A Case of Post-Partum Afebrile Perforated Appendicitis, a Diagnostic Dilemma

Arindam Halder [1], Tulika Jha [1], Raja Basak[1], Samir Roy [1], Dattatreya Mukherjee[1], and Aymar Akilimali[2]

[1]West Bengal University of Health Sciences
[2]Medical Research Circle

August 24, 2024

Introduction:

Bowel perforation needs an urgent clinical intervention and it significantly increase the mortality in the patients. Bowel perforation is rarely seen in post-partum mother. **(1)** Bowel perforation after a normal vaginal delivery (NVD) is rarer than a Caesarean section (C-section). **(1)**

Appendicitis can be operated during pregnancy but post-partum appendicitis is very rare. **(2)** In perforated appendicitis, "gas under diaphragm" in plain radiograph is also a very rare incident. **(3).** Post partum perforated appendicitis is also rarely reported. The most common differential diagnosis are peptic perforation and bowel perforation. Other differential diagnosis are Meckel's diverticulitis, Ischemic colitis, bowel obstruction, cholecystitis, Fitz Hugh Curtis syndrome, round ligament syndrome, pelvis thrombophlebitis, torsion of adnexal structures etc.

From early 1900, surgeon's are publishing papers related to appendicitis during pregnancy, so currently surgeons are well aware of the diagnosis and management of the appendicitis during pregnancy. Babler had published a paper related to this in 1908. **(4)** Harris J Timerman had published a paper in 1942, presenting two cases of post-partum appendicitis. **(5).**

So, here we are presenting a very rare case of post-partum perforated appendicitis, a diagnostic dilemma. The abdominal pain and tenderness can be misinterpreted as labour pain and the septic peritonitis can lead to a preterm labour and preterm delivery. **(6)**

Highlights:

1. Post-partum Bowel perforation and Post Partum appendicitis are rare
2. "Gas under diaphragm" due to perforate appendix is also rare
3. Perforated Appendicitis in post-partum period is also rare

Case Report:

Case History/ Examination: A previously healthy 34 years old female with no previous history of surgery, P1+0 had admitted at department of obstetrics and gynaecology of Raiganj Govt Medical College and Hospital with severe abdominal pain. Over abdominal examination, patient had a severe abdominal tenderness and os was opened. The vitals and the body temperature were in normal limit and no history of fever was given. No history of recent vomiting was present. There was a diagnostic dilemma, but as os was opened, so the patient was taken to labour room. Her ante-partum period was uncomplicated without any history of pre-eclampsia or pregnancy induced hypertension. She gave birth of very low birth weight child through vaginally at 22 weeks. At day 0, after the delivery, suddenly the condition of the mother

had been deteriorated and the patient was shifted to Critical Care Unit (CCU) where she found to have hypokalaemia and shortness of breath. Eventually the potassium level was corrected. Still the abdominal pain and tenderness persisted.

Methodology: A straight X ray of the abdomen was suggested. There "gas under diaphragm" was found. (Fig 1) Ultrasound report had shown a 15*7.6 cm collection with inter echogenic foci at lower abdomen and pelvis. CT report had shown pneumoperitoneum. (Fig2)

Conclusion and Result: Emergency laparotomy was done under general anaesthesia. This was a case of appendicular perforation at the base of the appendix with huge collection of pus (approximately 4 Litre). Appendectomy was done and the base of the caecum was repaired. A drain was given which was removed at post operative day 6. So that, the septic peritonitis had led to preterm labour and preterm birth.

Post Operative recovery was uneventful. Flatus was passed within 48 hours of the operation. Semisolid diet was given on post operative day (POD) 3 and patient got discharged in POD 8. This case has been managed with a collaborative approach of Department of Obstetrics and Gynaecology and Department of Surgery of Raiganj Govt Medical College and Hospital, India

Discussion:

In 1932, Baer has shown the change in position of appendix during the pregnancy. **(7)** The chance of infections and followed by perforations can be increased due to this upward movement of appendix during the pregnancy. In cases of appendicitis, fever is a key symptom but in our case, fever was not there in the history of the patient.

