Cutaneous renocolic fistula associated with diverticulitis

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We report a case of a cutaneous renocolic fistula in a patient with staghorn calculus and diverticulitis. The most common origins of renocolic fistula are primary renal diseases including xanthogranulomatous pyelonephritis, trauma, malignancy or tuberculosis. While diverticulitis has rarely been associated with renocolic fistula, previous instances of fistulae have been noted in patients with simultaneous kidney disease. Inflammation resulting from kidney disease may place patients with colonic diverticulitis at higher risk for developing renocolic or cutaneous renocolic fistulas.

Key Words: renocolic fistula, XGP, diverticulitis, staghorn calculus

Introduction

Cutaneous renocolic fistula associated with primary alimentary tract disease has not previously been reported in the literature. We present one such case in a patient with known diverticular disease and a staghorn calculus of the left kidney. Renocolic fistulas and their management are discussed.

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Case presentation

A 69-year-old female with a past medical history of bleeding diverticulosis, diverticulitis, and left staghorn calculus presented to her primary care physician with painless left flank swelling. The patient also described nausea and malaise over the previous week, but denied fever, chills, vomiting, dysuria or pyuria. Physical examination revealed a poorly defined left flank mass with a small central erythematous abscess. Five hundred milliliters of purulent material was expressed on palpation. Complete blood count, serum electrolytes, urine analysis and urine culture were all within normal limits. Abdominal and pelvic computed tomography (CT) scan without contrast demonstrated an atrophic

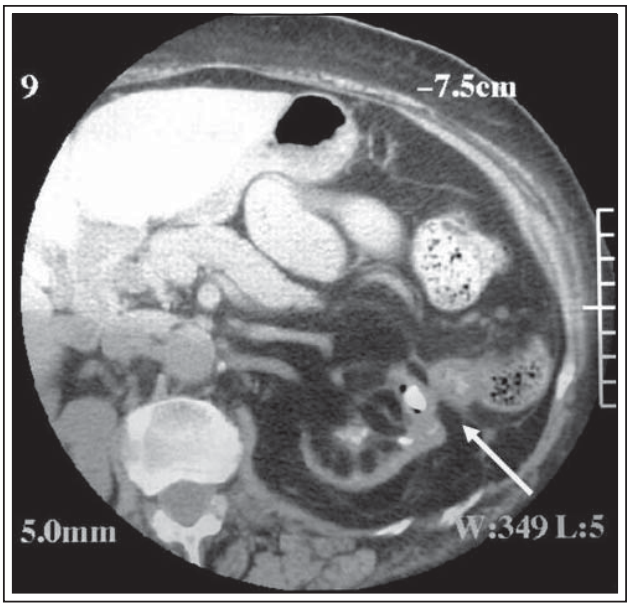

Figure 1. CT scan of abdomen and pelvis demonstrates air and staghorn calculus in left renal collecting system with cortical atrophy and inflammatory stranding in the left mesocolon. The upper to middle pole of the left kidney appears inseparable from a portion of the proximal mid-descending colon, with a presumed fistula between the colon and kidney accounting for the presence of renal air.

left kidney with a 4 cm staghorn calculus and gas in the left upper collecting system. Inflammatory stranding of the adherent mesocolon, Gerota's fascia and the subcutaneous fat of the left flank were also noted. This observation suggested a fistula between the colon and the left kidney as an explanation for the presence of gas in the left renal collecting system, Figure 1. A renal scan demonstrated decreased left renal perfusion and renal function less than 10%.

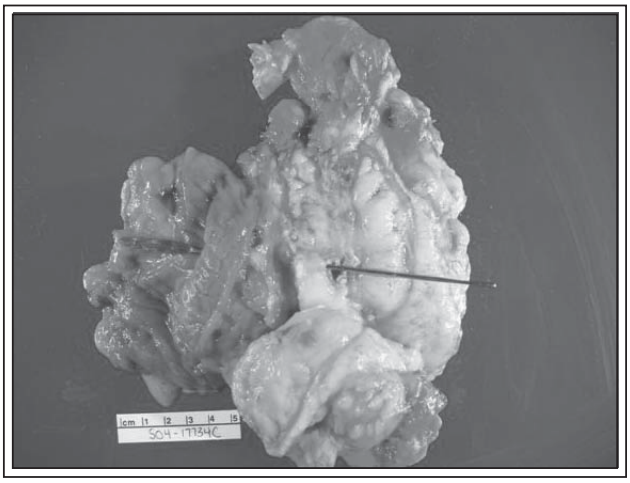

Figure 2. Pathology specimen of left colon and kidney opened longitudinally exhibits numerous colonic diverticula with a communication between the colonic mucosal surface to the adjacent collecting system of the renal pelvis.

