CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 12 (2015) 15–18

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Perforated appendix with abscess: Immediate or interval appendectomy? Some examples to explain our choice

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ARTICLE INFO

Article history:
Received 17 February 2015
Received in revised form 4 May 2015
Accepted 4 May 2015
Available online 7 May 2015

Keywords:
Interval appendectomy
Appendicolith
Antibiotic therapy
Acute appendicitis
Abscess

ABSTRACT

INTRODUCTION: There are no clear guidelines in the treatment of a perforated appendicitis associated with periappendiceal abscess without generalized peritonitis.
PRESENTATION OF CASES: We retrospectively studied six examples of treated children in order to discuss the reasons of our team's therapeutic approach. Some children were treated with a conservative antibiotic therapy to solve acute abdomen pain, planning a routine interval appendectomy after some months. Others, instead, underwent an immediate appendectomy.
DISCUSSION: By examining these examples we wanted to highlight how the first approach may be associated with shorter surgery time, fewer overall hospital days, faster refeeding and minor complications.
CONCLUSION: Our team's therapeutic choice, in the case of a perforated appendicitis with an abscess and coprolith is an initial conservative case management followed by a routine interval appendectomy performed not later than 4 months after discharge.

1. Introduction

There are no clear guide lines in the treatment of perforated appendicitis associated with an inflammatory mass or a periappendiceal abscess without generalized peritonitis.

Some surgeons opt for a conservative treatment by means of an intravenous antibiotic therapy to solve acute abdomen [1–4] pain, planning a routinary interval appendectomy (IA) after some months. However, this approach is debatable since some authors suggest an immediate appendectomy regardless [3,4].

The ultrasonographic (US) evidence of appendicolith, associated with an increased risk of recurrent appendicitis [1–4], is, for some surgeons, the reason to suggest an immediate appendectomy. In contrast, others do not perform an IA even after an antibiotic therapy and do so only in case of recurrence [2–4].

The aim of this study is to offer some examples for the conservative treatment followed by IA and some for the immediate appendectomy in children with an associated periappendiceal abscess and to discuss our team's choice.

2. Case series

2.1. Patient 1: immediate appendectomy

This 5-year old girl showed the following symptoms: 5 days fever, abdominal pain and vomit. Leukocytes and PCR was 18×10^3 and 16 (mg/dl) respectively.

US showed a perforated appendicitis associated with an inflammatory mass.

We decided to perform an immediate video-assisted appendectomy through a subumbilical incision for the laparoscopic operative trocar insertion.

We found a subhepatic necrotic appendix surrounded by an abscess.

To dissect and extract the appendix, it was necessary to enlarge the subumbilical incision and create a second access in the left iliac fossa. Nasogastric tube (NT) and vesical catheter (VC) were placed. Surgery time was 165 min.

Oral feeding started on day 4. Hospital stay was 9 days.

She was treated with a triple antibiotic therapy (ampicillin/sulbactam 50 mg/kg every 8 h, metronidazole 10 mg/kg every 8 h, tobramycin 5 mg/kg in a single dose) for 9 days.

In the postoperative stage, an infection of the subumbilical wound was observed.

Abbreviations: CT, computed tomography; CVC, central catheter venous; IA, interval appendectomy; NT, naso-gastric tube; US, ultrasonography; VC, vesical catheter.

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http://dx.doi.org/10.1016/j.ijscr.2015.05.003

2.2. Patient 2: immediate appendectomy

This 4-year old girl reported having abdominal pain and fever for 3 days. Leukocytes and PCR was 24×10^3 and 20 mg/dl respectively.

US showed a thickening of the appendix with a pericecal effusion without a secure image of abscess.

An immediate video-assisted appendectomy was performed through a single enlarged subumbilical incision.

We found a necrotic appendix with an inflammatory mass involving the right tube and ovary.

The tube wall was very fragile and during the procedure a tubal lesion led to a partial tube removal. NT and VC were placed. Surgery time was 70 min.

Oral feeding started on day 3. Hospital stay was 10 days. Our standard triple antibiotic therapy was continued for 10 days.

In the postoperative stage, a subumbilical wound infection was observed.

2.3. Patient 3: immediate appendectomy

This 3-year old boy presented with a 3 day history of abdominal pain, vomit and high fever. Leukocytes and PCR was 22×10^3 and 22 mg/dl respectively.

The child had a sodium depletion (128 mEq/L).

US showed a perforated appendicitis associated with an inflammatory mass and pericecal and pelvic effusion.

We performed an immediate video-assisted appendectomy through a subumbilical incision.

We found a gangrenous appendix with an inflammatory mass involving the cecum, the last ileal loop and extending to the bladder.

