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Out of sight, out of mind: perforated distal stump appendicitis

Laparoscopic appendectomy is the most widely performed and accepted procedure for acute appendicitis, but it should not be underestimated in its procedural complexity. There are a number of reported complications including stump appendicitis – especially at risk when more than 1 cm of appendicular stump is left behind, as described by Rose in 1945.[1] We are reporting the first case of distal stump appendicitis with perforation, following a difficult laparoscopic appendectomy.

A 27-year-old Caucasian female who had previously undergone a laparoscopic appendectomy 12 months back for appendicular perforation presented with severe abdominal pain and peritonitis.

Operative notes from the previous procedure suggested a difficult appendectomy, in particular noting that the distal part of appendix may have avulsed while being lifted. No efforts were made at the time to retrieve the remaining appendicular remnant. Post-operative period was uneventful, and the patient was discharged home.

She presented 2 months later with severe right iliac fossa pain and was febrile. Computed tomography scan showed a small collection, which was conservatively managed on intravenous antibiotics. It also showed a tubular focus in the right iliac fossa, thought to be non-specific (Figs 1,2). She improved with the initiated management plan and was subsequently discharged home.

Twelve months later, patient presented with severe lower abdominal pain and peritonitis. The initial diagnosis was pelvic inflammatory disease due to the previously removed appendix. On clinical examination, was obviously shocked and exquisitely tender throughout the abdomen. Ultrasonography revealed marked inflammation involving distal small loops and mural thickening in the right lower quadrant/right Iliac fossa.

Given the patient's clinical signs and symptoms, a diagnostic laparotomy was performed. Intra-operative findings showed turbid fluid in the right iliac fossa, along with a collection of pus and a localized mass at the retroileal position wrapped with the sigmoid colon. On further exploration, a 3-cm-long appendix with perforation and an intact appendix mesentery was found and removed (Fig. 3). It was concluded that the long segment of the distal appendix was not removed in the previous appendectomy. Post-operative period was uneventful. Histopathology report confirmed the diagnosis of perforated distal stump appendix.

Stump appendicitis has a reported incidence of one in 50 000 cases.[2] Our literature review shows no documented cases of distal stump appendicitis. An early diagnosis is essential to avoid complications, such as perforation, intra-abdominal abscess and generalized peritonitis. Clinically, the presenting signs are similar of appendicitis, with additional history of appendectomy, as is depicted in our case.[2,3]

Laparoscopic appendectomy was the initial procedure performed in our case. Skeletonization of the appendix is a common practice during laparoscopic appendectomies. The mesoappendix is coagulated and separated using a diathermy, making the appendix well skeletonized for resection at the base.[4] In this case, because the appendix was partially skeletonized with the distal remnant still attached to the mesoappendix, we theorize that it was able to remain viable with its blood supply.

It is well known that preservation of mesoappendix can possibly threaten clear margin if an appendiceal neuroendocrine tumours

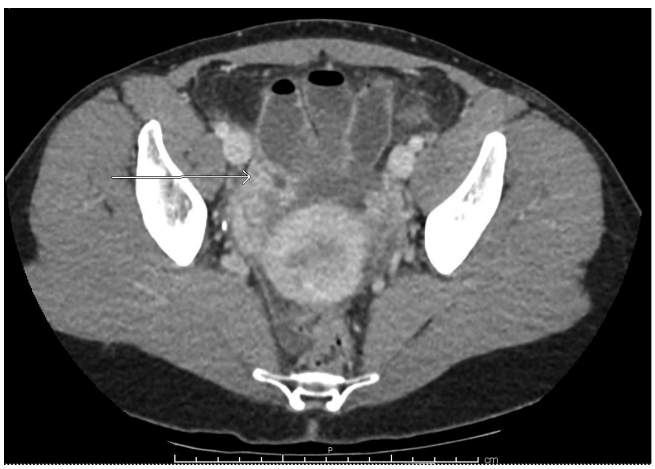

Fig. 1. Post contrast helical computed tomography axial view showing a tubular focus in the right iliac fossa (arrow).

Fig. 2. Post contrast helical computed tomography coronal view shows a tubular focus in the right iliac fossa (arrow).

