

CASE REPORT

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Incapacitating migratory polyarthritis and renal tumor in a young patient

Federico Suaya, Matias Gianelli, Levin Martinez

ABSTRACT

Introduction: Paraneoplastic syndromes (PNS) are clinical manifestations caused by systemic effects of malignancy rather than direct tumor invasion or metastasis. Renal cell carcinoma (RCC) is frequently associated with PNS, which may precede tumor diagnosis and represent an important diagnostic clue. Rheumatologic manifestations such as migratory polyarthritis are uncommon but well-described paraneoplastic phenomena.

Case Report: We report the case of a 43-year-old previously healthy male who presented with a one-month history of rapidly progressive, incapacitating migratory polyarthritis predominantly involving the lower-limb large joints, accompanied by intermittent febrile episodes. Extensive infectious, autoimmune, and rheumatologic evaluations were negative, including antinuclear antibodies, rheumatoid factor, antiphospholipid antibodies, and blood and urine cultures. During the etiological work-up, contrast-enhanced abdominal computed tomography revealed a solid heterogeneous mass measuring approximately 4.7 cm in the upper and middle pole of the right kidney. The patient underwent laparoscopic transperitoneal partial nephrectomy with selective arterial clamping. Pathological examination demonstrated clear cell renal cell carcinoma, eosinophilic variant, ISUP grade 2, staged as pT1b, with negative surgical margins.

Conclusion: This case highlights migratory polyarthritis as a rare but significant paraneoplastic manifestation of RCC and underscores the importance of considering occult malignancy in patients with atypical, severe inflammatory arthritis of unclear etiology.

Keywords: Inflammatory arthritis, Migratory polyarthritis, Paraneoplastic syndrome, Partial nephrectomy, Renal cell carcinoma

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INTRODUCTION

Paraneoplastic syndromes (PNS) encompass a broad spectrum of clinical conditions that arise as systemic effects of malignancy rather than from direct tumor invasion or metastatic spread. In renal cell carcinoma (RCC), PNS are relatively common, occurring in approximately 10–40% of patients, and may occasionally represent the first manifestation of the disease, preceding its oncologic diagnosis [1–5]. The pathogenesis of PNS is varied, involving humoral mechanisms such as the ectopic production of hormones, cytokines, or the induction of autoimmune responses.

CASE REPORT

We present the case of a 43-year-old male patient who developed a severe picture of migratory polyarthritis, associated with isolated febrile episodes, and in whom a right renal tumor was incidentally discovered during the etiological study. This case highlights the importance of considering renal neoplasms in the differential diagnosis of atypical paraneoplastic syndromes.

A 43-year-old Afro-descendant male patient, with no relevant morbid history, and an athlete. He presented with a condition of approximately one month of evolution characterized by insidious onset migratory polyarthritis, which primarily affected large joints of the lower limbs

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(both knees and ankles). The joint pain was accompanied by local inflammatory signs and progressed rapidly in severity, reaching the point of impeding ambulation and causing a state of functional disability, preventing standing. Concomitantly, he had isolated, unquantified febrile episodes, predominantly in the afternoon, with no other accompanying systemic symptoms at the initial moment. Regarding blood work, antibody panels were studied and were negative, including antinuclear antibodies (ANA), rheumatoid factor (RF), and antiphospholipid antibodies (anticardiolipin IgG and IgM, anti-Beta2-glycoprotein I IgG and IgM, and lupus anticoagulant). Blood and urine cultures were negative.

An abdominal-pelvic computed tomography (CT) with intravenous contrast revealed a solid, heterogeneous mass in the middle third and upper pole of the right kidney, with partially defined contours, and a maximum diameter of approximately 44 mm × 47 mm. Given the finding of the renal tumor, a laparoscopic transperitoneal partial nephrectomy was decided upon. There were no major intraoperative incidents. Regarding the pathological anatomy (PA), the analyzed specimen reported a clear cell renal carcinoma, eosinophilic variant ISUP 2. There was no rhabdoid or sarcomatoid differentiation, absence of necrosis with tumor-free margins, pathological stage: pT1b (Figure 1). As a postoperative complication, the patient presented an arteriovenous fistula (AVF) in the resection bed, for which a selective angioembolization was performed by placing platinum coils in the arterial vessel of the fistula.

