

## A case study – open appendectomy (Surgical emergency) in pregnant women

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### ABSTRACT:

Appendicitis is the most frequently encountered extra-uterine disease requiring surgical treatment during pregnancy. The incidence is approximately 1 in 2000 pregnancies. Acute appendicitis can occur at any time during pregnancy, but is more frequent during the first two trimesters. As fetal gestation progresses, the diagnosis of appendicitis becomes more difficult as the appendix is displaced laterally and superiorly. Nausea and vomiting after the first trimester or new-onset nausea and vomiting should raise the consideration of appendicitis. Abdominal pain and tenderness will be present, although rebound and guarding are less frequent because of laxity of the abdominal wall. Elevation of the white blood cell count above the normal pregnancy levels of 15,000 to 20,000/ $\mu$ L, with a predominance of poly- morphonuclear cells, is usually present. When the diagnosis is in doubt, abdominal ultrasound may be beneficial. Laparoscopy may be indicated in equivocal cases, especially early in pregnancy. The performance of any operation during pregnancy carries a risk of premature labor of 10 to 15%, and the risk is similar for both negative laparotomy and appendectomy for simple appendicitis. The most significant factor associated with both fetal and maternal death is appendiceal perforation. Fetal mortality increases from 3 to 5% in early appendicitis to 20% with perforation. The suspicion of appendicitis during pregnancy should prompt rapid diagnosis and surgical intervention.

A 19yr female patient with LMP-04.01.22 Amenorrhoea- 15 weeks & 6 days. Was diagnosed with Pregnancywith Appendicitis. Successful Surgical intervention (open Apppendectomy) was done with no harm to foetus due to personal problem patient took D.A.M.A and later in due course her Abortion took place.

### I. INTRODUCTION :

Acute appendicitis during pregnancy is one of the most frequent non-gynecological and

non-obstetric pathology requiring emergency intervention.[1, 2] Its incidence rate during pregnancy has been reported between 1:1000 and 1:1500.[1-3] Moreover, it is a condition that may complicate the pregnancy period. Acute appendicitis in pregnancy has a variable and non-specific clinical presentation. Pregnancy-related localization change of vermiform appendix is according to the gestational age may mask or change the symptoms and physical examination findings with a remarkable risk of delay in diagnosis.[4, 5] Besides the ordinary complications of appendicitis, additional co-morbidities for mother and fetus in these patients should also be kept in mind.[1-5]

Perforation and other forms of complicated acute appendicitis are more frequently seen in pregnant women than those in the normal population.[6, 7] While the fetal loss rate is 1.5% in uncomplicated patients, this may rise up to 36% in cases with perforation.[1, 8] Therefore, early diagnosis and treatment are quite important in terms of avoiding both maternal and fetal morbidity and mortality. The present study aims to investigate the diagnosis, treatment and outcomes of acute appendicitis in pregnant patients to show its impact on both the mother and the fetus, which may help clinicians determine a diagnostic and surgical strategy.

According to the most favoured theory, appendicitis is caused by mechanical obstruction of the appendix lumen, either because of faecal stasis, kinking, peritoneal adhesions or infection-induced swelling of the mural lymphoid tissue. Other possible mechanisms include a breakdown of the mucosal barrier in the appendix by the direct invasion of a pathogen, or by an inflammatory response that has been triggered by an infectious agent or some other stimulus. Geographical differences in the incidence of appendicitis and secular trends have been related to differences and changes in dietary intake of fibre and in standards of hygiene.<sup>(9,10)</sup>

Acute Appendicitis may occur at all ages, but is most commonly seen in the second and third decades of life. The incidence of surgical illness is the same in pregnant women as in non pregnant women of the same age group.

Pregnancy may alter or mask the signs and symptoms of the disease. The fetus must be considered in planning a surgical procedure.

Pregnancy may modify the timing of a semi selective operation or the surgical approach of an emergency abdominal procedure. Purely elective surgery should be deferred until the postpartum period. Any major operation represents a risk not only to the mother but to the fetus as well. During the first trimester, congenital anomalies may be induced in the developing fetus by hypoxia, if surgery does become necessary the greatest precaution must be taken to prevent hypoxia and hypotension.

The second trimester is usually the optimum time for operative procedures.

12% of women require incidental surgery during pregnancy Surgery associated with increased fetal loss & premature delivery. All elective procedures should be done 6 weeks post partum.

Avoid surgery during embryogenesis 15 days to 55 days

Ideal time to operate is in II trimester

## II. CASE PRESENTATION:

A 19 year female patient arrived in casualty with c/o pain in abdomen since 1 week, nausea (on & off), vomiting 1 episode on arrival. No any known co-morbidity noted. No any Surgical history. No any Habitual history. No any specific known allergy noted. No any specific family history noted. No any history of weight loss noted. With LMP 04/01/2022. On general examination per abdomen shows tenderness on right iliac fossa. Bowel sound present on all four quadrant. Urine and stool was passed. Per rectal examination does not show any deformity. Digital examination shows rectum empty and free mucosa. Observation on examination shows BP-110/60 mmHg, pulse-84/min, temp-98.5 F. Systemic examination CVS-S1 S2 sinus tachycardia, R.S. - B/L clear air entry, C.N.S- conscious and oriented, R.R-20/min, pupils-B/L reactive to light, Nails-NAD, conjunctiva -NAD, tongue-Moist.

