

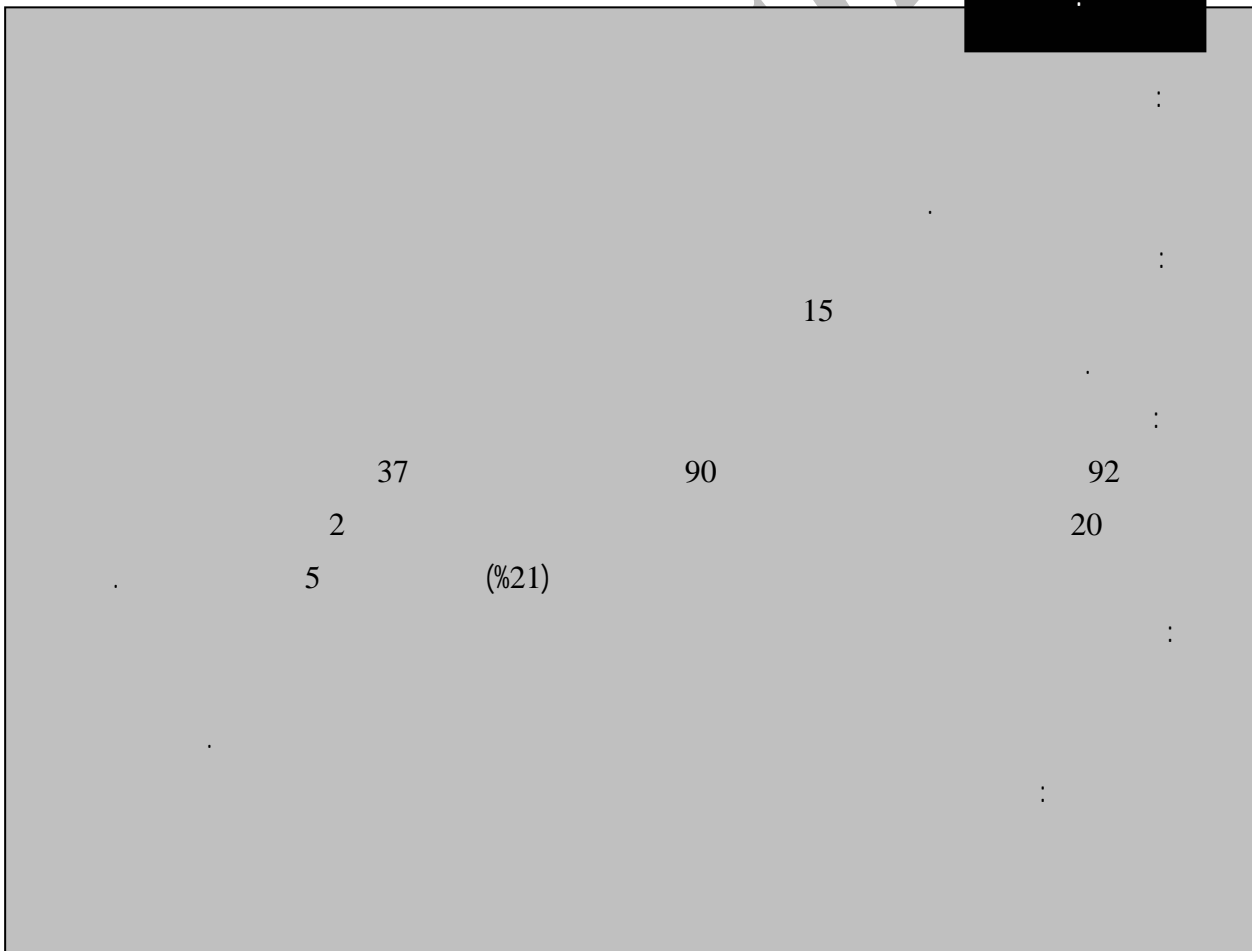
# Pregnancy and Abdominal Surgery Review of 90 cases

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## INTRODUCTION:

Concern has been expressed in the literature regarding surgical illness during pregnancy. Not only must appropriate maternal care be rendered, but also prevention of fetal complication is also desirable.

As a result of maternal illness requiring operation, a fetal wastage rate of 7 to 24 percent has been reported (1-2-3). An additional risk to the fetus posed by premature labor has been found in 15 to 20 percent of surgical patients (4-5-6).

