Portal pyaemia secondary to open haemorrhoidectomy: need for prophylactic broad spectrum antibiotics

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SUMMARY

A 70-year-old man presenting with long standing grade 3 Haemorrhoids, underwent open haemorrhoidectomy under spinal anaesthesia. The patient passed stools on subsequent day and there was no bleeding per rectum. On day 5, he complained of dull aching upper abdominal pain. On physical examination, the abdomen was soft and there was mild tenderness in the epigastric region. Subsequently, he developed high temperature with chills and rigors. His condition failed to improve and the abdominal pain increased in severity. There was no pain in the perianal region and per rectum examination was normal. Leucocyte count rose to $12 \times 10^9/L$ and there were toxic changes on peripheral smear. Blood culture grew *Staphylococcus aureus*. Liver enzymes were mildly elevated. Coagulation profile was deranged. Fibrin degradation products were positive. D-dimer was high. CT revealed acute thrombosis of left portal vein and microabscesses suggestive of portal pyaemia.

BACKGROUND

Open haemorrhoidectomy is a day care procedure in the modern surgical practice. Most of the patients are treated with a course of oral antibiotics to cover the Gram negative and anaerobic organisms. Portal pyaemia though rare is a life-threatening complication of this procedure. With the advent of CT most of these cases can be detected early and treated. If a patient persists to have abdominal pain and fever in the postoperative period following haemorrhoidectomy, portal pyaemia should be thought of.

CASE PRESENTATION

A 70-year-old man presenting with long-standing grade 3 haemorrhoids, underwent open haemorrhoidectomy under spinal anaesthesia. His comorbidities included diabetes mellitus and bronchial asthma and was controlled on medication. Intraoperative and immediate postoperative period was uneventful. Patient passed stools on subsequent day and there was no bleeding per rectum. He was prescribed oral metronidazole for 5 days and laxatives during the hospital stay.

On day 5, he complained of dull aching upper abdominal pain. On physical examination, the abdomen was soft and there was mild tenderness in the epigastric region. Subsequently, he developed high temperature with chills and rigors. His condition failed to improve and the abdominal pain increased in severity. Blood culture was taken and he was started on intravenous broad spectrum

antibiotics. There was no pain in the perianal region and per rectum examination was normal. Spiking fever persisted even after 3 days of antibiotics (figure 1). A CT scan of the abdomen was performed to rule deep seated pelvic abscess, which revealed portal pyaemia. He was managed in the intensive care unit with antibiotics and anticoagulation.

INVESTIGATIONS

His leucocyte count rose from $6.0 \times 10^9/L$ to $12 \times 10^9/L$ and there were toxic changes on peripheral smear. Blood culture grew *Staphylococcus aureus*. Liver enzymes were mildly elevated. Urine routine was normal. Amylase and lipase was normal. Chest X-ray was normal. Coagulation profile was deranged. Fibrin degradation products (FDP) were positive. D-dimer was high.

CT showed acute thrombosis of left portal vein and its radicles with extension of the thrombus into few radicles of right portal vein. Multiple predominantly non-enhancing hypodensities in both the lobes of liver more extensively in left lobe were seen suggestive of microabscesses secondary to portal pyaemia (figure 2) and normal enhancement of the bowel with no collection in the pelvis (figure 3).

TREATMENT

Patient was given 7-day course of intravenous antibiotics according to the blood culture report. A combination of piperacillin+tazobactam with metronidazole was started. Antithrombotic treatment with tablet acitrom (acenocoumarol) was given.

Figure 1 Fever chart showing daily spiking fever.

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Figure 2 CT scan portovenous phase showing dilated left branch of the portal vein with the thrombus and multiple microabscesses in the left lobe of liver.

OUTCOME AND FOLLOW-UP

Patient recovered after the course of antibiotics and is on regular follow-up. He is currently taking anticoagulation treatment with tablet acitrom.

DISCUSSION

Portal pyaemia, also known as suppurative pylephlebitis, is a condition involving collection of pus in the portal venous system due to inflammation. It results in a septic thrombosis of the portal vein, and may result in mortality as it progresses to sepsis.

The most common aetiology for portal pyaemia is intra-abdominal infection, such as diverticulitis and appendicitis, with the infection reaching the portal vein through direct extension.¹ It may, however, also be the result of ascending infection from the pelvic region in the form of embolisation from septic foci. Inflammatory bowel disease, intestinal obstruction, infected pancreatic necrosis and suppurative infections of biliary tree have all been described as possible aetiologies.² It has also been reported in non-infective cases such as rectal carcinoma.³ Our case involved a 65-year-old man who presented with abdominal pain after open haemorrhoidectomy. Infection tends to ascend through breaks in the rectal mucosa, and incidence of such post-operative infection has been reported in cases of stapler haemorrhoidectomy.⁴

Figure 3 CT scan showing normal uptake of the contrast by the bowel and no collection in the pelvis.

Portal pyaemia classically presents with upper abdominal pain, insidious in onset, gradually progressing, predominantly over epigastrium and right hypochondrium. Fever is a very common symptom, as is jaundice. Some cases may present dramatically with acute onset high-spiking fever, abdominal pain, confusion and even renal failure.⁵

The investigation of choice in such a case is CT of the abdomen. The most tell-tale sign of portal pyaemia is the presence of gas; however, it is not a specific finding. The presence of gas along with a portal thrombus is a known feature. Most probable cause is hypothesised to be due to breaks in the colonic mucosa with an invasion of gas forming organisms into the mesenteric and portal venous systems.⁶ It may be for this reason that flexible sigmoidoscopy has been listed as a cause in portal pylephlebitis.⁷

Blood cultures most often reveal a polymicrobial presence; *E coli*, *Klebsiella*, *Bacterioides*, *Proteus*, and *Enterobacter* being the most common.¹ This tends to support the hypothesis. In our case the blood culture grew *S aureus*.

Treatment is to be started as soon as clinical diagnosis is made. Antibiotics, fluid resuscitation and anticoagulation are the mainstay of therapy. This must be followed by surgical resection of the septic source—which may imply drainage of liver abscess or other local focus of infection.²

If the focus of infection is contained within a thrombus, the duration of antibiotic therapy must be lengthened.^{8,9}

Surgical intervention includes percutaneous drainage, and if that is not possible, or fails, laparotomy and washout is necessary.^{5,8}

Portal pyaemia itself has multiple complications which may include rupture into the liver causing liver abscess and empyema, as well as venous infarction of the bowel and portal hypertension (compression of the hepatic vein or inferior vena cava causing budd-chiari syndrome).^{5,9}

Learning points

- ▶ Portal pyaemia is the combination of infection and thrombosis within the portal vein.
- ▶ The most common aetiology for portal pyaemia is intra-abdominal infection.
- ▶ It classically presents with upper abdominal pain, fever and jaundice.
- ▶ The investigation of choice in such a case is CT of the abdomen.
- ▶ Antibiotics, fluid resuscitation and anticoagulation are the mainstay of therapy.

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Competing interests None.

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