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Case Report

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Systemic Nocardiosis Mimicking Metastatic Rcc: Case Review

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Abstract

A 56-year-old man on ustekinumab for psoriasis with suspected metastatic RCC presents with severe dyspnea, hemoptysia and weight loss for 2 weeks. A thoracic-abdominal scan was performed showing multiples pulmonary nodules, a left adrenal mass and a 7x6x7cm solid left renal mass with left renal vein thrombus. Laboratory results showed a serum creatinine of 49 µmol/L and leukocyte count of 17,100 per mcL. Kidney biopsy, transthoracic biopsy, blood cultures and urine cultures showed Nocardia farcinica. The patient was started on TMP-SMX, amikacin and imipenem 8 months after the initiation of antibiotics, there was a complete radiologic resolution. History of immunosuppression and denutrition are known risks factors for nocardia infection. Partly cavitary pulmonary masses and extra renal necrotic mass are also landmark features. Conservative management can be curative.

Introduction

Systemic nocardiosis is a serious infectious disease with dissemination reported to multiple organs, the central nervous system being most often involved. Genitourinary involvement is rare1. There are few reports of kidney and retroperitoneal involvement in the literature (Table 1). Commonly, the initial presentation is that of subacute pneumonia and systemic symptoms. We report a case of renal nocardiosis first confused with metastatic RCC as initial presentation.

Case	Author	Size	Resolution	Transplant kidney	Pulmonary lesions	Presentation	Treatment	Type of nocardia	Risk factors
1	Marvin (1949)	12x14 (autopsy	Death 2 months after admission	No 34 Months W	?	Cachexia Abdominal mass	Surgery	Intracellularaaris	Malnutrition
2	Valbuena (1996)	?	Yes	No	Yes	?	Nephrectomy	co - trimoxazole + transplantectomy	
3	Midiri (1997)	?	49Y old	No	Yes	Fever and left flank pain	Nephrectomy and adrenalectomy + 3 month TMP/SMX	asteroides	Rheumatoid arthiritis on corticosteroid
4	Van Luin (2007)	3x5 cm	Yes	52Y old	Yes	Graft site pain + temperature	co - trimoxazole + transplantectomy	Farcinica	Renal transplan

5	Pai (2009)	9x6cm	After surgery	yes	No	Temperature Abdominal pain Pain with mictirition	Nephro-ure-terectomy Anti-biotic (type?)	?	AIDS
6	Takagi (2010)	5,4x4,4 cm	Aspiration and antibiotic	No 64y man	Yes	Right back pain	Aspiration and antibiotic	?	Glomeru-lonephri-tis on cy-closporine + pred
7	Montmollin (2012)	No pre-cision but env 10cm	Death car-diovasc 4 month	No 68Y W	Brain and pulmonary abcess	Cachexia temperature Pulmonary crackles	(no aspiration/ surgery)	Farcinica	Anorexia Past tubercu-losis
8	Palavutitotai (2015)	?	Yes	Yes	?	?	Drainage + TMp/SMX / Imipenem	BEIJINGEN-SIS	Renal transplant

Table 1: List of reported renal or retroperitoneal abscess due.

Case Report

56-year-old man on ustekinumab for severe psoriasis, smoker (20 pack-year) and suffering from malnutrition and alcoholism (8 beers/day), presented to the emergency with severe dyspnea, hemoptysia and weight loss (10 kg) for the past 2 weeks. The patient's father died from metastatic cancer of unknown origin at the age of 65. CT scan of the thorax, abdomen and head were performed showing multiples pulmonary nodules, a left adrenal mass and a 7x6x7cm solid left renal mass with left renal vein thrombus. Head CT was negative. Laboratory results at admission showed serum creatinine 49 µmol/L, leukocytes 17,100 per mcL and hemoglobin 133g/L (Figures A-C). The case was presented at a tumor board and was considered locally advanced based on the likelihood of psoas muscle infiltration. Accordingly, it was decided to perform a thoracic biopsy and to start a TKI after obtaining an initial pathology. IV heparin was also recommended because of the renal vein thrombus.

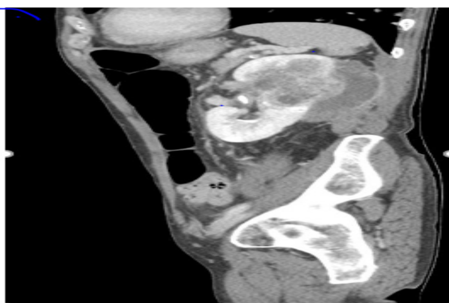

Figure A: 7x6x7cm heterogeneous necrotic mass at superior left renal pole with posterior extra renal extension. Left adrenal mass of probable metastatic origin.