Patient was admitted and routine investigation was done. Lab reports shows Hb-9.7 g/dl, WBC-8,800, platelet-3,12,000, BUL-33.5 mg/dl, Sr. Creatinine-0.50mg/dl, B.T-1.10min,

C.T- 5 min, I.N.R-1.10, HIV-Non reactive , HbsAg- Negative, urine routine- pus cell 2-3/hpf epithelial cell- 1-2/hpf rest within normal limits. ECG - WNL, Chest X-ray not done. USG (abd-pelvis)- There is a large appendicolith in the base of the appendix just below the origin of the appendix from the caecum. The wall around the appendicolith is not visualized. The distal appendix shows submucosal edema with wall thickening. There is a large almost 3.5x 2.1 cm size hypoechoic inflammatory collection in the right iliac fossa adjacent to the appendix? There is significant inflammation of the adjacent mesentery and soft tissue planes. There are features of small bowel ileus. Findings suggestive of acute perforated appendicitis with large inflammatory/ infected collection.

USG Obs : LMP-04.01.22 Amenorrhoea- 15 weeks & 6 days. EDD-11.10.22

A single live foetus is seen in breech presentation at present. The amniotic fluid is adequate. The fetal heart activity and movements are noted. No obvious foetal anomalies are seen in present fetal age & position. Funneling of internal os is noted, OS diameter is 12mm. Cervical length is 29mm. The placenta is anterior.

Foetal Biometry

B.P.D. - 4.6cms.

H.C. - 16.6cms.

A.C. - 13.9cms.

Femur length - 3.1cms.

Gestational age- 19 weeks & 4 days. +/- 1 week.

Foetal weight- 296 gms +/- 10%.

A single live foetus is seen in breech presentation at

19 Weeks & 4 days. +/- 1 week.

As per the clinical findings and investigations appendicitis diagnosis was done. Pre operative lab and fitness was done. I/V antibiotics, Analgesic, Antacids, Anti emetics and fluid was started. Open Appendectomy was done through mcBurney's incision approx size 6cm in length, appendix appears inflamed and edematous with approx diameter 18mm and length 12cm. No any specific event noted intra operative. Appendix, Lymph Node and Omentum sample sent for HPE. Pus sent for C/S.

Report shows

**HPE Mesenteric Lymph Node :**

Excised mesenteric lymph node -

- Consistent with reactive lymphadenitis.

- Atypical lymphoid cells or RS like cells are not seen

- Granulomas are not seen.
- No evidence of malignancy.

**HPE appendix :** Excised appendix

Acute-on-chronic appendicitis.

- Features of peritonitis.
- Granulomas are not seen.
- No evidence of malignancy.

**HPE omentum :**

: Excised omentum -

Acute non-specific panniculitis.

- Consistent with peritonitis.
- Granulomas are not seen.
- No evidence of malignancy.

### III. CONCLUSION :

Surgical Intervention are successful if the decision are take on time. In the above case successful open appendectomy was done. Then the patient was also advised with O.S. Tightening which the patient didn't do due to her personal and financial issues. With reference to her reports medications were given. In later course of time the patient underwent Abortion at Govt. Medical Hospital

### IV. DISCUSSION :

There is a paucity of data on acute appendicitis in pregnant patients from developing nations. Most of the previous studies stated that acute appendicitis presents atypically during pregnancy [11] and deserves an aggressive operative approach to prevent perforation and increased risk of poor outcomes [12]. However, recent upgrade in the precision of diagnostic radiological modalities and the effectiveness of antibiotic treatment has made the old approach questionable.

Several studies have reported the prevalence of acute appendicitis in pregnant population to be 0.06% to 0.28% [13,14]. We found the incidence 1/800 (0.12%) of acute appendicitis during pregnancy which was comparable with other studies. Similar to what has been reported in the literature, most of our patients were in the second trimester [15]. However, Davoodabadi et al. [16] found that the incidence of acute appendicitis during pregnancy was high during the third trimester. The second trimester is considered as the most appropriate time for appendectomy and this period has the lowest risk for fetus from operation and anesthesia. Though the first trimester is the best time with respect to ease

of operation, this time may be risky for the fetus. The third trimester is considered as the poorest time with respect to operative comfort and hazards of preterm birth. The median age of 26 years, in our study, is lower than that reported by some other studies [17, 18]. This could be due to an early marriage and early childbearing age in our part of the world as compared to the developed countries.

The clinical approach to pregnant patients with suspicion of acute appendicitis is still controversial and variable. The incidence is presented as similar to or less than that of the usual population. Acute appendicitis in pregnant women is more frequently seen between the ages of 20 and 30.[19, 20, 21]. It may occur at any trimester during pregnancy. Studies argue that it is seen the most frequently in the different trimesters.[25, 19, 26]

The most important problem for pregnant patients who admitted to the emergency department is the wide spectrum of differential diagnosis. Non-specific symptoms, such as nausea, vomiting, lower abdominal or inguinal pain, which can be seen in the nature of pregnancy consist of the large part of the patients at the time of admission.[19, 27, 21,22] The anatomical changes caused by the pregnancy play a role both in masking the clinical picture and decreasing the diagnostic sensitivity of the physical examination. The growth of uterus, by pushing the appendix, may cause a deviation in its normal axis.[25, 19, 26, 23,24] The distance between the appendix and anterior abdominal wall grows bigger ending up with a reduction in abdominal wall sensitivity and defense.[19, 26] Thus, it becomes challenging to make the diagnosis over the symptoms and clinical picture in pregnant patients.

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