

Acute Renal Failure Complicating Septicemic Brucellosis

Salem Bouomrani^{1,2}, Mouna Dey³, Asma Ahmed³

¹Department of Internal Medicine, Military Hospital of Gabes, Gabes 6000, Tunisia, ²Department of Internal Medicine, Sfax Faculty of Medicine, University of Sfax, Sfax 3029, Tunisia, ³Department of Nephrology, Regional Hospital of Gabes, Mtorrech 6014, Tunisia

ABSTRACT

Kidney damage is exceptionally reported during acute septicemic brucellosis. It can remain isolated or becomes part of a more severe picture of multisystemic bacterial involvement and usually progresses favorably under appropriate antibiotic therapy. We report an original case of reversible acute renal failure in a 50-year-old Tunisian woman associated to neurobrucellosis with diffuse cerebral vasculitis and syndrome of inappropriate secretion of antidiuretic hormone. This mechanism (brucellar renal vasculitis) was found only once in the medical literature.

Key words: Acute renal failure, *Brucella*, neurobrucellosis, septicemic brucellosis, vasculitis

INTRODUCTION

Brucellosis is an anthroponosis still common in several countries of the world.^[1] Its diagnosis can sometimes represent a real challenge for health professionals due to the great polymorphism of clinical presentations and the possibility of different organs and tissues involvement.^[2]

Involvement of the urogenital tract is one of the so-called “unusual” manifestations of brucellosis.^[3,4]

Kidney damage is exceptionally reported during this infection.^[4,5] It can remain isolated or becomes a part of a more severe picture of multisystemic bacterial involvement.^[5,6]

We report an original case of acute renal failure probably due to systemic vasculitis caused by acute septicemic brucellosis.

Observation

A 50-year-old Tunisian woman, without pathological medical history, was admitted in our department for fever

associated with an acute deterioration of her neurological state (drowsiness, disturbances of consciousness, and temporospatial disorientation) evolving for 3 days.

The somatic examination noted a fever at 39°C, stable hemodynamic and respiratory states, and a temporospatial disorientation. There were no motor or sensory deficits, active skin lesions, lymphadenopathy, or organomegaly.

The basic biological tests showed leukocytosis at 17,900/mm³ with 80% of neutrophils, C-reactive protein at 98 mg/l, hyponatremia at 123 mmol/l, and renal failure with plasma creatinine at 361 μmol/l and urea at 23 mmol/l. Urinalysis showed microscopic hematuria and aseptic leukocyturia. The renal ultrasound was without significant abnormalities.

The thoraco-abdominopelvic computed tomography scan was normal and the transthoracic ultrasound was without abnormalities.

The lumbar puncture showed aseptic lymphocytic meningitis. Direct examination and culture of cerebrospinal fluid were negative.

Address for correspondence:

Dr. Salem Bouomrani, Department of Internal Medicine, Military Hospital of Gabes, Gabes 6000, Tunisia.
E-mail: salembouomrani@yahoo.fr

© 2019 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

The immunological assessment was negative (anti-nuclear antibodies, anti-native DNA antibodies, antineutrophil cytoplasmic antibodies, and complement C3 and C4 fractions).

Brain magnetic resonance imaging showed diffuse cerebral vasculitis, and Wright's serology returned positive at 1/320.

Thus, the diagnosis retained was that of acute septicemic brucellosis complicated by acute renal failure and cerebral vasculitis with syndrome of inappropriate secretion of antidiuretic hormone (SIADH).

After starting antibiotic therapy combining rifampicin (600 mg/j) and doxycycline (200 mg/j) according to the protocol of the World Health Organization, the evolution was favorable. We noted the apyrexia and normalization of the state of consciousness from the 3rd day, the normalization of the total blood count and of the C-reactive protein on the 7th day, and of the ionogram and the renal function on the 10th day.

DISCUSSION

The spectrum of renal involvement in human brucellosis may include hematuria, proteinuria, pyuria, acute pyelonephritis, acute renal failure,^[5,7] and renal abscess or pseudotumors (brucelloma).^[8,9]

Acute brucellar renal failure can sometimes be severe, requiring dialysis.^[7] It usually progresses favorably under appropriate antibiotic therapy^[5,7,10] but may exceptionally turn into chronicity.^[7]

In our observation, we evoke as a mechanism a systemic brucellar vasculitis with neurological (neurobrucellosis with SIADH) and renal localization (acute renal failure by renal vasculitis); this mechanism was found only once in the literature: Tubulointerstitial nephritis associated with renal vasculitis by deposits of circulating immune complexes during acute brucellosis.^[7]

CONCLUSION

Our observation is, to our knowledge, the second to report the association of human brucellosis with renal vasculitis. It

is characterized by its exceptional clinical presentation, its disseminated character, and its association to neurobrucellosis with inappropriate secretion of antidiuretic hormone.

Thus, brucellosis deserves to be mentioned as a possible cause of any acute renal failure occurring in endemic areas for brucellosis which is not proven, especially if accompanied by certain symptoms such as arthritis or orchid-epididymal involvement.

REFERENCES

1. Franco MP, Mulder M, Gilman RH, Smits HL. Human brucellosis. *Lancet Infect Dis* 2007;7:775-86.
2. Bouomrani S, Belgacem N, Hamad MB, Regaïeg N, Baïli H, Lassoued N, *et al.* Bilateral panuveitis revealing acute septicemic brucellosis. *EC Ophthalmol* 2018;9:6.
3. Hatipoglu CA, Yetkin A, Ertem GT, Tulek N. Unusual clinical presentations of brucellosis. *Scand J Infect Dis* 2004;36:694-7.
4. Tiryaki O, Usalan C, Aydin A. An unusual manifestation of brucellosis infection: Acute renal failure. *Ren Fail* 2010;32:747-9.
5. Ghanei E, Miladipour A, Nasrollahi A, Homayuni M. Brucellosis with kidney failure. *Iran J Kidney Dis* 2009;3:109-11.
6. Khorvash F, Keshteli AH, Behjati M, Salehi M, Emami Naeini A. An unusual presentation of brucellosis, involving multiple organ systems, with low agglutinating titers: A case report. *J Med Case Rep* 2007;1:53.
7. Ceylan K, Karahocagil MK, Soyoral Y, Sayarlioglu H, Karsen H, Dogan E, *et al.* Renal involvement in Brucella infection. *Urology* 2009;73:1179-83.
8. Li J, Li Y, Wang Y, Huo N, Wan H, Lin X, *et al.* Renal abscess caused by Brucella. *Int J Infect Dis* 2014;28:26-8.
9. Onaran M, Sen I, Polat F, Irkilata L, Tunc L, Biri H. Renal brucelloma: A rare infection of the kidney. *Int J Urol* 2005;12:1058-60.
10. Dagi O, Dokur M, Guzeldag G, Ozmen Y. Acute renal failure due to Brucella melitensis. *J Infect Dev Ctries* 2011;5:893-5.

How to cite this article: Bouomrani S, Dey M, Ahmed A. Acute Renal Failure Complicating Septicemic Brucellosis. *J Pathol Infect Dis* 2019;2(2):1-2.