CASE REPORT

Stump appendicitis 5 years after laparoscopic appendicectomy

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SUMMARY

A 31-year-old healthy man presented with right lower quadrant pain and tenderness, mild neutrophilia and clinical presentation consistent with appendicitis, despite undergoing a laparoscopic appendicectomy 5 years prior. CT scan demonstrated a caecal phlegmon, in the expected region of the appendiceal stump. The patient was taken for laparoscopy and a 2 cm inflamed appendiceal stump was encountered. A distal caecectomy was performed and the patient made an unremarkable recovery. Histological examination was consistent with acute inflammation of the appendiceal stump. Only a small number of case reports of stump appendicitis have been published so far. Correct identification and ligation of the appendiceal stump is crucial to prevent this complication. Although normally it is treated with completion appendicectomy, the optimal treatment approach for this condition has not been well established.

BACKGROUND

Only a small number of case reports of stump appendicitis have been reported in the literature. It is believed that the incidence of this condition is low, hence under reported. The optimal treatment approach for this condition has not yet been elucidated. Furthermore, very few radiological images or operative photographs exist for this condition.

CASE PRESENTATION

A 31-year-old man presented with a 1-day history of gradually progressive right lower quadrant pain. He denied fever, nausea, vomiting, diarrhoea, testicular pain or any other symptoms and was well prior, with no known sick contacts.

His examination was significant for right iliac fossa tenderness, percussion tenderness and guarding. Psoas sign was positive. His vital signs were unremarkable and he was afebrile.

He had previous pain of similar nature 5 years earlier when he was diagnosed with acute appendicitis and underwent an unremarkable laparoscopic appendicectomy. Operative findings identified the base of the appendix but no operative photos of the stump were taken. The histology of the appendix at that time demonstrated acute uncomplicated appendicitis.

The patient was a smoker but was otherwise young and healthy. He had no family history of inflammatory bowel disease or other bowel conditions.

INVESTIGATIONS

Routine blood tests revealed mild neutrophilia ($8.37 \times 10^9/L$) and elevated white cell count ($11.6 \times 10^9/L$).

CT scan demonstrated a $1.6 \times 1.4 \times 1.4$ cm thick-walled and rounded soft tissue attenuation abnormality with central low attenuation within the region of the caecal pole with associated pericaecal inflammatory soft tissue stranding and small volume pericaecal lymph nodes, suspicious for a phlegmon or an evolving abscess (figure 1).

DIFFERENTIAL DIAGNOSIS

Differential diagnosis prior to the CT scan was presumed to include a Psoas abscess, new diagnosis of Crohn's disease as well as stump appendicitis.

TREATMENT

Intravenous antibiotics were administered and the patient proceeded for laparoscopy. A thickened, fibrinous appendiceal stump measuring ~ 2 cm was encountered (figure 2). This was adherent to the caecum and wrapped in the omentum.

The appendix was dissected from the caecum and a limited stapled caecectomy was performed.

OUTCOME AND FOLLOW-UP

The patient made an unremarkable recovery and was seen in the clinic 6 weeks after the operation and was discharged from our care.

Histological examination of the specimen demonstrated an appendiceal stump measuring $3.0 \times 1.5 \times 1.5$ cm with oedema, haemorrhage and transmural neutrophilic infiltrate consistent with acute stump appendicitis. The caecal pole was normal and no faecolith was present.

Figure 1 CT scan. A thick-walled phlegmonous pocket (arrow) is seen medial to the caecal pole with adjacent inflammatory stranding. Laparoscopy demonstrated this to be the inflamed appendiceal stump.

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Figure 2 Laparoscopic photograph. The appendiceal remnant is held at the top of the photograph with bowel graspers. The remnant of the mesoappendix, in the right of the photo, has been diathermied and dissected away from the caecum.

DISCUSSION

A 2012 literature review examined 61 published cases of stump appendicitis. Demographic details with SDs from this study are given in [table 1](#).

Given the large volume of appendicectomies performed worldwide (over 250 000 per year in the USA alone), this complication is probably under reported.¹ Very few laparoscopic photographs or radiological images have been published of this condition.

Failure of identification of the base of the appendix is the major reported risk factor in the development of stump appendicitis. This has often been associated with difficult appendicectomies with significant local inflammation or complications such as perforation or phlegmon.^{2 3} At laparoscopy, the appendiceal critical view should be obtained, with the appendix held at 10 o'clock, taenia coli at 3 o'clock and terminal ileum at 6 o'clock, with a clear view of the termination of the taenia at the base of the appendix. Failure to obtain this view has been associated with the development of stump appendicitis.¹

Table 1 Demographic details of stump appendicitis reported in the literature.¹

Mean time to presentation	108±20 months
Mean age	37±2 years
Male	38 (62.1%)
Initial procedure (when reported)	Open 38 (62.3%) Laparoscopic 20 (32.8%)
Presenting symptoms	Abdominal pain 57 (93%) Right lower quadrant pain 47 (77%) Gastrointestinal symptoms (including nausea and vomiting) 35 (57%)

Reviews of these case reports have suggested that a maximum of 0.5 cm of appendiceal stump should remain at completion of an appendicectomy as only stumps larger than this have been associated with the development of stump appendicitis in published cases.¹

Treatment of this condition has generally been through operation, with resection, either open or laparoscopic, of the appendiceal stump.² Depending on the degree of inflammation and difficulty of the operation, distal caecectomy and even right hemicolectomy may be required. Conservative treatment with antibiotics has also been successful.⁴ To the best of our knowledge, no case of recurrence after conservative management with antibiotics has been reported. It is unclear if conservative management, followed by interval appendicectomy may be a useful treatment strategy. Invagination of the appendiceal stump and routine stapling of the base of the appendix have been suggested to reduce this complication; however, currently no literature support this hypothesis.^{2 3}

Learning points

- ▶ Stump appendicitis is rare but should be considered in patients presenting with symptoms and signs similar to acute appendicitis and a history of previous appendicectomy.
- ▶ Care should be taken to identify the appendiceal base at operation. An appendiceal critical view and a stump shorter than 0.5 cm should be obtained and documented in the operation report.
- ▶ Stump appendicitis is generally treated with completion appendicectomy, however further resection of the caecum or colon may be required. Conservative management with antibiotics may be appropriate in certain circumstances.

Contributors APM reviewed the patient clinical records and wrote manuscript. HI assisted with drafting and reviewing article. RF and HI both provided consultant supervision and reviewed the article and oversaw the treatment of the patient.

Competing interests None declared.

Patient consent Obtained.

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