CLINCAL CASE

POSTPARTUM ACUTE APPENDICITIS: HIGH INDEX OF SUSPICION AND PROMPT INTERVENTION

Muad Gamil M Haidar[1,2,3], Nuha Ahmed H Sharaf[2,3]

[1]Department of General Surgery and Endoscopy, Al-Gamhoria Teaching Hospital, Aden, Yemen
[2]Faculty of Medicine and Health Sciences, University of Aden, Aden, Yemen
[3]Al-Naqib Hospital, Aden, Yemen

Corresponding author: Muad Gamil M Haidar
E-mail: muadgamil29@gmail.com

Abstract

Postpartum sepsis is assumed to be related to pregnancy causes. Acute appendicitis should not be ignored, as it could be the most common non-obstetric cause of pelvic septic condition in females. Proper and early diagnosis of acute appendicitis in the postpartum period could reduce the morbidity rate. A 20-year-old female gravida 1 para 1, on 25th day postpartum, has presented with acute lower abdominal pain and fever commenced 5 days prior to admission and treated as postpartum sepsis. Her Hb was 9 mg/dl, WBC was 18.200. Late abdominal ultrasound evaluation showed acute appendicitis. Laparoscopic intervention revealed a suppurated acute appendicitis. Acute appendicitis is rarely reported in the postpartum period. Diagnosis is usually difficult due to atypical presentation, and the overlap of postpartum sepsis, along with the altered physiology. It demands qualified diagnostic work up. Laparoscopic intervention was considered ideal for accurate diagnosis and management. Acute appendicitis in the postpartum period could be the cause of refractory, non-obvious focus of sepsis with serious complications. The high index of suspicion and accurate follow up are mandatory for early detection. An early intervention could strongly reduce the rate of serious complications.

Keywords: *acute appendicitis, puerperal sepsis, postpartum, pregnancy, diagnosis*

Introduction

Acute appendicitis (AA) has a yearly incidence of 11/10,000 with a peak incidence of 23/10,000 between the ages of 10 and 20 years. Appendicitis is also a frequent disease in the elderly, accounting for 5% of all abdominal surgical emergencies [1].

Postpartum appendicitis is a very rare condition and only a few cases have been reported in literature [2].

Postpartum morbidity is the most difficult and commonly assumed to be associated with pregnancy or delivery; however, non-uro-gynecological factors are also a possible cause [2,3].

Accurate diagnosis of AA in young females remains a challenging problem because many diseases of pelvic organs mimic the symptoms of acute appendicitis especially in women of childbearing age [4].

We presented a case report of a Yemeni female, that had been treated as a case of postpartum sepsis (PPS), eventually on the postpartum 25th day the final diagnosis and treatment of AA was made after performing an

abdominal ultrasound (US) and a minimally invasive laparoscopic intervention.

Case presentation

A 20-year-old female patient gravida 1 para 1, on her 25th postpartum day of normal vaginal delivery presented with a history of diffuse abdominal pain associated with nausea, anorexia and general ache which started 5 days prior to admission. Initial evaluation revealed elevated WBC count, normal abdominal US (according to her gynecologist) and was diagnosed as PPS. Despite the given treatment, the patient did not record any improvement. Gradually, the pain intensity increased and became more confined to the lower abdomen.

On examination, she was pallor, febrile, not dyspneic, her blood pressure was 110/70 mmHg, pulse rate 100 beats/minute, and respiratory rate 14 breaths/minute. Her abdomen was mildly distended. There was right lower abdominal tenderness detected by deep palpation without any abdominal wall rigidity, and the bowel's sound was scanty.

Laboratory investigations showed elevated WBC count (18.000 /mm^3), and hemoglobin (Hb) was 9mg/dL.

Figure 1 – Laparoscopic separation and releasing of the appendix

The reevaluation of abdominal US after 5 days (the time of admission in our center) revealed acute appendicitis.

Patient underwent laparoscopic intervention that exposed acute suppurated appendicitis covered by omentum and mild free thick yellowish pus collection in the pelvic cavity (Figures 1, 2, and 3).

Laparoscopic appendectomy was done, and the abdomen was washed and cleaned with normal saline. The patient had an uneventful recovery period and was discharged on the third postoperative day.

Figure 2 – Suppurated acute appendicitis and the obvious post-partum uterus

Figure 3 – Laparoscopically removed appendix

Discussions

The female pelvic is the stage of many emergency events in which AA plays the major role and is considered to be the most frequent surgical emergency entity in this field. It differs in case of postpartum period, whereas the

incidence of PPS is much more frequent, and the incidence of AA is very rare and seldom reported.

