

Appendicitis during pregnancy - Outcomes from a New South Wales rural referral hospital



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Introduction:

Appendicitis is the most common general surgical problem in pregnancy¹. Appendicitis is a clinical diagnosis and should be strongly suspected with classical findings; migratory abdominal pain, nausea/vomiting, fever, and leucocytosis with left shift. However, the physiological symptoms of pregnancy, and the gravid uterus, may distort and confuse the clinical picture. Leucocytosis may also be a normal finding in pregnancy.

“Non-classical” appendicitis presentations should be investigated with ultrasound (USS), however, USS can be inconclusive for appendicitis in anywhere from 60-90%² of cases in pregnancy. The use of second line MRI is thus recommended if the diagnosis remains uncertain². When imaging is unavailable or inconclusive diagnostic laparoscopy may be considered².

Laparoscopic appendectomy is the preferred treatment for acute appendicitis during pregnancy². Non-operative management with antibiotics is associated with higher rates of peritonitis, fetal demise and venous-thromboembolism². The association with increased risk of preterm birth (both spontaneous and planned)³ with appendectomy is also established, but is low overall³.

Results:

Table 1. Management of acute appendicitis by trimester of presentation

| | Trimester of Presentation or Treatment: | | | | |
|------------------|---|-----------------|-----------------|-----------------|-----------|
| | First | Second | Third | Postpartum | Total (%) |
| Non-operative | 2 | 3 | 0 | 0 | 5 (31.3) |
| Laparoscopic | 2 | 1 | 0 | 2 | 5 (31.3) |
| Laparotomy | 3 | 1 | 2 | 0 | 6 (37.5) |
| Total (%) | 7 (43.8) | 5 (31.3) | 2 (12.5) | 2 (12.5) | 16 |

Sixteen patients were included with a mean age of 26.9 years and BMI of 28.7. The median time to USS was 4.5 hours and 73.3% of USS examinations were inconclusive. MRI was not used in any cases. Eleven patients (68.8%) were managed surgically with median time to surgery of 34 hours. Laparotomy was performed in 54.5% of surgical cases. Perforation was confirmed in 6 surgical cases and the negative appendectomy rate was 0%. Five patients (31.3%) were managed medically and 2 of these cases were complicated by reoccurrence of appendicitis requiring admission and repeat antibiotics.

Pregnancy outcomes included one termination, 10 term and 3 preterm deliveries. There were no miscarriages. The perinatal mortality included 3 cases as summarised in Table 2. Maternal morbidity included one intensive care admission, one transfer and one readmission with wound dehiscence.

Discussion:

The lack of use of available second line MRI, use of non-operative management and delay to theatre may be impacting on the outcomes at this rural centre. All perinatal mortality occurred with first trimester appendicitis. Case 1 had a bicornate uterus with previous live births, and hence the impact of the uterine abnormality seems unclear. Case 2 and 3 had fetal pathology that likely explain poor outcomes. Previous studies have not found significant associations with appendicitis and fetal birth defects⁴. Appendicitis in pregnancy remains a diagnostic challenge associated with high morbidity and mortality. It is essential that management is in line with current recommendations to optimise maternal and fetal outcomes.

Methods:

A case series of 16 patients who presented to a rural referral hospital over a five year period (2013-2018) and were diagnosed with appendicitis during pregnancy or the puerperium. Cases were identified by searching for pregnancy/delivery codes and appendicitis-related codes.

Table 2. Case Summary - perinatal mortality

| | Case 1 | Case 2 | Case 3 |
|----------------------------|---------------------------------|---|--|
| Perinatal mortality | Fetal demise - 27+2 | Termination at 28+3 for severe IUGR, ventriculomegaly | Born 36+2, Neonatal Death - D5; Lissencephaly, IUGR |
| Appendicitis Mx | Laparoscopic Mx 6/40 | Laparoscopic Mx 10/40 | Medical Mx 9/40 |
| Complications | Peritonism, gangrenous appendix | Adherence to and early erosion of terminal ileum | Reoccurrence of abdominal pain at 12+2 |
| Other history | G6P2 M3 Bicornate uterus | G3P2 | G4P3 ⁻¹ (Previous lissencephaly + NND 4/52) |

References:

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