An England based cohort study has mentioned, "pregnant women during the antepartum period were 35% less likely to be diagnosed with acute appendicitis than the time outside pregnancy, with the lowest risk reported during the third trimester." **(8)** The paper also mentioned, "we found no increased risk of acute appendicitis in the postpartum period compared with the time outside pregnancy among women aged 15 and 34 years. However, the risk increased by almost 2-fold in older women during the later postpartum. " **(8)** So, it is important to rule out appendicitis in the antepartum period and surgeons should be very cautious with the older women because the chance of appendicitis is increasing with age.

E Moltubak et al has shown an increase in appendicitis cases during the peripartum and puerperium phases and there is a decrease in the incidence in the third trimester. **(9).** There is a high chance, in our case the perforation of the appendix has happened at 3rd Trimester and the septic peritonitis has induced the labour.

Acute appendicitis during pregnancy has an incidence rate of 0.4 to 1.4 per 1000 pregnancies. **(10).** Hospital incidence rate of acute appendicitis in pregnancy was 0.09%. **(11)** So, this needs an urgent diagnosis and intervention. This can also lead to poor neonatal outcome and high maternal mortality rate. Very few literature has described appendicitis after delivery.

Incident of Appendicitis is rare during the post-partum period. An early diagnosis is always important. In antenatal visit, ultrasound of whole abdomen is also necessary along with FPP mode to rule out any abdominal pathologies. Although, bowel perforation, bowel obstruction, appendicitis are rare cases in pregnancy, but proper screening is important mostly in older females (more than 30 years). Surgery is always recommended as soon as the diagnosis has been made.

Figures:

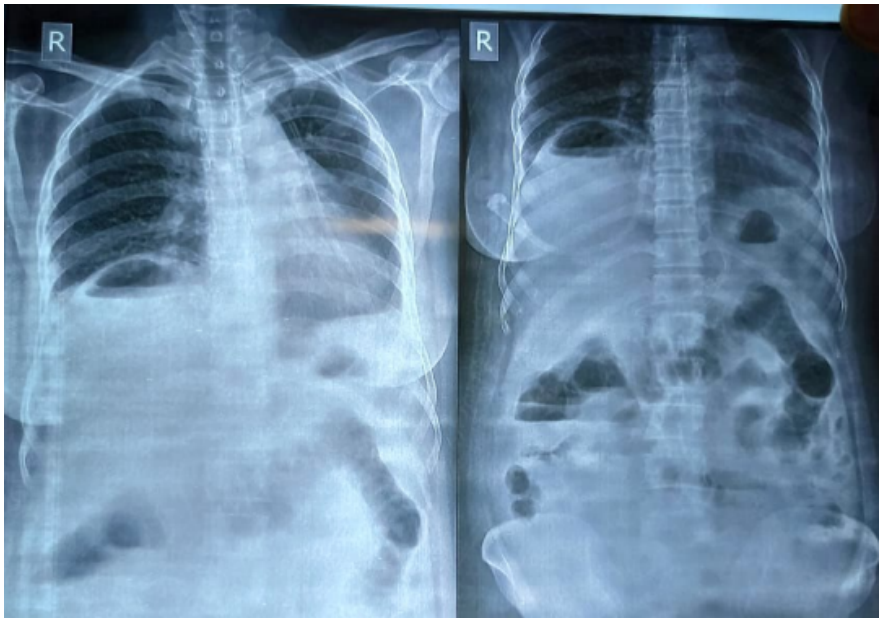
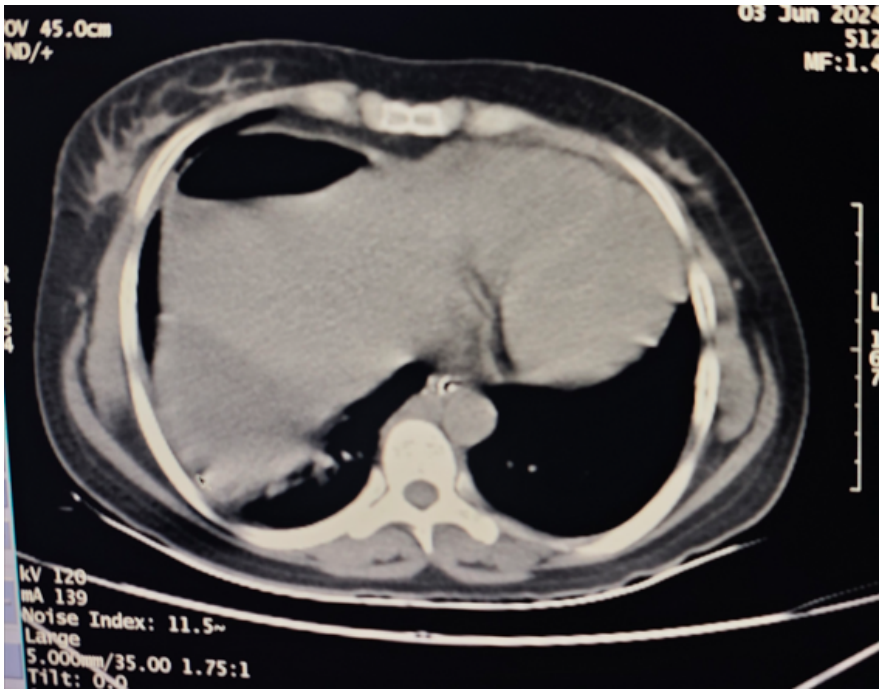


