



RESEARCH ARTICLE

ACUTE APPENDICITIS IN PREGNANCY

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ABSTRACT

Introduction: In this study, patients operated due to acute appendicitis were discussed in the light of the literature.

Material&Methods: Patients operated due to acute appendicitis between January 2010 and December 2014 were retrospectively evaluated. All patients were assessed by the gynecologist and the general surgeon both before and after the operation. All the patients were ultra sounded. Patients' demographics, physical examination findings, trimesters, complaints of presentation, presence of leukocytosis, ultra sonography results, postoperative complications and histopathological examination results were evaluated. The differences were considered statistically significant, if the p value was less than 0.05.

Results: A total of 712 patients in reproductive age group were operated due to appendicitis between January 2010 and December 2014. Twenty-four patients were pregnant. The mean age was 25.58. All patients had abdominal tenderness, and the second and third most common physical examination findings were defence and rebound. On laboratory examination, the mean leukocyte count was 13,400; 10 patients (41.6%) had leukocytosis. Ultrasonographic examination revealed acute appendicitis in 11 patients (45.8%). Three patients underwent laparoscopic operations. The mean gestational duration was 14.3 weeks. Histopathologic examination revealed acute appendicitis in 20 patients. The mean duration of postoperative hospitalization was 2.1 days. No morbidity and uterine injury were observed.

Conclusion: Delayed diagnosis of acute appendicitis due to physiological changes occurring during pregnancy and having different symptoms cause mortality for the mother and the fetus. A rapid, rational and multidisciplinary approach can minimize maternal and fetal morbidity and mortality in pregnant women with suspected acute appendicitis.

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INTRODUCTION

Acute appendicitis is one of the most common diseases in emergency surgery. Its incidence in pregnant women is 1/1,500 to 1/2,000. The most important factor affecting mortality and morbidity is delays in the diagnosis (1,2,3). Anatomical and physiologic changes that normally occur during pregnancy will lead to changes in both the clinical symptoms and physical examination findings of the clinical presentation, that may require a surgical intervention (4,5). Therefore, diagnosis is more challenging. Delay in diagnosis also leads to delay in treatment. In this study, patients operated due to acute appendicitis were discussed in the light of the literature.

MATERIAL & METHODS

Patients operated due to acute appendicitis between January 2010 and December 2014 were retrospectively evaluated

through the hospital registry system. All patients were assessed by the gynecologist and the general surgeon both before and after the operation. Ultrasonography was performed in all patients. Preoperative single dose of intravenous ampicillin sulbactam 1 gr was administered. Appendectomy was performed using open or laparoscopic approach. Patients' demographics, physical examination findings, trimesters, complaints of presentation, presence of leukocytosis, ultrasonography results, postoperative complications and histopathological examination results were evaluated.

All statistical analyses were performed using SPSS 22.0 statistical package software (SPSS, Inc., Chicago, IL, USA). Categorical variables were expressed as frequencies and percentages. Chi-square test was used for comparison of continuous parametric variables. The differences were considered statistically significant, if the p value was less than 0.05.

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RESULTS

A total of 712 patients in reproductive age group (range, 18 – 49) were operated due to appendicitis between January 2010 and December 2014. Pregnant patients were enrolled in the study. Twenty-four patients were pregnant. The mean age was 25.58 (range, 18-37). All patients had abdominal tenderness, and the second and third most common physical examination findings were defence and rebound. On laboratory examination, the mean leukocyte count was 13,400; 10 patients (41.6%) had leukocytosis; and laboratory examination was normal in 14 patients (58.3%). All patients were evaluated with ultra sonography after gynecological examination. Ultrasonographic examination revealed acute appendicitis in 11 patients (45.8%). Three patients underwent laparoscopic operations. The mean gestational duration was 14.3 weeks. Thirteen of the patients (54.2%) were in the first trimester, eight (33.3%) in the second trimester, and three (12.5%) in the third trimester. Histopathologic examination revealed acute appendicitis in 20 patients. Three patients had negative laparotomy and one patient had paratubal torsioned ovarian cyst. On ultrasonography, acute appendicitis was found in 11 (55%) and not found in nine (45%) of the patients with acute appendicitis which was observed in the histopathological examination. The mean duration of postoperative hospitalization was 2.1 (range: 1-5) days. Postoperative maternal and infant mortality was not observed. No morbidity and uterine injury were observed.

DISCUSSION

The most common non-obstetric condition requiring abdominal surgery during pregnancy is acute appendicitis (5). Symptoms such as nausea, vomiting, and abdominal pain are seen at higher rate during pregnancy with normal physiological changes. For the same reasons, the diagnosis is challenging and the surgical intervention may be delayed (4,5). Leukocytosis may not be beneficial in the diagnosis, since pregnant patients often have a physiological leukocytosis. A careful physical examination is important for the diagnosis. In this study, 41.6% of the patients had leukocytosis.

The rate of negative laparotomy for suspected appendicitis is 5 to 15% in general surgery patients, whereas it is between 25 and 50% for obstetric cases, which is quite high compared with general patients (5,7). Wallace *et al.* reported the rate of negative appendectomy as 37% in pregnant patients with acute appendicitis (8). In our study, the rate of negative appendectomy was 16.6%. This rate was lower compared with the rates reported in the literature. In our study, patients were evaluated by ultrasonography in addition to clinical examination for the diagnosis. Additional radiological investigations were not performed in any patient. However, 13 patients with acute appendicitis detected on ultrasonography were operated, while nine patients had acute appendicitis observed in the histopathological examination.

Besides difficulty in the diagnosis, treatment interventions to be applied are a real variable in acute surgical abdominal manifestation in pregnant women (9). Delays in diagnosis and treatment threaten both maternal and fetal lives together.

In conclusion, delayed diagnosis of acute appendicitis due to physiological changes occurring during pregnancy and having different symptoms cause mortality for the mother and the fetus. A rapid, rational and multidisciplinary approach can minimize maternal and fetal morbidity and mortality in pregnant women with suspected acute appendicitis.

Conflict of Interest

No conflict of interest was declared by the authors.

Financial Disclosure

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