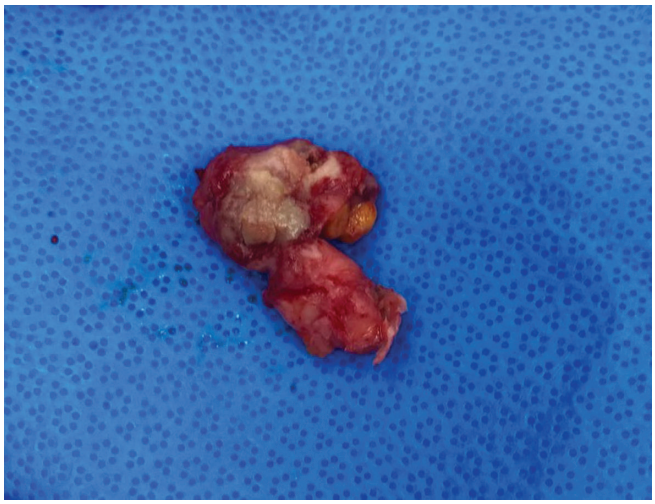

Fig. 3. Photograph showing a 3-cm-long appendiceal remnant with perforation.

(or carcinoid tumours) are suspected, leading to the need for an additional surgery. A retrospective, observational study conducted by Davenport *et al*. recommends en bloc mesoappendix resection during appendectomy in order for better staging along with reducing the need for unnecessary further surgery.[5,6]

The majority of studies suggest that stump appendicitis can occur following both open appendectomy and laparoscopic appendectomy.[3,7] However, in light of our case, if a conversion to an open appendectomy was considered during the initial procedure, ensuring complete removal of the appendix, the current presentation could have possibly been avoided.

Therefore, it is recommended to resect the mesoappendix during the initial appendectomy as this can avoid further complications (perforated distal stump appendicitis/mesoappendiceal neuroendocrine tumours) requiring additional surgery. Moreover, an early conversion to an open appendectomy should be considered during initial difficult laparoscopic appendectomies. This case also reinstates the fact that leaving a distal appendicular stump is not always a benign operative manoeuvre and hence the aim of the surgery should be to remove the complete appendix.

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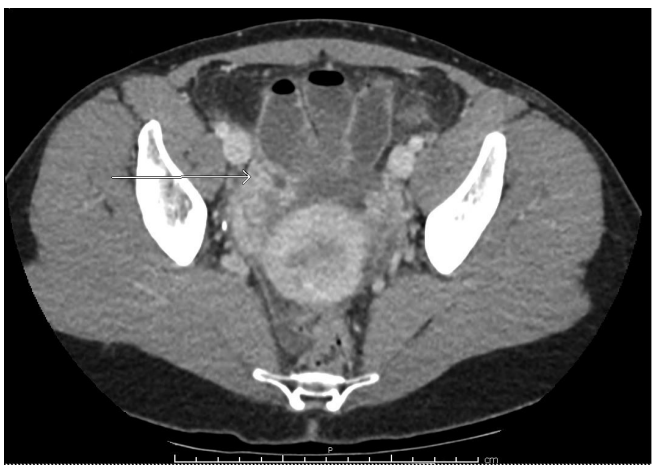

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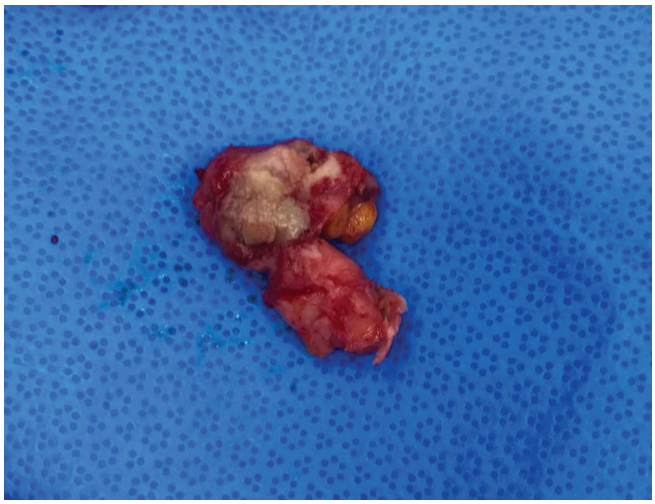

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