Fig 1: "Gas under Diaphragm" noted in the Straight Abdomen Xray



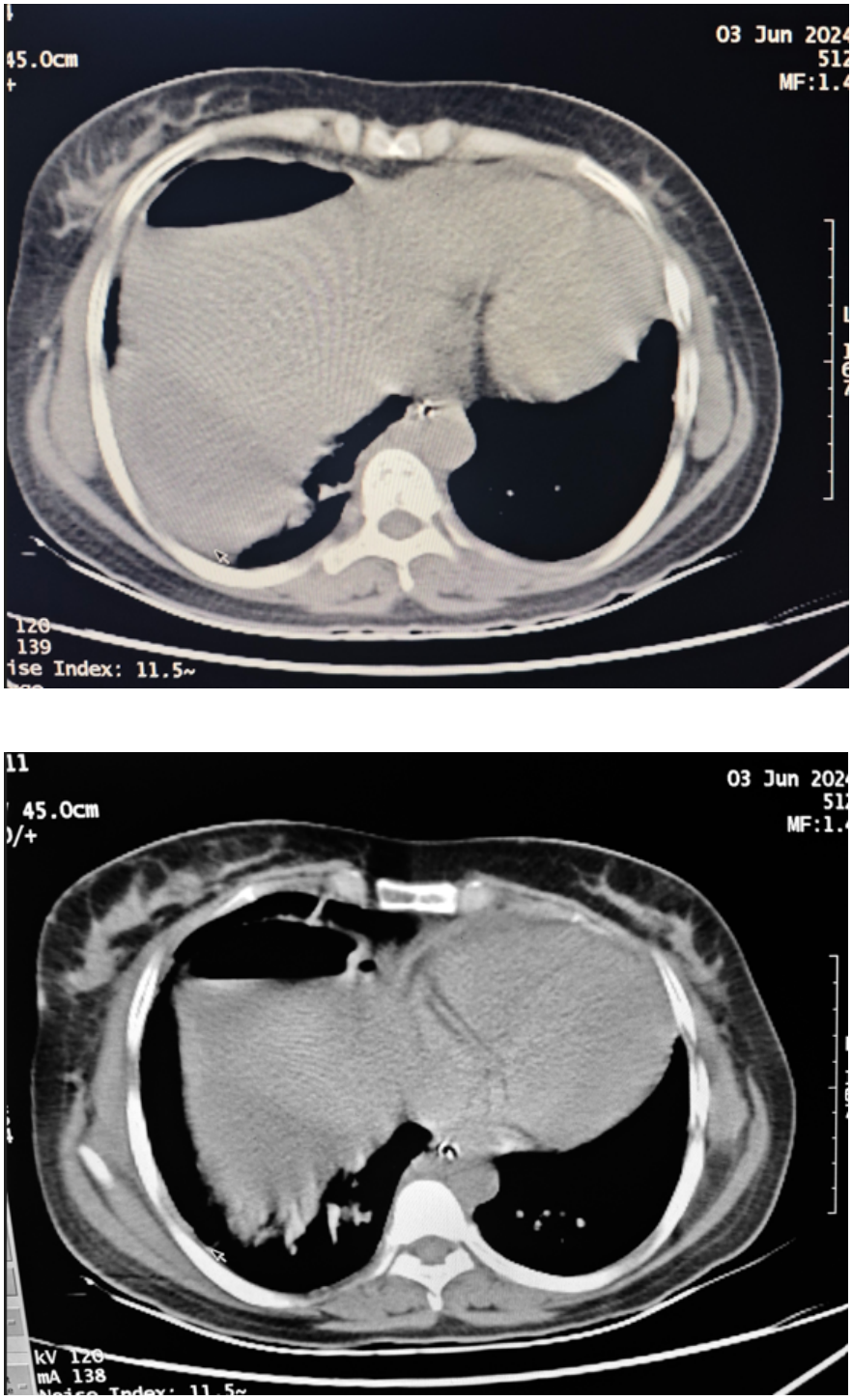


Fig2: CT of the patient showing pneumoperitoneum

References:

1. Laffoon AN, Knijnikov A. Postpartum bowel perforation after normal vaginal delivery without history of inflammatory bowel disease. ACS Case Rev Surg. 2017;1:27-30.

2. Wadhawan D, Singhal S, Sarda N, Arora R. Appendicitis in Postpartum Period: A Diagnostic Challenge. J Clin Diagn Res. 2015 Oct;9(10):QD10-1. doi: 10.7860/JCDR/2015/11970.6642. Epub 2015 Oct 1. PMID: 26557575; PMCID: PMC4625294.
3. ALI AA, NAWAZ A, GUL S, KHAN I, PARVEEN S, MUSADIQ M. The Utility of Gas Under Diaphragm on Radiograph in Patients with Perforated Appendix: A Prospective Observational Study from a Tertiary Care Centre. P J M H S Vol. 15, NO. 3, MARCH 2021, 1202-1204
4. BABLER, E. A. Perforative appendicitis complicating pregnancy. J. A. M.A., 51: 1310, 1908.
5. Timerman, H. J. (1942). *Postpartum appendicitis. The American Journal of Surgery, 55(1), 138–140.* doi:10.1016/s0002-9610(42)90230-7
6. Zachariah SK, Fenn M, Jacob K, Arthungal SA, Zachariah SA. Management of acute abdomen in pregnancy: current perspectives. Int J Womens Health. 2019 Feb 8;11:119-134. doi: 10.2147/IJWH.S151501. PMID: 30804686; PMCID: PMC6371947.