However as surgical illness is not common during pregnancy, large series have not been encountered. To reexamine risks to both mother and fetus we retrospectively reported all pregnant patients over a 15 year period who underwent abdominal surgery.

## MATERIAL AND METHODS:

From January 1985 to January 2000 a total of 31000 abdominal operations were performed in EMAM REZA surgical department. Of these patients, 90 had been pregnant.

The charts of these 90 patients were retrospectively reviewed and this formed the basis for this study.

## RESULTS:

The most common indication for laparotomy and the most common operative finding was acute appendicitis (table I).

**Table 1**

Operative finding in 90 operation in pregnancy		
Diagnosis	n	%
Acute appendicitis	37	41
Perforated	5	5.5
Unperforated	32	35.5
Ovarian abnormality	20	2.2
Benign cystic teratoma	5	5.5
Mucinous cystadenoma	5	5.5
Paraovarian cyst	4	4.4
Serous cystadenoma	4	4.4
Hemorrhagic cyst	2	2.2
Cholelithiasis	10	11
Perforated peptic ulcer	4	4.4
Mesenteric adenitis	4	2.2
Small bowel obstruction	3	4
Strangulated ileum	2	2.2
Small bowel infarction	2	2.2
Other	10	11
Total	90	100

Thirty-seven women (41 percent) were found to have acute appendicitis, 5 of whom had the perforated type. Twenty operations were performed for ovarian tumors, which were later found to be benign. Ten patients underwent cholecystectomy for cholelithiasis and acute cholecystitis. One patient with inflammatory bowel disease underwent three operations for ischemia and ileostomy obstruction. One patient with cryptogenic cirrhosis required an operation for mesenteric venous occlusion and small bowel infarction.

Nineteen patients had operations during the first trimester, 44 during the second trimester, and 27 during the third trimester. Parity ranged from 0 to 7, but 35 patients were experiencing their first pregnancy. There were two maternal deaths. One patient with cryptogenic cirrhosis died from progressive liver failure, and one patient with inflammatory bowel disease experienced a cardiopulmonary arrest after a third operation for bowel obstruction; she eventually died. Thirty-five patients developed 42 postoperative complications (Table II).

Table 2

Post operative complication		
Morbidity	n	%
Premature labor	19	21
Prolonged ileus	8	9
Hypokalemia	4	5
Urinary tract infection	3	3
Pulmonary insufficiency	3	3
Wound infection	3	3
Other	2	2
Total	42	47

Premature labor occurred in 19 patients (21 percent). Tocolysis was instituted in 16 of these 19 patients and was effective in stopping labor in all cases. A correlation between delay in treatment and onset of premature labor was sought in 35 patients. The time from onset of symptoms to operation in 13 patients with acute

appendicitis who developed premature labor averaged 42- 72 hours; the time from onset of symptoms to operation in 22 patients with acute appendicitis who did not develop premature labor was 24-12 hours. This difference was statistically significant by student's test ( $p=0.02$ ).

Fifty-eight women delivered term infants and 13 were postterm deliveries. There were four premature deliveries of five infants at 34, 32, 32, and 35 weeks. These infants did well. In all, there were five fetal deaths. Two therapeutic abortions were performed one shortly before death of the mother with liver failure; one spontaneous abortion occurred after acute appendicitis, one stillbirth occurred at 25 weeks gestation after operation for acute cholecystitis and one fetus died from sudden cardiopulmonary arrest in the mother. There were no other postoperative instances of fetal distress. In addition, eight patients were lost on follow up.

A total of 30 patients received tocolytic therapy: 16 therapeutically after onset of premature labor and 14 prophylaxis. In all cases, premature delivery and fetal distress were prevented. Magnesium sulfate was used in 7 patients for premature labor and in 14 patients as prophylaxis. Terbutaline, and ritodrine were each used for premature labor in four, and five instances, respectively.