Starting from the first week post-nephrectomy, a progressive and significant improvement in polyarthritis and the complete disappearance of febrile episodes were observed. Around the fourth postoperative week, the joint symptoms had almost entirely remitted, and acute phase reactants (ESR and CRP) showed a marked decrease. Renal function, evaluated by serum creatinine and eGFR, showed a slight transient deterioration after embolization but recovered to acceptable levels.

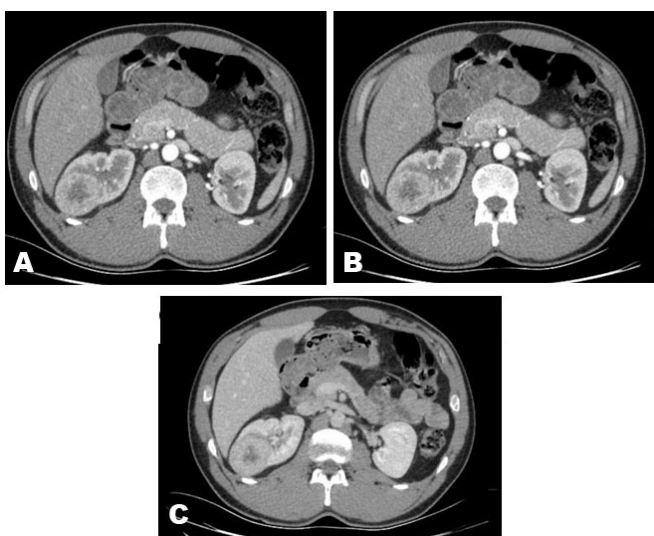


Figure 1: Computed tomography vascular phase (A, B) and nephrographic phase (C).

DISCUSSION

Renal cell carcinoma accounts for approximately 3% of all malignant neoplasms in adults, with a male-to-female ratio of 2:1, and a growing incidence due to the widespread use of imaging techniques that allow for incidental diagnoses. The prevalence of PNS in patients with RCC is estimated to be between 10% and 40%, with the most common being fever, hypercalcemia, anemia, and non-metastatic liver dysfunction (Stauffer's syndrome). Rheumatological PNS, such as polyarthritis, are less frequent but well documented in association with RCC [6].

The exact pathogenesis of PP is not completely understood, but immunological mechanisms are postulated, including the production of pro-inflammatory cytokines by the tumor or by the immune system in response to the tumor.

The resolution of paraneoplastic symptoms after nephrectomy, as occurred in our patient (significant improvement in four weeks, almost complete resolution in three months), is a diagnostic and therapeutic cornerstone. The timing of resolution can vary; some reports indicate improvement in weeks, while others describe a later resolution [3, 7, 8].

A structured diagnostic approach should be considered in patients presenting with unexplained migratory polyarthritis, particularly when typical rheumatologic etiologies are not identified. Initial evaluation should focus on excluding common inflammatory and autoimmune causes through clinical assessment and laboratory testing, including rheumatoid factor, anti-CCP antibodies, ANA, ESR, and CRP. In cases where serologic tests are negative and symptoms are atypical or refractory to conventional therapy, clinicians should consider the possibility of a paraneoplastic syndrome. Features that should raise suspicion include older age at onset, constitutional symptoms (such as weight loss or fatigue), rapidly progressive arthritis, poor response to anti-inflammatory therapy, and accompanying systemic abnormalities such as anemia or elevated inflammatory markers. In such scenarios, age-appropriate malignancy screening is recommended, including imaging studies (e.g., chest and abdominal CT) and targeted investigations guided by clinical findings. Early recognition of a potential paraneoplastic process is important, as treatment of the underlying malignancy may lead to resolution of the rheumatologic manifestations.

CONCLUSION

Migratory polyarthritis may represent a rare paraneoplastic manifestation of renal cell carcinoma and can precede oncologic diagnosis. This case underscores the importance of considering occult malignancy in patients with severe, atypical inflammatory arthritis. Prompt identification and surgical treatment of the underlying tumor may lead to rapid and complete symptom resolution.

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Author Contributions

Federico Suaya – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy

or integrity of any part of the work are appropriately investigated and resolved

Matias Gianelli – Conception of the work, Design of the work, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Levin Martinez – Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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