

Brief clinical history:

A 63-year-old woman with recurrent nephritic colic, went to the Emergency Department for pain in the right lumbar region of several days of evolution, to which fever and shivering had been added in the last hours.

Misleading elements:

We present the case of a patient who goes to the emergency department for right flank pain, and thanks to POCUS, an early diagnosis of pyonephrosis was made. We used a Sonosite M-Turbo, with convex probe C60e/5-2MHz.

Helpful details:

Upon arrival, the patient presented poor general condition, hypotension, tachycardia, profuse sweating and affected by pain. The emergency physician (EP) performs a bedside ultrasound visualizing right grade IV ureterohydronephrosis, along with echogenic material in the entire renal pelvis, compatible with pyonephrosis. The patient was treated in the emergency department with early combination empiric antibiotic treatment and hemodynamic support. Urology was contacted, which inserted a double-J ureteral stent, extracting a large amount of pus, and later being admitted in the urology department.



Figure 1: bedside ultrasound visualizing right severe ureterohydronephrosis, along with echogenic material in the entire renal pelvis, compatible with pyonephrosis.

Differential and actual diagnosis:

Among the differential diagnoses that we must consider include nephritic colic, ureterohydronephrosis, pyelonephritis, renal and perinephric abscess, pyonephrosis, etc... The actual diagnosis is pyonephrosis.

Educational and/or clinical relevance:

Pyonephrosis is a rare disease, refers to the accumulation of pus in the renal collecting system and is associated with suppurative destruction of the renal parenchyma. Risk factors include obstruction of the urinary tract, immunosuppression, and poorly controlled diabetes. It can also appear as a complication of urologic surgery or chronic pyelonephritis. In our case, pyonephrosis developed in the context of hydronephrosis due to secondary obstruction related to kidney stones. The clinical findings of patients range from asymptomatic bacteriuria (15%) to sepsis, which can lead to a fatal outcome if it is not detected early and appropriate measures are taken. Fever, chills and lower back pain are the most frequent symptoms. Bacteriuria, fever, pain and leukocytosis may be absent in up to 30% of cases. Antibiotics have no effect on pyonephrosis unless the pus is drained. Thus, percutaneous nephrostomy and/or insertion of the ureteral catheter is necessary. Ultrasound and computed tomography are the methods generally used for the diagnosis of pyonephrosis. Therefore, the use of clinical ultrasound allows the EP, a quick and versatile diagnosis, along with early treatment, this being vital for a good evolution of patients with potentially very serious pathologies, as in the case we present.