Nephrocolic fistula due to staghorn calculus

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Introduction

Renocolic fistulas are a rare clinical scenario with records of initial cases documented around 460 B.C. as described by Hippocrates [1]. They may be spontaneous or traumatic in origin where staghorn calculi, renal infections (perinephric abscess, xanthogranulomatous pyelonephritis and renal tuberculosis), renal malignancies and Crohn's disease accounts for spontaneous fistulas [2]. Around 130 cases are reported in medical literature [1] and the following case is reported after informed consent was taken from the patient.

Case Report

A 72 year old man was admitted to the surgical casualty ward with a two week history of left sided loin pain and swelling. It was a constant dull aching pain of mild to moderate severity. There was no radiation of the pain. He did not have any associated dysuria, frequency or haematuria. He also had on and off fever with chills for the past 1 week, associated with anorexia and loss of weight. His bowel habits remained unchanged and there was no history of per rectal bleeding or colicky pain during defecation.

He was a diagnosed patient with a staghorn calculus in the left renal pelvis (Figure 1). He first presented in a similar manner 3 and a half years previously with left loin pain and fever, where he was diagnosed to have left pyelonephritis complicated with a perinephric abscess formation. USS guided drainage of the abscess was done and the patient was discharge after completing an IV antibiotic course with a plan for pyelolithotomy. However, he defaulted follow up and had remained symptom free until four months ago when he presented with a urinary tract infection. During this admission he was treated as for an uncomplicated UTI as there were no USS features of pyelonephritis. CT IVU was planned, but the patient again defaulted until his current admission. Other than for the renal calculi, he did not have any chronic illness.

On examination the patient was ill looking, dehydrated and pale. Heart rate was 88 bpm, blood pressure was 80/50 mmHg

and the respiratory rate was 14 breaths per minute. Abdominal examination revealed left lumbar fullness and a tender ballotable loin mass. He also had a positive psoas spasm on the left side. The rest of the abdominal examination including the per rectal examination was unremarkable.

Figure 1. X-ray KUB showing the staghorn calculus.

His initial white cell count was $10.1 \times 10^9/L$ with 67% neutrophils. Haemoglobin was 8.9g/dl. Urine analysis showed 20 - 25 pus cells and 8 - 10 red cells. 2 urine cultures only revealed mixed growth and were not able to isolate a pathogen. Serum creatinine was 70 mmol/L and serum potassium was 4.9 mmol/L.

USS revealed a contracted left kidney with a staghorn calculus and perinephric collection indicating an abscess formation involving part of the psoas muscle. CT abdomen revealed severely scarred left kidney with a staghorn calculus in the descending colon indicating a fistula connecting the colon to the contracted kidney. There was a 9.6 cm x 3.9 cm x 1.7 cm collection in relation to the left kidney extending along the left psoas muscle with CT features suggestive of an abscess (Figure 2 & 3).

The patient underwent an exploratory laparotomy on day 10 of his current admission. The descending colon was found fixed to the scarred left kidney. The diseased part of the colon was mobilized and resected with the fistula tract connecting it to the left kidney. The abscess beneath the colon extending along the psoas muscle was drained. A large staghorn calculus

was found within the descending colon. The proximal and distal colon was exteriorized forming a colostomy and mucus fistula respectively. Following the surgery, the patient made a gradual recovery.

Figure 2. CT abdomen with arrow indicating calculi within the descending colon.

Figure 3. CT abdomen with arrow indicating calculi within the descending colon.

Discussion

Staghorn calculi should always be completely removed surgically as there is a high mortality from chronic renal impairment, pyelonephritis with sepsis and renal squamous cell carcinoma [3,4].

Nephrocolic fistula formation is a rare complication of staghorn calculi and there are many cases reported in medical literature [5-7]. Chronic inflammatory (tuberculosis and other bacterial infections) and neoplastic conditions as well as iatrogenic injury can lead to nephro-enteric fistula formation,

but staghorn calculi are the commonest cause [1,6,7]. Renocolic fistulas occurs usually secondary to renal disease and it is rare following bowel pathology [1,8]. Clinical presentation is nonspecific. The patient may have experienced loss of weight, chronic ill health, diarrhoea and may rarely present with intestinal obstruction [8]. Urinary symptoms like pneumaturia and faecaluria are more specific for enteric fistula [8].

Diagnosis depends on radiological findings [1,8]. Anterograde pyelography and CT scans are complimentary to each other in identifying renocolic fistulas. CT scan is the best investigation in establishing a diagnosis as well as planning subsequent surgery [1,8,9].

The prognosis of the condition depends on the cause for the fistula, duration of the disease and the remaining renal function of the patient [7].

References

1. Patil SB, Patil GS, Kunderagi VS, Biradar AN, A case of Xanthogranulomatous pyelonephritis with spontaneous renocolic fistula. *Turkish journal of Urology*. 2013 June; 39(2): 122–125.
2. Terris MK, Kim EW. Renoalimentary Fistula [internet]. Updated: Sep 09, 2015. Available from: <http://emedicine.medscape.com/article/441604>.
3. Meng M. Struvite and Staghorn Calculi [internet]. Updated: Nov 20, 2015. Available from: <http://emedicine.medscape.com/article/>
4. Singh M, Chapman R, Tresidder GC, Bland J. The Fate of the Un operated Staghorn Calculus (Abstract). *British Journal of Urology*, 1973 Dec; 45(6): 581–585.
5. Henao DE, Vásquez A. Spontaneous Nephrocolic fistula secondary to a staghorn calculus. *Urology Research Journal* 2012; 40:617. <http://dx.doi.org/10.1007/s00240-012-0461-7>
6. Shah I, Gupta R, Robani I. Renocolic fistula secondary to renal calculus with tuberculosis. *JK Practitioner* 2003; 10(4).
7. Zeller FL, García Garzón JM, Peralta J, Benguigui Benadiva J. Asymptomatic renocolic fistula as a complication of staghorn calculus: case report (Abstract). *Archivos Españoles de Urología*, 2013 Oct; 66 (8): 817-9.
8. Manzanilla García HA, Sánchez-Alvarado JP, Rosas-Nava JE, Soto-Abraham V, Renocolic fistula secondary to colon adenocarcinoma. *Mexican society of Urology* 2010; 70 (3): 174-178.
9. Harry Parvey, S T Cochran, J Payan, Stanford M Goldman, C M Sandler. Renocolic fistulas - Complementary roles of computed tomography and direct pyelography. *Abdominal imaging* 1997; 22: 96,99.

Key Points:

- Renocolic fistula is a rare clinical entity that can present with nonspecific symptoms.
- It is commonly caused due to staghorn calculi of the renal pelvis.
- Diagnosis is by a contrast enhanced CT scan of the abdomen.