Another 2 operative accesses (left iliac fossa and sovrapubic) were necessary to dissect and extract the appendix. NT, VC and central catheter venous (CVC) were placed. Surgery time was 100 min.

Oral feeding started on day 5. Hospital stay was 10 days. A preliminary standard triple antibiotic therapy was prescribed adding Vancomycin (10 mg/kg every 6 h) on the 3rd postoperative day to increase inflammatory markers. The antibiotic therapy was continued for a total of 10 days.

After discharge, US control showed a retro-bladder abscess image which required an additional 4 day intravenous antibiotic therapy.

2.4. Patient 4: conservative treatment followed by interval appendectomy

This 4-year old boy reported a history of abdominal pain and fever for 4 days.

Leukocytes and PCR was 8×10^3 and 16 mg/dl respectively. A thickening of the appendix with an abscess of 5–6 cm was seen at US and a rounded, hyperechoic image into the appendix referable to a coprolith was described (Fig. 1).

We decided for a conservative approach with standard triple intravenous antibiotic therapy for 5 days. At discharge, PCR was 0.68 mg/dl and US normal.

We planned an IA after 3 months. However, after 2 months, a new episode of moderate abdominal pain convinced us to put forward IA.

Video assisted appendectomy was done through a small single subumbilical incision and a hyperaemic appendix without abscess or adherence was found. No NT or VC were placed. Surgery time was 40 min.

A single shot intraoperative antibiotic therapy with ampicillin/sulbactam was prescribed. Oral feeding was started on day 1. The patient was discharged after 2 days. No postoperative complications were observed by the 5th month.

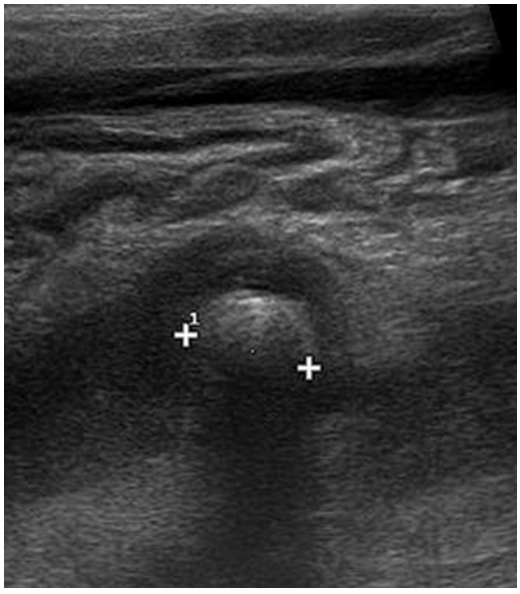

Fig. 1. Ultrasonographic rounded image into the appendix referable to a coprolith.

2.5. Patient 5: conservative treatment followed by interval appendectomy

This 7-year old girl presented with a history of abdominal pain, vomit and fever for 2 days.

Leukocytes and PCR was 15×10^3 and 19 mg/dl respectively. An abscess of 3 cm including the tip of the appendix and an intraluminal hyperechoic image (coprolith) were seen at US. A conservative approach with standard triple intravenous antibiotic therapy for 6 days was prescribed. At discharge PCR was 1.9 mg/dl and US normal.

We planned IA after 3 months. Video-assisted appendectomy was done with a small single subumbilical incision and an appendix without macroscopic signs of inflammation was removed. No NT or VC was placed. Surgery time was 45 min.

A single shot intraoperative antibiotic therapy was given. Oral feeding was started on day 1. The patient was discharged after 2 days without postoperative complications by the 6th month.

2.6. Patient 6: conservative treatment followed by interval appendectomy

This 12 year-old boy had a 2 day history of abdominal pain and fever. Leukocytes and PCR was 23×10^3 and 11 mg/dl respectively. At US, an abscess of 6 cm including the tip of the appendix with an hyperechoic image into the appendix referable to appendicolith was observed. A conservative approach with a standard triple intravenous antibiotic therapy for 5 days was given. At discharge, PCR was 1.4 mg/dl and US normal. We planned IA after 4 months. Video-assisted appendectomy was done with a small single subumbilical incision. An appendix without macroscopic signs of inflammation was found. No NT or VC were placed. Surgery time was 45 min. A single shot intraoperative antibiotic therapy was prescribed. Oral feeding started on day 1. The child went home after 2 days. No postoperative complications were observed by the 2nd month Table 1.

3. Discussion

Two common surgical dilemmas exist in the treatment of complicated appendicitis.

The first question is whether to proceed with an immediate appendectomy or to treat the patient with an initial intravenous antibiotic therapy followed by IA [1–5].