

Research Article

Appendicitis in pregnancy: management

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Received: 28 January 2014

Accepted: 2 February 2014

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ABSTRACT

Background: Acute appendicitis is an infrequent, yet one of the commonest surgical emergency encountered in pregnancy. Recorded incidence is about 1:1500 pregnancies. The aim of this study was to determine the risk factors associated with prenatal outcome in acute appendicitis during second and third trimester pregnancies. Open access surgery was done due to non-availability of laparoscopy.

Methods: A total of 10 pregnant women who were diagnosed with acute appendicitis between Jan 2011 to Jan 2013 were presented and 7 of them operated by open access surgery.

Results: Seven pregnant women who were diagnosed with acute appendicitis were operated upon during late pregnancy. The interval between symptom onset and surgery was the only predictive variable. A longer interval between symptom onset and surgery was associated with appendix perforation than with no appendix perforation. There was a significant difference in the rate of preterm labor (5.1% vs. 1.3%) and the rate of fetal mortality (25% vs. 1.7%) between patients with and without a perforated appendix.

Conclusion: Delaying surgery correlates to more advanced disease with an increased risk of perforation. This contributes to an increased risk of further complications, including premature labor or abortion, and to higher maternal complication rates. Prompt diagnosis may improve the prenatal outcome.

Keywords: Pregnancy, Appendicitis, Laparotomy

INTRODUCTION

Appendicitis is one of the most common surgical problem in pregnancy, but it does not occur more often in pregnant women than in non-pregnant women. The incidence is 0.1%-0.2%,¹ and is approximately the same in all three trimesters. Of all surgical problems during pregnancy, appendicitis causes the greatest incidence of fetal loss.³ The particular dangers of appendicitis in pregnancy lie in the varied presentation of symptoms and the higher chance of delayed diagnosis. The outcome may be improved if prompt diagnosis is made, and surgical intervention combined with obstetric care is

performed at an early stage of the disease.⁴ Furthermore, increasing gestational age reduces diagnostic accuracy and is associated with increased rates of appendiceal perforation and hence complications.

Appendectomy can be performed either by laparoscopic or open access surgery.

Open appendectomy is done as our hospital is not equipped with laparoscopic set up just like any other rural hospital. In laparotomy we can give good operative procedure under direct vision and post-operative complications can be tackled.

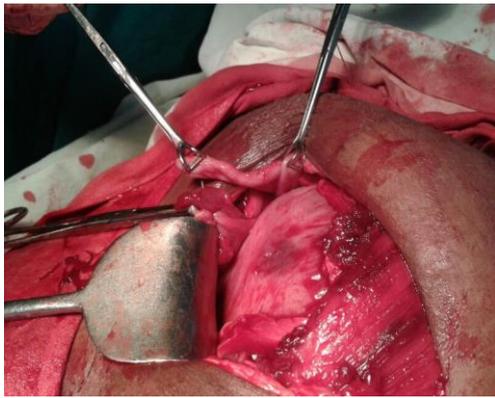


Figure 1: Showing inflamed appendix in pregnant woman.

Here in this study we have taken 10 symptomatic patients for appendectomy over a time span of 1 year from Jan 2011 to Jan 2013.

METHODS

This was a retrospective single-center study that presented a descriptive analysis of the results. The study population consisted of 10 pregnant women out of which 7 pregnant women underwent operation after the diagnosis of appendicitis and 3 were treated conservatively. All the 3 patients were diagnosed as appendicitis in first trimester at the department of general surgery, McGann Hospital, Shimoga. Between Jan 2011 to Jan 2013. The following data were analysed: age, gestational age, signs and symptoms on presentation, duration of symptoms, physical findings, laboratory parameters, ultrasonography, diagnostic modalities, duration of time to operation from admission, surgical findings, histological diagnosis, maternal morbidity and maternal and fetal mortality.

Gestational age at the time of diagnosis was first trimester in 3 patients and second and third trimester in 7 patients. All operated 7 patients had pathologically proven appendicitis.