## **DISCUSSION:**

Fortunately, surgical emergencies requiring abdominal exploration are uncommon during pregnancy, but when they do occur, they present a challenge for the surgeon. Although the pregnant patient may present with altered physical findings, a more important issue concerns delay of operation because of injury to the unborn child or celiotomy with uncertain consequences on the gravid uterus and fetus. Mussel and Crane [7] reported maternal and fetal mortality rates of approximately 2 percent and 5 percent, respectively, but recommended that no elective intraabdominal operation be performed after the sixth month of pregnancy. Child and Patti [2] described a maternal operative mortality rate of 3 percent among 120 women who underwent surgery during pregnancy and 6 percent among 51 women who had abdominal procedures. Fetal loss was reported to be 12 percent overall and 8 percent among those who had abdominal surgery. Subsequently, Hamlin et al [8] observed a fetal mortality rate of 18 percent and an incidence of premature labor and delivery of 20 percent among patients requiring urgent abdominal operations. Of further concern has been a more recent report of Saunders and Milton [9], who described a fetal death rate of 25 percent among 74 laparotomies performed during pregnancy,

indicating substantial risk to the unborn child in such situations. Over our 15-year study period, we observed 2 maternal deaths among 90 patients who required abdominal surgery (2 percent). One death resulted from liver failure in a patient with cryptogenic cirrhosis and mesenteric venous occlusion.

The other maternal death in our study occurred in a patient with recurrent intestinal obstruction. Delay in treatment of this condition during pregnancy can be dangerous. Maternal mortality rates as high as 21 percent have been reported [10-11-12].

There were five fetal deaths (6 percent), although one pregnancy was electively terminated after surgery in the first trimester, and two of the fetal deaths occurred almost simultaneously with death of the mother. Therefore, 2 fetal deaths attributed to surgery occurred among 88 patients (incidence 2 percent). Premature labor was a common complication (19 patients or, 21 percent). Among 37 patients with acute appendicitis, premature labor was seen in 13 (37 percent). Importantly, in this subset of patients, time from onset of symptoms to operation was significantly longer in those who developed premature labor in contrast to those who did not. However, investigators have not found such a correlation. Master et al [8] described one fetal death and 5 premature

births among 26 patients operated on within 24 hours of admission. Nevertheless, it seems intuitive that prolonged intraabdominal illness causing inflammation and bacterial contamination will eventually result in uterine irritability if left untreated. The use of tocolytic agents to halt premature labor and thus avoid preterm delivery of low birth weight infants is controversial. No doubt, tocolytic agents, particularly magnesium sulfate and beta-sympathomimetic agents, can stop labor, as demonstrated by at least three controlled clinical trials [13-14-15]; however, serious maternal side effects may occur (congestive heart failure and pulmonary edema), and it is uncertain whether use of tocolytic agents actually decreases the incidence of low birth weight infants [13-14-15]. Our experience with such agents has been encouraging. Sixteen patients were treated therapeutically after onset of premature labor, and tocolysis was successful in each case. In addition, 14 patients were treated prophylactically and none developed premature labor. There were no serious maternal side effects and no evidence of fetal distress.

Of the 82 cases 71 delivered term infants (87 percent). Four women delivered five premature infants (average 33 weeks). When the 37 patients with acute appendicitis were considered, only one fetus was lost and only one mother delivered prematurely (34 weeks). This is in contrast to previous reports of premature deliveries in 3 of 22 patients and 5 of 29 patients. [1-8]. We attribute our lower rate to the liberal use of tocolysis.

In conclusion, we observed a low maternal mortality in our patient population seen over a 15-year period.

Mortality was related to severity of underlying disease and did not seem to be maternal death. There was a longer delay before operation for acute appendicitis in those patients with premature labor, which indicates that early surgical intervention might prevent this complication. Liberal use of prophylactic and therapeutic tocolysis appeared to control labor and resulted in a low incident of premature delivery.

## Abstract:

### Objective :

Intraabdominal surgical disease during pregnancy can present a challenge in diagnosis and management for the obstetricians and surgeons.

**Material and Method :** We retrospectively studied all pregnant patient over a 15-year period who had undergone abdominal surgery.

**Results :** A total of 92 abdominal operations were performed on 90 patients. Thirty-seven patients were operated on for acute appendicitis ; 20 were operated on for ovarian abnormalities.

There were two maternal deaths. The most common postoperative complication was premature labor (21%). There were five fetal deaths.

**Conclusion :** Intraabdominal surgery during pregnancy carries an acceptable risk to the mother and fetus. Complications are related to severity of the disease and operative delay rather than to the operative procedure itself.

**Key Words :** Pregnancy, Surgery, Abdominal, Labor, Tocolysis

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