Case 10427

Spigelian hernia containing a strangulated appendix
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Section: Abdominal imaging
Area of Interest: Abdominal wall
Procedure: Education
Imaging Technique: CT
Special Focus: Pathology Case Type: Clinical Cases
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Patient: 69 years, male

Clinical History:

A 60-year-old patient with a recent anterior abdominal wall hernia repair and right intra abdominal drain insertion along the right semi-lunar line, acutely presented with a 3 day history of right abdominal pain and mild overlying skin erythema. A contrast enhanced abdominal CT scan demonstrated the following.

Imaging Findings:

Axial CT images (figures 1a-c) show a defect along the right linea semilunaris region with associated fat stranding and a blind ended structure within the intramural defect deep to the external oblique aponeurosis. Coronal and sagittal CT images (figures 2a-b and 3a-c) further demonstrate the blind ended structure extending out of the defect towards the caecum (arrowed on figures 2c and 3b) in keeping with an appendix. While there is stranding within the herniated portion of the appendix, the appendix outside the hernia is non-inflamed. This suggests a strangulated distal appendix within the hernia rather than a primary appendicitis with extension into the Spigelian hernia. There is no associated small or large bowel dilatation or associated collection. Some midline residual stranding from the previous anterior abdominal mesh repair was noted on the axial images. An intramural Spigelian hernia containing a strangulated appendiceal tip was confirmed on surgery.

Discussion:

A Spigelian hernia, while being an uncommon type anterior abdominal wall herniation, is still considered the most common type of spontaneous lateral ventral herniation [2]. It is thought to have been initially described by Josef Kinkosh in 1764 although it is named after a Belgian anatomist, Adrian van der Spieghel [1]. It can be difficult to diagnose clinically due to its location in the aponeurosis within the anterior abdominal wall [8]. These herniations can potentially contain a variety of structures which commonly include omentum and small bowel. Other less commonly involved structures include parts of large bowel, stomach, gallbladder, ovaries, testes, bladder, Meckel's diverticula and leiomyomas. They can also very rarely contain an appendix [1-4].

The hernias classically occur through a defect in the linea semilunaris (Spigelian aponeurosis) which refers to a fibrous union of the rectus sheath with the aponeuroses of the transverse and oblique abdominal muscles [5]. They may either be congenital or acquired (as in this case) with the latter frequently occurring from surgical incisions along the linea semilunaris. Spigelian hernias are often evaluated with either ultrasound or CT [6-7]. The latter is often much more useful when anatomical delineation of the structures involved needs to be assessed. When a Spigelian herniation is on the right and contains a blind-ended appearing loop, the diagnostic possibilities for the herniating structure on imaging includes an appendix, two closely approximating terminal ileal loops, or a Meckel's diverticulum. The presence of a single blinded lumen heading well into the caecum makes the latter two possibilities
extremely unlikely. As with this case, most Spigelian herniations are intramural and remain deep to the external oblique aponeurosis.

This hernia was unable to be reduced clinically and had extensive surrounding fat stranding making it an incarcerated and strangulated Spigelian hernia containing an appendiceal tip. Due to small fascial defects, spigelian herniations are known to have high rates of associated incarceration. In such situations, the usual recommendations are for either an open or laparoscopic hernia repair [1-2]. This case highlights the classical CT features of a rather uncommon scenario of a Spigelian hernia containing a strangulated appendix.

**Differential Diagnosis List:** Spigelian hernia containing strangulated appendix, Spigelian hernia containing terminal ileum, Spigelian hernia containing a Meckel diverticulum

**Final Diagnosis:** Spigelian hernia containing strangulated appendix

**References:**


Description: Axial CT images showing a blind ended loop (appendix) extending towards the right anterior abdominal wall semilunar line with associated fat stranding. There is also some background midline stranding from the recent mesh repair. Origin: SCGH, Perth, WA
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**Figure 2**

Description: Coronal CT scans demonstrate an inferiorly projecting appendix into the Spigelian hernial defect with surrounding fat stranding. **Origin:** SCGH, Perth, WA
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Description: Coronal image showing communication of the appendiceal orifice with the caecum (arrowed) Origin: SCGH, Perth, WA
Figure 3

Description: Sagittal image demonstrates the tip of a blind ending structure within the patient's Spigelian hernia Origin: SCGH, Perth, WA
Description: Sagittal image showing the appendix (arrowed) extending towards the caecum. Origin: SCGH, Perth, WA