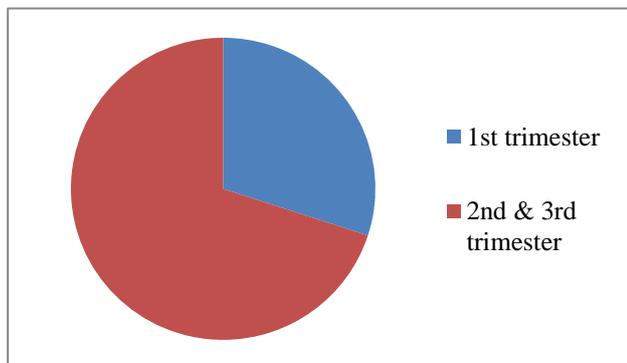


Figure 2: Gestational age and incidence of appendicitis.

RESULTS

Clinical features

In 7 cases (70%) the history of Pain did not exceed 24 hours whereas 3 patients (30%) presented with symptoms of longer than 24 hours duration. The most common complaints were abdominal pain in right lumbar and hypochondriac region (100%), nausea and vomiting (80%) and fever (80%)

The most common physical findings on initial physical examination were abdominal tenderness (84.6%).

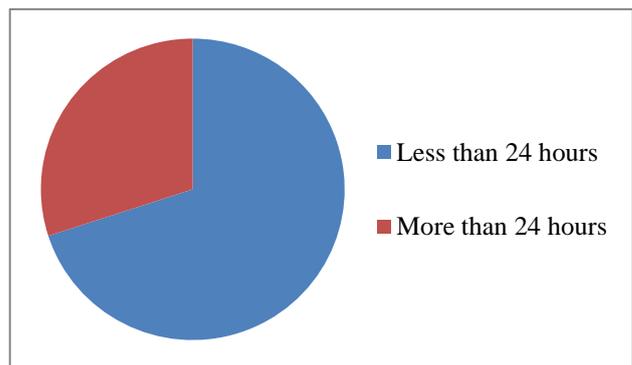


Figure 3: History of pain.

Lab findings

An abnormal white cell count ($>10000\text{cells}/\text{mm}^3$) was present in 9 cases (90.0%). Of these 9 cases, 6 (70%) had white cell counts $>15000\text{cells}/\text{mm}^3$, more than 40% of patients had neutrophilia counts of 80%-90%, and more than 40% of patients had neutrophilia counts of $>90\%$.

Abdominal ultrasound confirmed the presence of appendicitis in all the 10 patients.

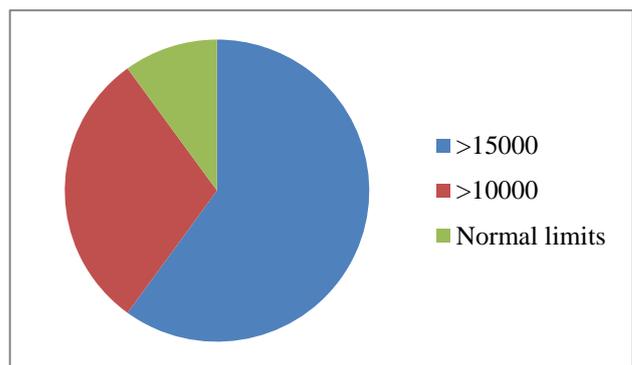


Figure 4: White cell count.

Appendicitis and obstetric outcome

In all patients, appendicitis was confirmed by a pathological report. 7 babies were delivered at term. The most common complications were premature uterine

contractions in 2 patients (28%), preterm labor in 1 patient (14%), remaining 4 patients operated for appendicectomy had normal obstetric outcome.

Among the 3 conservatively managed cases in first trimester the symptoms of appendicitis disappeared after treatment and were advised to undergo interval appendicectomy after delivery.

The most common complications were premature uterine contractions, preterm labor and fetal mortality. Uterine contractions occurred in 2 patients, one of them were in their third trimester. All those patients received tocolytic agents for treating contractions. Preterm labor occurred in one patient, had been treated by tocolytics. Still birth and neonatal death was not seen. There was no maternal mortality in this series.

