplinary approach to such patients and discussion about therapeutic goals with the patient and family would help in addressing concerns about life expectancy and quality of life in these patients.

Any lytic bone lesions in patients with RCC should be carefully evaluated for possible myeloma, especially in the presence of isolated such lesions. Similarly, patients with MM should be evaluated for malignancies in the kidneys, specifically on the right side. The development of one such malignancy with a past history of the other is another possibility that should be borne in mind at diagnosis or during follow up. Awareness of such associations would enable the treating team to optimize treatment and improve the overall outcome leading to a better quality of life for patients.

## Acknowledgements

Patient Informed consent was obtained prior to preparation of this manuscript.

## Disclosure of conflict of interest

None.

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