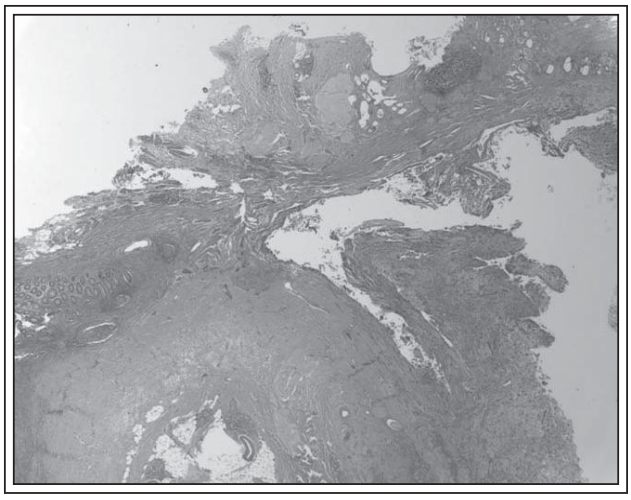

Figure 3. Histology specimen of renal pelvis totally effaced by inflammation, communicating with colonic diverticulum (H&E, 20x magnification).

The patient was taken to the operating room; at the time of surgery a fistula between the left colon, left kidney, and flank was confirmed. Left hemicolectomy and nephrectomy were performed. The patient tolerated the procedure well, and a Penrose drain was left in place. She recovered from surgery and was discharged home on postoperative day four with all drains removed. She currently remains well without any sequelae from surgery.

Pathology of the specimen revealed extensive diverticulitis of the colon with focal perforation and fistula tract formation to the adherent collecting system of the kidney at the renal pelvis and the skin, Figure 2. Histological analysis demonstrated numerous colonic diverticuli communicating with the effaced renal pelvis, Figure 3.

Discussion

Diverticular disease is a common entity, and one that increases in prevalence with age.[1,2] Diverticulosis refers to the presence of diverticula, or outpouchings of the intestinal mucosa and submucosa into the muscularis. Diverticula may occur throughout all portions of the alimentary tract, though most commonly in the sigmoid colon. Diverticulitis occurs in a subset of patients with diverticular disease.

Inflammation may result in bleeding, perforation or fistula formation. A review of surgically treated cases of diverticulitis revealed a fistulization rate of 20% to adjacent structures, with colovesical fistulas occurring most frequently.[3]

Cases of renocolic fistula have been reported in the literature. The cause, however, is most commonly primary renal disease such as xanthogranulomatous pyelonephritis (XGP), malignancy, trauma and tuberculosis.[4-6] Renal fisulas associated with primary alimentary tract diseases, as in the patient described above, have rarely been reported and have been ascribed to malignancies and ruptures of gastric and duodenal abscesses.[7-9] Further, few cases of renocolic fistulas associated with diverticular disease have been described, and none have resulted in cutaneous fistula formation.[10-12] The inflammation in active diverticulitis may create conditions that promote renal fistula when coming in contact with renal parenchyma damaged by XGP. We hypothesize that fistulization may have occurred in this case when the inflamed diverticula perforated, thus creating a pericolic abscess and eventually a communication with the adjacent left kidney, flank muscles, and skin. Of interest, prior reports of renocolic fistula attributed to diverticulitis also occurred in patients who had known renal calculus or polycystic kidney disease. It is likely that inflammatory changes in the renal parenchyma due to chronic renal disease may predispose patients with colonic diverticulitis to be at greater risk for both cutaneous renocolic and renocolic fistula formation.

Conclusion

Treatment of renocolic fistulas in patients with poorly functioning kidneys involves nephrectomy and excision of the affected intestinal segment. Conservative medical management for this type of fistula is rarely indicated. Nephron sparing surgery is an option for patients with bilateral renal disease, or in cases where the renal disease is not severe. □

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