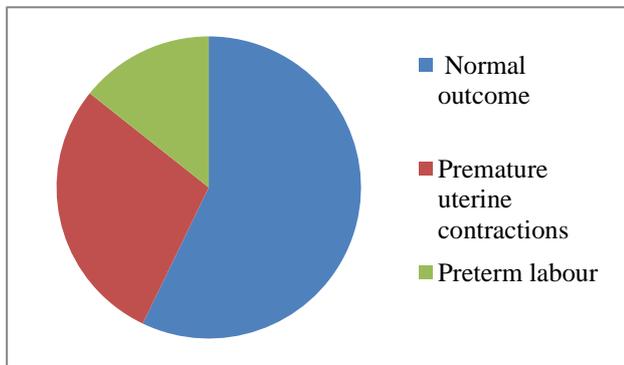


Figure 5: Obstetric outcome in surgically managed cases.

DISCUSSION

Acute appendicitis is one of the most common cause of surgical emergency not related to obstetrics during pregnancy. The uterus enlarges approximately 20 times during pregnancy as compared with the non-pregnant state that results in stretching of supporting ligaments and muscles. It also exerts pressure on other intra-abdominal structures and the layers of the anterior abdominal wall, thereby preventing the latter from being “irritated” by the inflamed intra-abdominal organ. The uterus can also obstruct and inhibit the movement of the omentum in an area of inflammation that may prevent this “policeman” of the abdomen from localizing the infection. Therefore, anatomical, physiological and biochemical changes due to the pregnant state alter classical symptoms and signs that would be normally associated with various disorders like acute appendicitis. Signs of acute appendicitis in pregnancy may show as pain in right lumbar or hypochondriac region because of pushing of caecum along with appendix upwards subhepatically because of gravid uterus. Classical rebound tenderness or other signs of acute appendicitis may not be seen in pregnant women. The most common problems that were confused with appendicitis were preterm labor, intra-uterine infection, abruptio placentae and other acute abdominal surgical

problems. Therefore, whenever acute appendicitis is suspected, regardless of whether the patient is admitted to either the obstetrics or the surgical department, close cooperation between the surgeon and the obstetrician is necessary. When the diagnosis of appendicitis is uncertain, a series of observations, laboratory values and ultrasonography can help rule out other causes of abdominal pain, such as ovarian cyst, pyelonephritis, ureter stone, pancreatitis, cholecystitis and abruptio placentae.⁵



Figure 6: Intraoperative picture of appendicectomy.

Definitive diagnosis of acute appendicitis in pregnancy can be done by ultrasonography and blood examination.

With pre-explained risk of abortion and preterm labour to the patient and attendants and consulting with anesthetist proper anaesthesia methods like spinal, epidural is used to conduct open appendicectomy.

If there is evidence of appendicitis and no alternative diagnosis seems likely, surgical intervention is warranted no matter what stage the pregnancy has reached. Intra-operative considerations must include slight left positioning of the patient and minimal uterine manipulation. The operative approach depends on surgical preference. Preterm contractions are common after appendicectomy but progression to labor is rare.

CONCLUSION

The particular dangers of appendicitis in pregnancy lie in the varied presentation of symptoms and the higher chance of delayed diagnosis. The symptoms of appendicitis mimic symptoms of normal pregnancy, namely, anorexia, nausea, vomiting, and abdominal discomfort.

Delay of surgery correlates to more advanced disease with an increased risk of appendiceal perforation. This, in turn, contributes to an increased risk of further complications including premature labor or abortion, and to higher maternal complication rates. Prompt diagnosis may improve the prenatal outcome. Early surgical intervention is essential. Suspected cases of this condition

require serial physical examinations as well as general surgery and obstetric consultation to ensure the staff most qualified to do so evaluate all aspects of a gravid patient and maternal physiology.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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DOI: 10.5455/2320-6012.ijrms20140531

Cite this article as: Mohan SVS, Mohan H, Mehta S, Prabhu S, Rajput AS. Appendicitis in pregnancy: management. Int J Res Med Sci 2014;2:532-5.