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Gynecology and Women's Health Research

ISSN 2689-3096 | Open Access

MINI REVIEW

Volume 2 - Issue 1

Non Operative Management of Appendicitis during Pregnancy. Is it Feasible?

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Received: 11 Apr, 2020 | **Accepted:** 25 Apr, 2020 | **Published:** 30 Apr, 2020

Citation: Mantoglu B, Altintoprak F (2020) Non Operative Management of Appendicitis during Pregnancy. Is it Feasible? Gynecol Women's Health Res 2(1): dx.doi.org/10.16966/2689-3096.114

Acute appendicitis is the most common cause of non-obstetric abdominal emergency surgery in pregnant women [1-4]. The diagnosis of appendicitis in pregnant women is more challenging than ordinary individuals. Among the main reasons for this issue are symptoms that are overlapping such as nausea and vomiting with the appendicitis clinic during pregnancy, as well as the results of the physiologically changing laboratory results in pregnant women [5-7]. The limitation of imaging methods and the decrease in effectiveness during pregnancy are another hassle in diagnosing appendicitis. Depending on the week of gestation, it has been stated that the displacement of the appendix has been verified with the expanding uterus during pregnancy [8,9]. However, in a study, it has been reported that this is not the case; the replacement of the intra abdominal position of appendix within the progression of pregnancy is a dogma [10,11].

Therefore, in addition to early diagnosis, it is more important to make an accurate diagnosis [12]. Thus, maternal and fetal morbidity and mortality will be prevented as well as the pregnant woman will be protected from unnecessary surgical intervention.

In recent years, the non-operative treatment of appendicitis has been described as an efficient treatment method in appendicitis. The Italian NOTA (Non-Operative Treatment of Appendicitis) Trial and the Finnish APPAC (Appendicitis Acuta) Trial suggested that antibiotic therapy alone, while perhaps not equivalent to surgery, can provide relief and avoidance of surgery in the majority of individuals so treated [13]. However, such an approach may invite a more severe and complicated surgery in complicated appendicitis that can lead to a higher risk of postoperative morbidity [14]. As stated in previous studies, appendicitis perforation is more common in pediatric patients age less than 5 [15-18]. The suitability of non-operative management (NOM) of appendicitis has also been investigated in pediatric appendicitis patients. There is moderate literature on the non-operative approach of pediatric appendicitis. These pieces of literature consist of retrospective and prospective cohort studies [19-21]. In a meta-analysis where adult and pediatric patients are evaluated, it is stated that NOM can be a favorable approach in uncomplicated appendicitis [22].

While these studies are ahead of us, the NOM approach in appendicitis during pregnancy can also be evaluated. However, the most significant limitation we encounter while making this assessment is the limited number of cases. In other words, the incidence of appendicitis during pregnancy is rare compared to other individuals (adult or child population). Besides, the feasibility of randomized controlled trials in pregnant female patients is limited. One of the most important obstacles in this regard is the fact that the treatment method to be applied with antibiotics in the first and second trimesters causes premature birth or abortus, and the results are hazardous [23]. In a study conducted by Cheng HT, et al., NOM was compared as a third group appendicitis in pregnancy, as well as laparoscopic and open surgical methods. Conservative treatment was determined to be doubtful than surgical interventions in terms of both preterm labor and abortion [23]. This was because conservative treatment for acute appendicitis carried a higher failure rate than that of appendectomy and significantly increased the risk of maternal morbidity and fetal loss once the disease progressed into perforated appendicitis [24,25]. As noted in Borst's study, one reason for this may be that, as in pediatric patients, appendicitis perforation rates are higher in pregnancy compared to the regular population (43% *vs* 19%) [26].

As a conclusion, there are not sufficient studies to support NOM of appendicitis in pregnant women. The undesired pregnancy outcomes are higher compared to other treatment modalities of the conservative approach to be undertaken in this period. Further studies could be done to approve or exclude the NOM method of appendicitis in pregnant women. The decision to treat appendicitis during pregnancy is a multifactorial situation for the surgeon. The surgeon should consider these circumstances, such as the pregnant

woman's gestational week, valuable pregnancy status, and any situation that may set the pregnancy at risk. Consequently, NOM should be preferred as the last step of the treatment option in appendicitis management during pregnancy.

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