

# Right Flank Pain: what's more than a stone and a bug?

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## Background

- Renal infarction (RI) is considered as rare condition; the reported incidence is varying between 0.004% and 0.007%, and the diagnosis is usually delayed from days to weeks after the onset of symptoms because of its nonspecific presentation

## Patient presentation

### Introduction

- A 61-year-old African American female presented with sudden onset of severe constant right flank pain and right upper quadrant abdominal pain
- Her medical history was significant for uncontrolled type 2 diabetes, untreated hypertension, long standing smoking and intermittent marijuana use

### Physical exam

- Ill appearing
- Blood pressure 187/88 mmHg with otherwise normal vital signs
- Moderate tenderness to palpation of the right upper quadrant and right flank, and significant right costovertebral angle tenderness

### Work up

- CBC, CMP, lactic acid WNL
- Urine analysis positive for nitrites
- Abdominal/Pelvic CT without contrast unremarkable
- Abdominal ultrasound unremarkable

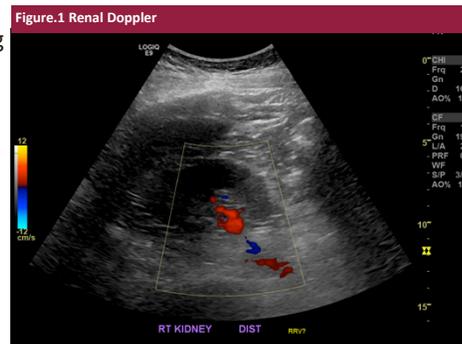
### Clinical course

- Patient was put on antibiotics for possible pyelonephritis
- She continued to have severe right flank pain despite frequent use of intravenous narcotics
- Repeated lactic acid was again negative
- Next day morning she had a significant creatinine elevation (1.0→1.58), which can not be explained by single dose of intravenous ketorolac she received in emergency department

- Renal Doppler was obtained to further evaluate kidney perfusion and it revealed total occlusion of the right renal artery
- Renal angiogram confirmed right RI and the right kidney was deemed to be non-salvageable as it was out of the window for reperfusion
- Angiogram also revealed partial occlusion of left common iliac artery
- Patient was started high intensity statin and anticoagulation therapy

### Further work up for etiology of renal infarction

- Lipid panel with HDL of 17 mg/dL, otherwise WNL
- HbA1c of 7.6
- Hypercoagulability work up unremarkable
- Cardiac work including EKG, telemetry, Echocardiography unremarkable



## Discussion

- With patient's low HDL level, uncontrolled DM and HTN, and extensive stenosis of peripheral arteries, her RI was considered secondary to atherosclerosis
- Lactic acid is not a sensitive marker of renal ischemia. LDH, a common marker of cell necrosis, was frequently high in patients with RI and remained above the upper limit of the normal range over a long period (15 days) after the first clinical symptom
- Doppler evaluation of renal arterial and venous blood flow should be able to detect global or major segmental renal infarction; however, segmental renal infarction has more risk to be missed
- Abdominal angiogram should be performed early in all patients displaying the triad of a high risk of thromboembolic events, persistent flank/abdominal/lower back pain, and high LDH levels and/or hematuria within 24 hours of the onset of pain for the detection of possible RI

## Conclusion

- This case illustrates renal infarction as the rare cause of right flank pain with negative abdominal CT without contrast and ultrasound. Keeping the differential diagnosis in mind and knowing the proper radiological modality to perform would help to recognize this condition promptly. Rapid diagnosis and institution of the appropriate therapy are essential for the prevention of permanent loss of renal function.

## Reference

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- Faucon AL, Bobrie G, Jannot AS, et al. Cause of renal infarction: A retrospective analysis of 186 consecutive cases. J Hypertens. 2018;36(3):634-640.