The early diagnosis of AA in the postpartum period remains a dilemma for both obstetricians and surgeons due to several factors including the rarity of the disease, the atypical presentation, the deficiency of accurate diagnostic tools especially in places with a low health care system.

The weak abdominal wall defense along with altering in physiology can delay diagnosis and interfere with prompt management in proper time [5,6]. Where the usual signs and symptoms suggesting an AA in postpartum, can be misinterpreted as it can mimic and overlap other postpartum conditions [4,6].

The role of laboratory investigations in assisting the diagnosis of AA are not specific but rather suggestive. White blood cells can be elevated in any inflammatory condition as well as in AA [7].

The imaging diagnostic modalities like US and computed tomography (CT) scan are useful and imperative for supporting the diagnosis but it is not shown that they contribute in reducing mortalities [4].

Abdominal US is a useful, repeatable, noninvasive, and cost-effective imaging tool. Although US is frequently used to diagnose acute appendicitis, the accuracy of this imaging test remains unclear because of a great variability in the reported performance [8].

In our settings (in Aden/Yemen), usually we are suffering of a deficiency of sophisticated diagnostic devices and high skilled, experienced US operators. Thus, the frequency of inaccurate interpretation is considered high especially in early stages of the disease.

Computed tomography scans have shown better sensitivity 94% and specificity 95% for ruling out appendicitis. Therefore, performing a CT scan may rule out appendicitis but it would increase the healthcare costs [9]. In our situation, it is considered very expensive and not commonly accessible.

In both situations, during pregnancy or during delivery and early postpartum, diagnosis of AA could be very difficult, maternal mortality rises to 2.5% after uncomplicated appendicitis and up to 60% after supervening of peritonitis, so the explorative intervention is indicated as soon as possible [4].

Early diagnostic and interventional laparoscopy could be one of the recommended solutions in improving maternal outcome [4,10].

Conclusion

Postpartum AA is considered rare and can lead to serious complications if not detected and treated early. Its diagnosis is challenging. The high index of suspicion and the close accurate clinical follow up along with repetitive imaging study are required for early detection of the disease. Early intervention could strongly reduce the rate of morbidity. Laparoscopic intervention has become the preferable procedure in the diagnosis and treatment of AA and of many female pelvic surgical emergencies.

References

[1] F Zingone, AA Sultan, DJ Humes , J West. Risk of acute appendicitis in and around pregnancy: a population-based cohort study from England. Annals of surgery. 2015 Feb 1;261(2):332-7.

[2] N Peker, G Seckin, T İpek. Postpartum acute appendicitis. GMJ 2018; 29: 352-353

[3] N Abbasi, V Patenaude, HA Abenhaim. Management and outcomes of acute appendicitis in pregnancy—population-based study of over 7000 cases. BJOG: An International Journal of Obstetrics & Gynaecology. 2014 Nov;121(12):1509-14.

[4] I Kuvačić, S Škrablin, B Župančić, H Lovrić. Appendicitis in the early puerperium: case report. journal for gynaecology, perinatology, reproductive medicine, and ultrasonic diagnostics. 2003 Sep 1;12(3):130-2.

[5] M Mastilović, Z Stojanović, D Vukmirović, M Tucaković, P Dević. Acute appendicitis in pregnancy, labour, and puerperium. Jugosl Ginekol Opstet. 1982 May-Aug;22(3-4):82-4.

[6] D Wadhawan, S Singhal, N Sarda, R Arora. Appendicitis in postpartum period: A diagnostic challenge. Journal of clinical and diagnostic research: JCDR. 2015 Oct;9(10): QD10.

[7] SW Irvine, RS Devereaux, HE Wang. Postpartum appendicitis manifesting as umbilical purulence. The American Journal of Emergency Medicine. 2010 Feb 1;28(2):262-e1.

[8] F Pinto, A Pinto, A Russo, F Coppolino, R Bracale, P Fonio, L Macarini, M Giganti. Accuracy of ultrasonography in the diagnosis of acute appendicitis in adult patients: review of the literature. Critical ultrasound journal. 2013 Dec;5(1):1-3.

[9] MA El-Horbity, MA El-Naggar, MA Zaitoun, HA Tabl. Evolution of multislice-CT compared with Ultrasound Abdomen and Pelvisin Diagnosis of Acute abdomen in Female of reproductive Age. J Univer Surg. (2020) Vol.8 No.2:3

[10] N Bērza, I Vēvere, E Lapšāne, I Plužņikova, I Leitāne, I Ramane. Case report: appendicitis in early post delivery period. European Journal of Obstetrics and Gynecology and Reproductive Biology. 2016 Nov 1;206: e16.