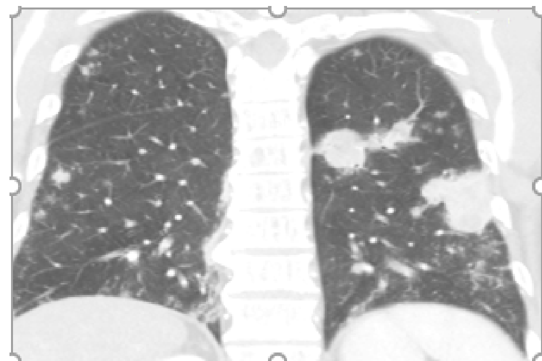

Figure B: Multiples pulmonary lesions with 2 confluents partly cavitary masses.

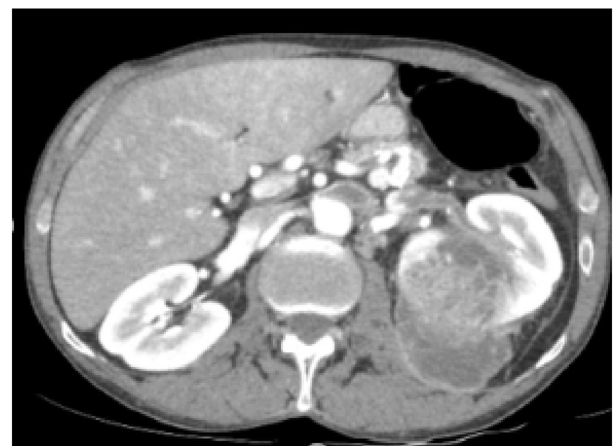

Figure C: Left renal vein thrombi. Para aortic adenopathy.

The patient presented fever (39,2 C°) 72h after admission and tazobactam/piperacillin was started after routine blood and urine cultures. Nocardia farcinica was found in both urine culture and hemo cultures. Similarly, the thoracic biopsy specimen detected the same germ. The Infectious disease team started TMP-SMX, amikacin and imipenem. Brain MRI was ordered and showed several milli-metric micro-abscess. A renal biopsy was ordered and also showed Nocardia farcinica with no malignancy. After 5 days of antibiotics, the patient presented episodes of hemoptysis associated with mild desaturation. IV heparin was then stopped. The initial clinical status of the patient was considered to be due to the kidney and renal vein thrombosis acting as a source of sustained bacteremia, with low penetrance of antibiotics within the abscess. Nephrectomy was considered as an option if sepsis could not be appropriately controlled. However, the patient improved rapidly afterward. It was decided not to perform a nephrectomy, especially given that blood cultures became negative with medical treatment alone. After 2 weeks, the patient had stabilized and was discharged home with TMP-SMX 1600/360mg BID, Linezolid 600mg PO TID and amikacin 375 mg IV q 12h. After eight out of twelve total months of antibiotic treatment, there was a complete radiologic resolution of the renal disease, and the patient was discharged from follow up at twelve months.

Discussion

Nocardia species are gram-positive rods and soil-borne opportunistic pathogens. The mean mortality in disseminated forms can reach up to 50%. Between 500 and 1,000 infections with Nocardia species occur yearly in the United States.

This case is a rare manifestation, with infection by Nocardia mimicking a metastatic RCC as initial presentation. The large atypical renal mass with renal vein thrombus, adrenal and pulmonary lesions was typical of metastatic RCC. Furthermore, the patient had no fever or chills at presentation. Looking back on the initial scan, the partly cavitary pulmonary masses and the extra renal necrotic extension of the mass were frankly atypical features. The history of immunomodulator and malnutrition1 can also point toward an infectious etiology and has already been used as risk factors for nocardia infection [1-4].

In the literature, all cases of retroperitoneal or renal abscess were associated with risk factors (Table 2). The cases often involve a transplant kidney with multiples small renal abscess and were almost always presenting with temperature [5-7].

HIV infection
Malignancy
Malnutrition, Alcoholism
Immunosuppression (Immunologic diseases, Corticosteroids, Bone marrow transplantation)
Chronic renal failure
Diabetes mellitus

Table 2: Risk factors associated with retroperitoneal or renal Nocardia abscess

It is interesting to see a complete cure of the disease with antibiotic treatment only after 8 months. Nephrectomy was discussed a few times during the first 4 months, but ultimately, conservative management was pursued with excellent results. Reviewing contemporary renal nocardiosis abcess cases published, 50% (3/6) were managed with nephrectomy with good results, 33% (2/6) were treated with antibiotics and aspiration of the collection and 1/6 was treated with antibiotics only and resulted in death [8-10]. This case is the first case managed with antibiotics alone that resulted in complete cure.

It is reasonable to recommend an expectant management if abscesses are relatively small (<3cm) and if the patient is stable and in good health. Drainage of the abscess might be necessary if the abscess is large and respond poorly to antibiotic or the patient remain febrile with antibiotic [11,12]. Nephrectomy should be reserved unstable cases or cases refractory to antibiotic and percutaneous drainage.

Conclusion

Nocardia infection involving the retroperitoneum and kidney is extremely rare and can mimic metastatic RCC. Conservative management with antibiotics alone can result in a complete cure after several months. For stable patients an expectant management should by pursued as first intention reserving nephrectomy for unstable cases or failure with antibiotic and drainage.

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