Case 15928

Sigmoid colovesical fistula - a complication of sigmoid colon diverticulitis
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Section: Abdominal imaging
Area of Interest: Colon
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Fistula Diverticula Inflammation Case
Type: Clinical Cases
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Patient: 74 years, female

Clinical History:
A 74-year-old lady with a past history of a right breast infiltrating ductal carcinoma on chemotherapy, had presented with chief complaints of passing foul smelling urine, passage of 'gas' in the urine and pelvic pain for 1 month. She reported no history of trauma or recent pelvic surgery.

Imaging Findings:
Plain CT of the abdomen [axial (Fig.1a) and coronal (Fig.1b) sections] done in view of her current complaints, showed a collection located postero-superior to the urinary bladder, communicating with the bladder through a 12 mm defect. Multiple diverticuli were noted involving the sigmoid colon (Fig. 1c). In addition, urinary bladder intraluminal air and affected segment of the sigmoid colon showed wall thickening (Fig. 1d, e).
On rectal administration of contrast (Fig. 2a, b), contrast was noted to fill the collection and urinary bladder. The source of the contrast extravasation was through sigmoid colon defects noted in its inferior wall (Fig.2c).

Discussion:
Diverticulosis of the colon are acquired herniations of the mucosa and submucosa through the muscle layers of its walls. Diverticulosis may be seen anywhere along the colon, with the sigmoid colon being the commonest site. [1] Diverticulosis simply means the presence of diverticula, while the term ‘diverticulitis’ is used only when there is proven inflammation associated with diverticula. [2]
Colovesical fistula (CVF), is an abnormal communication between the urinary bladder and large intestine, that can be caused by various inflammatory and neoplastic conditions, among which sigmoid diverticulitis remains the most recognised cause of this pathology. The underlying mechanism is either a direct extension of a ruptured diverticulum or erosion of a diverticular abscess into the bladder. [3] Patients usually present with complaints of pneumaturia (50-70%), faecaluria (50%), increased frequency and urgency of urination, suprapubic pain and haematuria. [4, 5, 6] CT is the most sensitive imaging modality for evaluating CVFs with a diagnostic accuracy of 60-100%. Most
common findings include- air/gas in lumen of the bladder, local thickening of the bladder wall, thickening of the adjacent bowel wall, adherence of soft tissue masses outside the wall of the bladder, and adjacent abscesses when present. [6, 7]

Potential benefits of rectal contrast for diverticulitis in general include better visualisation of colonic wall and diverticula. For CVF in particular, use of rectal contrast can help identify and confirm a fistula tract. Rectal contrast has a benefit over oral contrast in particular when problems are expected in the distal colon, as the former would induce unnecessary delays, particularly in an emergency setting. [8, 9]
The role of MRI is less well established, with only one study demonstrating a sensitivity and specificity of 100% in identifying CVFs accurately in 18 patients. [10]
The most widely accepted treatment for CVFs is a surgical approach by removal of the fistula and the diseased segment of the colon to prevent recurrence. [11] Our patient underwent drainage of the abscess, and repair of the colovesical fistula followed by diversion loop colostomy.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Sigmoid colovesical fistula - a complication of sigmoid diverticular abscess, Colovesical fistula secondary to sigmoid colon cancer, Colovesical fistula secondary to squamous cell carcinoma of urinary bladder

**Final Diagnosis:** Sigmoid colovesical fistula - a complication of sigmoid diverticular abscess

**References:**
Figure 1

Description: Plain CT done for present symptoms, shows a collection (CL) located postero-superior to the urinary bladder (UB), communicating with the bladder through a defect measuring 12 mm. Air was noted within the bladder lumen. Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: Plain CT of the abdomen & pelvis (coronal reconstructed image), shows a collection (CL) located postero-superior to the urinary bladder (UB), communicating with the bladder through a defect measuring 12 mm. Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: Coronal reformatted CT image showing multiple diverticuli (arrows) in the sigmoid colon.
Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: Plain CT abdomen showing sigmoid colon wall thickening (arrow) with few diverticuli.
Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: Coronal reformatted CT image, showing sigmoid colon wall thickening (arrow).

Origin: Coronal reformatted CT image showing multiple diverticuli (arrows) in the sigmoid colon.
Figure 2

Description: CT of the abdomen and pelvis after rectal contrast administration (axial section) shows a collection (CL) located postero-superior to the urinary bladder (UB), communicating with the bladder through a defect measuring 12 mm. Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: CT of the abdomen & pelvis after rectal contrast administration (coronal reconstructed image), shows a collection (CL) located postero-superior to the urinary bladder (UB), communicating with the bladder through a defect measuring 12 mm. Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.
Description: The collection (CL) was noted to communicate with the sigmoid colon (SC) through multiple defects in the inferior wall of the colon. Wall thickening of the affected segment of sigmoid colon was also noted. Origin: Rishi Philip Mathew, Dept. of Radiology, Rajagiri Hospital, Aluva, Kerala, India.