
A Case Report: Gangrenous Sub-hepatic Appendicitis in Pregnancy

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1. Introduction

Acute appendicitis is the most common reason for surgical intervention during pregnancy with an annual incidence of 1 in 500 to 1 in 635 pregnancies per year [1]. However, Sub-hepatic appendicitis is a rare condition occurring in 0.08 percent of appendicitis cases according to some studies [2]. It takes this rare position due to the failure of descent of the cecum during the development of the embryo [3]. The differential diagnosis of Sub-hepatic appendicitis can include a hepatobiliary and/or gastric pathology. This position of sub-hepatic appendix can make the diagnosis of acute appendicitis more challenging than the usual right iliac fossa position.

Moreover, this can be complicated by sepsis, abscess, and rupture of appendix [2,4]. We present a case of a pregnant lady who presented herself with epigastric pain and central abdominal tenderness. The condition deteriorated remarkably, and patient developed sepsis secondary to gangrenous sub-hepatic appendicitis.

2. Case Presentation

A 27-year-old female at 21 weeks gestation, in her second pregnancy, presented with a one-day history of epigastric colicky pain with associated nausea and vomiting. There was no significant past medical or surgical history other than one previous spontaneous vaginal delivery. Her BMI was normal (20.4), blood group O Rhesus positive, rubella and varicella immune and serology was negative. On clinical examination, the patient was stable and had a central abdominal tenderness with no guarding or rebound tenderness. A bedside ultrasound showed foetal heart present with good foetal movement. Her initial blood tests were mildly disturbed: Hb 10.WCC 9.47, Neutrophils 8.08, CRP 2.8, Blood Urea 2.04, serum Creatinine 32 and normal liver functions. This patient was initially managed with IV fluids, analgesia and antiemetics.

Subsequently, the patient woke up with severe right sided abdominal pain and back pain. She was hypotensive BP 98/57 and had right iliac fossa tenderness with guarding and rebound tenderness. She became febrile. Subsequently, septic work up was completed, and the patient was started on IV antibiotics (Co- Amoxiclav). Furthermore, Ultrasound scan for her abdomen was performed and showed a trace of free fluid in Morrisons pouch and prominent renal collecting systems bilaterally with no other significant findings. Blood tests were repeated again and revealed more deterioration: Hb 9.5, WCC 0.9, Neutrophils 0.4, CRP 44.7 and Lactate 2.8. Clinically, patient deteriorated soon after the abdominal ultrasound and with hypotension (87/50). IV antibiotics were escalated (Cefotaxime, Metronidazole, Vancomycin, Stat Gentamicin, Ertapenem) and the patient was transferred to ICU for inotropic support.

She underwent emergency laparoscopy and appendectomy, where gangrenous sub-hepatic appendicitis was diagnosed and removed. There was no perforation or peritoneal contamination. The patient returned to ICU for continuous inotropic support and antimicrobials. The blood cultures grew *E-coli*, sensitive for Co- Amoxiclav, Tazocin, and Gentamicin. This patient clinically improved after 5 days in ICU and was discharged to the ward. She had an obstetrical scan at 21 weeks gestation which showed foetal heart, normal amniotic fluid and size equal to dates with estimated foetal weight of 372 g (31st centile). The patient had reassuring foetal monitoring throughout the admission and was discharged on oral Co-Amoxiclav and prophylactic Low Molecular Weight Heparin. She was followed up in 2 weeks at the antenatal clinic and for her anomaly scan and all was going well (FIG. 1 & 2).

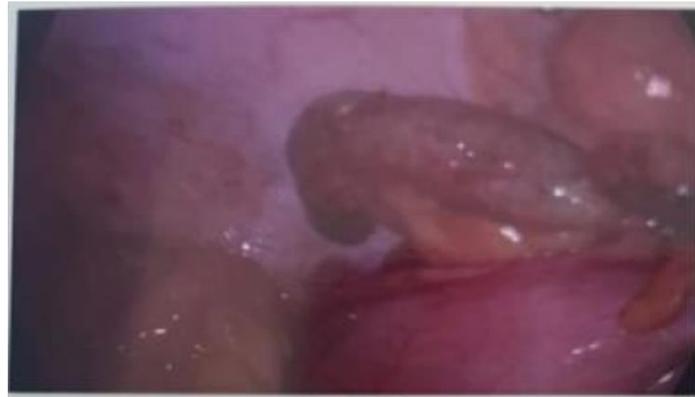


FIG.1. A gangrenous Subhepatic Appendix (before removal).



FIG. 2. Stitches at the site of a gangrenous appendix (after removal).

3. Discussion

In some studies, a bi-variable versus a multivariable analysis were suggested to predict the sub-hepatic appendicitis. The bi-variable analysis suggested (high C-reactive protein and total bilirubin), whereas the multivariable analysis suggested (total bilirubin and findings on CT scan (appendicolith and fat stranding around the appendix). These may need further research and study [5]. When the clinical presentation of a suspected acute appendicitis is not clear, imaging usually reduces the delay in surgical intervention. On the other hand, it can also reduce the possibility of negative appendectomy, although it can still happen [6]. Ultrasound is the first line screening tool as it is widely available and readily accessible in comparison to other imaging modalities [2,4]. However, sub-hepatic appendicitis can be difficult to diagnose in cases of liver abscess, cholecystitis and other hepatobiliary pathologies which may lead to appendices rupture [7]. CT scan has high sensitivity, specificity and accuracy of 100%, 95% and 98%, respectively, in diagnosing acute appendicitis, but it is less accessible and has a recognised radiation risk [8].

Complications of untreated appendicitis can be very severe. For example, perforation of the appendix, bleeding, damage to abdominal and/or pelvic organs, and postoperative peritoneal abscess. The perforation of appendix can be free perforation (with the possibility of dissemination of pus and faecal material into the abdominal cavity resulting in septicaemia) or contained “walled-off” perforation (which may need to be drained) [9]. In such circumstances, antibiotic coverage is of paramount importance for at least four to five days [10]. Gangrenous Appendicitis can safely be treated with aggressive antibiotics and laparoscopic removal of the appendix [11]. Laparoscopy is helpful not only in diagnosis, but also in treatment and removal of the appendix. Sometimes, conversion to open surgery may be needed specially in challenging cases and should not be classified as a failure [7].

4. Conclusion

Gangrenous Sub-hepatic appendicitis is a very rare condition. The main stays of treatment are aggressive antibiotics, as well as surgical removal. It requires a multidisciplinary approach to management for surgical Intervention and obstetrics follow up and input for optimal maternal foetal outcomes.

5. Conflict of Interest

Authors declare no conflict of interest.

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