Reminder of important clinical lesson

Port site necrotising fasciitis following laparoscopic appendicectomy

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Summary

Necrotising fasciitis is a fast-spreading infection affecting the fascia and, with continued spread, causes secondary necrosis of the skin. A case has been previously described in association with laparoscopic appendicectomy but with a fatal outcome. We report a similar but successfully managed case and review the literature.

BACKGROUND

Necrotising fasciitis is a rare soft tissue infection caused by toxin producing virulent bacteria characterised by extensive necrosis of fascial planes with sparing of skin and muscle. It is accompanied by severe local pain and systemic toxicity and often fatal unless promptly recognised and aggressively treated.

It has been reported following open appendicectomy, other laparoscopic operations such as hemicolectomy and, recently in the UK, following laparoscopic appendicectomy, but with a fatal outcome.¹ However, successful management of necrotising fasciitis following laparoscopic appendicectomy has not been reported to date in the UK.

CASE PRESENTATION

A slim, 19-year-old, previously healthy man presented with symptoms and signs consistent with acute appendicitis. Laparoscopic appendicectomy was planned and intravenous antibiotics given (1.2 g augmentin and 400 mg metronidazole). A three port technique was used: an umbilical 12 mm optical port, a 5 mm suprapubic port and a 12 mm left iliac fossa (LIF) port for specimen retrieval. At surgery, the appendix was perforated near the base with fibrinous adhesions to the anterior abdominal wall and free pus and exudate in the right iliac fossa.

Appendicectomy was performed uneventfully using Ethicon endopath stapler for the mesoappendix and base of appendix. The peritoneal cavity was irrigated with saline and a drain not used. The appendix was retrieved using an Ethicon endopouch retriever bag through the LIF port. Intravenous antibiotics were continued for a further 48 h post-procedure.

On the first postoperative day, the patient was febrile but ambulatory, tolerating free fluids and had passed urine. At 04:00 on the second postoperative day he was complaining of increasing abdominal pain, remained febrile, had become tachycardic and developed painful urinary retention requiring catheterisation.

At 16:00, examination of the abdomen was unremarkable other than erythema around the LIF port site. At 18:00,

further physical examination prompted by the need for opiate analgesia revealed progressive cellulitis and subcutaneous crepitus. An immediate decision was taken to explore the abdominal wound for suspected necrotising fasciitis. Intravenous benzylpenicillin and flucloxacillin were given.

INVESTIGATIONS

Blood cultures on the day of admission showed no bacterial growth. The tissues sent from theatre showed plentiful leucocytes and gram negative bacilli but there was no growth from ordinary and enriched culture. On discussion with the microbiologist it was concluded that the gram negative bacilli was most likely an enterobacter. Histopathology confirmed a perforated inflamed appendix.

DIFFERENTIAL DIAGNOSIS

The differential diagnoses included simple cellulitis or a necrotising fasciitis but the disproportionate temperature, tachycardia and pain suggested the latter.

TREATMENT

At operation the LIF port site was explored by generous transverse extension of the incision. Findings were consistent with early necrotising fasciitis with a loss of sheen and texture of the fascia and pus extending along the fascial planes. The abdomen was visualised via the port site and there was no evidence of intra-abdominal sepsis. The wound was dressed initially with betadine soaked gauze and the patient transferred to the high dependency unit (HDU).

The following day he was afebrile and stable. Examination of the wound revealed healthy tissue with no further need for debridement. After discussion with the microbiology team, he was started on clindamycin and ciprofloxacin. By the second postoperative day he was tolerating diet and was well enough for transfer to the base ward. A topical negative pressure dressing was applied on the third postoperative day after referral to the tissue viability team and changed after 48 h by which time the wound was granulating.

OUTCOME AND FOLLOW-UP

He was discharged home with topical negative pressure dressing and he was regularly visited by district nurses. He was reviewed at 6 weeks at which time the wound was fully epithelialised.

DISCUSSION

Necrotising fasciitis is a serious postoperative complication with a reported mortality of 29–76%.² This case documents the successful management of this condition following laparoscopic appendicectomy in a young fit male patient.

Contamination of the port site seems the most probable source of infection in our case as the necrotising fasciitis was centred on the LIF port site. Other probable sources could be either direct spread to the abdominal wall from the inflamed or exogenous pathogens invading the wound perioperatively. Haematogenous spread from distant infection has also been reported.³

Laparoscopic appendicectomy for acute appendicitis has been shown to be of benefit by reducing postoperative recovery time in a prospective randomised trial⁴ and some studies show it is associated with fewer wound infections than open appendicectomy.⁵ Perioperative systemic antibiotics have also been beneficial in reducing postoperative septic complications in non-perforated⁶ appendicitis, are recommended in both open and laparoscopic appendicectomy⁷ and were used in our case.

An endoscopic non-porous retrieval bag, for extraction of gallbladders and appendices, is considered good practice in reducing port site infections.⁸ In this case, although such a bag was used, contamination of the outside was inevitable due to the presence of free pus.

In this case, the diagnosis of necrotising fasciitis was made promptly thanks to a high level of clinical suspicion. The disproportionate pyrexia, tachycardia and pain were sufficient to suggest the diagnosis and the palpable crepitus mandated surgical exploration. Prompt surgical intervention with debridement, together with multi-disciplinary management by the surgical, HDU, microbiology and tissue viability teams, contributed to a successful outcome.

Necrotising fasciitis should be considered as a diagnosis in patients whose condition deteriorates after apparently straight forward emergency surgery even if laparoscopic.

Learning points

- ▶ Necrotising fasciitis can complicate laparoscopic surgery.
- ▶ It is an uncommon condition but potentially fatal without prompt recognition.
- ▶ All staff should be aware of the characteristic symptoms and signs, maintain a high index of suspicion and request early senior review if the diagnosis is suspected.

Competing interests None.

Patient consent Obtained.

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