7. BAER JL, REIS RA, ARENS RA. APPENDICITIS IN PREGNANCY: WITH CHANGES IN POSITION AND AXIS OF THE NORMAL APPENDIX IN PREGNANCY. *JAMA.* 1932;98(16):1359–1364. doi:10.1001/jama.1932.02730420017007
8. Zingone F, Sultan AA, Humes DJ, West J. Risk of acute appendicitis in and around pregnancy: a population-based cohort study from England. Ann Surg. 2015 Feb;261(2):332-7. doi: 10.1097/SLA.0000000000000780. PMID: 24950289.
9. Moltubak E, Landerholm K, Blomberg M, Redéen S, Andersson RE. Major Variation in the Incidence of Appendicitis Before, During and After Pregnancy: A Population-Based Cohort Study. World J Surg. 2020 Aug;44(8):2601-2608. doi: 10.1007/s00268-020-05524-z. PMID: 32328784.
10. Bērza N, Vēvere I, Lapšāne E, Plužņikova I, Leitāne I, Ramane I. Case report: appendicitis in early post delivery period. European Journal of Obstetrics and Gynecology and Reproductive Biology. 2016 Nov 1;206:e16.
11. Al-Mulhim AA. Acute appendicitis in pregnancy. A review of 52 cases. Int Surg. 1996 Jul-Sep;81(3):295-7. PMID: 9028994.

Hosted file

`Figuress of NVD Perforation.docx` available at https://authorea.com/users/817596/articles/1217835-a-case-of-post-partum-afebrile-perforated-appendicitis-a-diagnostic-dilemma