That's RAD: A Case of Renal Artery Dissection Leading to Renal Infarction

Dylan Souder, DO; Wali Kamran, DO; Thomas Doherty, MD

Lehigh Valley Health Network, Allentown, Pennsylvania

Introduction

- Renal artery dissection (RAD) is a rare diagnosis, accounting for 1-2% of all arterial dissections[1]
- Risk factors for spontaneous RAD include hypertension and connective tissue disorders such as fibromuscular dysplasia, Ehlers-Danlos syndrome, and Marfan syndrome
- RAD can also be seen in trauma cases
- The most common presenting symptom of RAD is abdominal pain[1]

Case

- 50-year-old male presented to the ED for right-sided abdominal pain and nausea for several hours
- No significant PMHx, no daily medications
- Initial labs were significant for an elevated creatinine of 1.20 mg/dL, otherwise CBC, CMP, troponin were normal
- Noncontrast CT chest, abdomen, pelvis showed infarct of the right posterior/medial kidney with concern for right renal artery branch thrombosis
- Heparin drip was initiated for thrombosis and patient was admitted for further workup
- CT angiography of the abdomen on hospital day two showed focal dissection of the posterior branch of the right main renal artery
- Vascular surgery recommended antiplatelet therapy with aspirin 81 mg daily and follow up imaging with a renal artery duplex 1-3 months after discharge

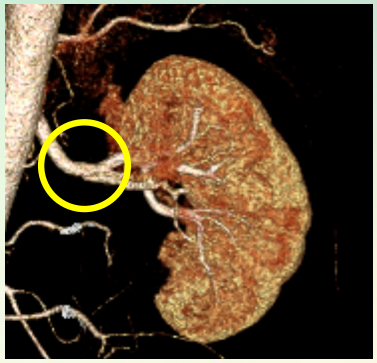

Image 1: CT Angiogram of Renal Artery Dissection

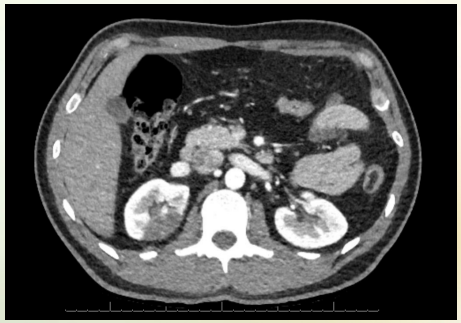

Image 2: Non-contrast CT Abdomen Showing Renal Infarct

Discussion

- There have been approximately 200 published cases of RAD dating back to 1944[2]
- Although uncommon, RAD and other arterial dissections should be included in the differential diagnosis for abdominal pain
- If renal infarcts are seen on imaging, clinical suspicion should be raised for RAD if thromboembolic disease has low likelihood or has been ruled out
- Gold standard for RAD diagnosis is CT angiography or MR angiography of the abdomen[1]
- Presently, there are no guidelines that recommend treatment for RAD due to the lack of data
- Medical management strategies include blood pressure control in combination with antiplatelet therapy or anticoagulation, with warfarin being the most studied anticoagulant used
- Surgical intervention is typically not first-line treatment unless renal function is compromised
- In some cases, a stable renal artery dissection with stable renal function can be monitored without intervention[3]
- All in all, RAD is a rare diagnosis and requires a multidisciplinary approach to management

References

1. Jha A, Afari M, Koulouridis I, et al. (February 11, 2020) Isolated Renal Artery Dissection: A Systematic Review of Case Reports. Cureus 12(2): e6960. doi:10.7759/cureus.6960
2. Renaud S, Leray-Moragués H, Chenine L, Canaud L, Vernhet-Kovacsik H, Canaud B. Spontaneous renal artery dissection with renal infarction. *Clin Kidney J*. 2012;5(3):261-264. doi:10.1093/ckj/sfs047
3. Kanofsky JA, Lepor H. Spontaneous renal artery dissection. *Rev Urol*. 2007;9(3):156-160.

LVHN.org Lehigh Valley Health Network