

## Clinical Presentation, Diagnosis and Treatment of Non Obstetric General Surgical Emergencies Complicating Pregnancy, in Tribal Population of South Rajasthan

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### Abstract

High maternal and peri-natal mortality and morbidity is cause of concern in INDIA more so in rural uneducated and economically poor women [1]. Non obstetrical surgical conditions account for approximately 1-2% of cases [2]. Detail history, thorough and repeated clinical examination, high level of suspicion, hemoglobin and blood counts, ultrasonography, X-ray of chest and abdomen, CT-MRI-SCAN, peritoneal lavage, Diagnostic laparoscopy and exploratory laparotomy as and when required provides help in diagnosis. Early aggressive resuscitation followed by immediate and prompt surgery is required to achieve a favorable outcome in the management of the pregnant patient who presents with an emergency general surgical problem [3]. Present study includes all the non obstetric surgical emergencies and trauma to pregnant patients, managed in The Hospital of Pacific Institute Of Medical Sciences (PIMS), Village Umarda, Girva, Udaipur, Rajasthan from Jan 2015 to Aug 2016. Aim of present study is to highlight the importance of early diagnosis and treatment by a team comprising of general surgeon, anesthetist, obstetrician, pediatrician, and nursing staff. In the present study there had been no maternal death, two fetal losses and high morbidity in the form of prolonged hospitalization in three cases.

**Keywords:** Non Obstetric General Surgical Emergency; Appendicitis in Pregnancy; Cholelithiasis in Pregnancy; Bowel Obstruction in Pregnancy; Trauma to Pregnant Women; Acute Abdominal Pain in Pregnancy; Malignancies Associated with Pregnancy.

### Introduction

Various studies put the incidence of acute abdomen during pregnancy as 1 in 500-635 pregnancies. Appendicitis is the most common cause of the acute abdomen during pregnancy, occurring 1 in 500-2000 pregnancies and account for 25% of operative indications for non-obstetric surgery during pregnancy [4]. Surgical treatment is indicated in most cases, as in non pregnant women. Laparoscopic procedures in the treatment of acute abdomen in pregnancy proved safe and accurate, and in selected groups of patients are becoming the procedures of choice with a perspective for the widening of such indications with more frequent use and subsequent optimal results. Despite these advances, laparotomy still remains the procedure of choice in complicated and uncertain cases.

It is always advisable that such cases be treated by general surgeons along with obstetricians and other team members like pediatrician, anesthetist, pathologist and nursing staff. There is a diagnostic dilemma sometimes only solved when the laparotomy is performed. Physiological changes of pregnancy may mimic and alter the presentation of surgical condition [5]. Common causes of Non obstetric acute pain abdomen in pregnant women include appendicitis, cholecystitis, pancreatitis,

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renal colic, intestinal colic and bowel obstruction. Further the complication of trauma in pregnancy involves risk to mother and baby both. These conditions may be associated with significant maternal and fetal morbidity and mortality [6]. Approximately 42% of the surgical emergencies occur in the first trimester, 35% during the second and 23% during the third trimester. Pregnant women and fetus may be exposed to risk of both the anesthetic and the surgical procedure [7]. As far as possible elective surgery should be avoided during pregnancy [8]. The evaluation of an acute abdomen during pregnancy must include in the differential diagnosis appendicitis and cholecystitis, which are two of the most common reasons for nonobstetric surgical intervention in pregnancy. Both conditions may be associated with significant maternal and fetal morbidity and/or mortality [9]. Physiologic changes associated with pregnancy must be considered when interpreting findings from the history and physical examination. Pregnancy alone can produce WBC counts ranging from 6000 to 16,000 per dl in the second and third trimesters and from 20,000 to 30,000/dl in early labor. The most common indications for surgery unrelated to pregnancy is Appendicitis followed by Cholecystitis [10]. Maternal trauma and maternal malignancies requiring emergency surgery are rarely encountered [11]. As far the outcome on type of surgery is concerned, there are no differences between laparoscopy and laparotomy in maternal complications or fetal outcome [12]. Patients undergoing Laparoscopy had longer operative times but shorter hospital stays, less parenteral narcotics, and earlier resumption of regular diet. Trauma is one of leading cause of maternal death; fetal loss is due to maternal death or placental abruption. No single

diagnostic X-ray procedure results in radiation exposure to a degree that would threaten the well being of the developing fetus [13]. Ultrasound and MRI are safe alternatives. The pregnant surgical patient should be treated with respect, rather than apprehension and Recognize her fears related to her pregnancy. Doing what is best for the mother will almost always be best for the fetus and the outcome of the pregnancy [14].

### Material and Methods

The study has been conducted at Pacific Institute Of Medical Sciences (PIMS) ,village Umarda Ambua Road Udaipur Rajasthan from Jan 2015 to Aug 2016 (One and half year). All female patients attending surgical emergency with suspected or confirmed pregnancy were included . A total number of 15 patients were including in the study as per the criteria of selection that is pregnancy complicated by surgical emergencies. Detailed history for maternal age, parity, education, socio-economic status and period of gestation was recorded. Pre-existing maternal disease, obstetric complications, drug and medication use, tobacco use, maternal symptoms and physical examination, pulse, BP and temp were recorded. Per abdominal examination, vaginal examination finding was recorded. Investigations included complete blood count HB, TLC, DLC, BT, CT, PT, INR, HIV, HBSAG, VDRL, Treponema Test, Vaginal Swab, Blood Grouping, Blood Sugar urea creatinine, LFT, enzymes Urine Pregnancy Test, Beta HCG, Ultrasonography, X-ray chest and abdomen as and when required, diagnostic laparoscopy followed by exploratory laparotomy.

### Results

**Table 1:** Age distribution in surgical emergencies in pregnancy

Age in years	No of patients	Percentage
Less than 20	2	13.34
21- 25	7	46.66
26-30	4	26.66
31 and above	2	13.34
	15	100

RESULT- Maximum cases 11 (73.33%) were in 21 to 30 years of age

**Table 2:** Parity distribution of surgical emergencies in pregnant patients

Parity	No of Patients	Percentage
nullipara	2	13.34
Para 1	4	26.66
Para 2	4	26.66
Para 3 and above	5	33.36
	15	100

Result =Incidence of surgical complications in pregnancy increases with parity

**Table 3:** Causes of surgical emergencies in pregnancy

Probable Cause	No of Patients	Percentage
appendicitis	8	53.34
cholecystitis	2	13.34
pancreatitis	1	6.66
Intestinal obstruction	1	6.66
Renal colic / renal calculus	2	13.34
Blunt trauma to abdomen	1	6.66
	15	100

Result - In most cases 8(53.34%) acute pain abdomen was diagnosed as acute appendicitis

**Table 4:** Clinical presentation

Clinical Presentation	No of Patients	Percentage
Catastrophic, pain, discomfort	3	20.00
Uterine bleeding	2	13.34
Abdominal distension	10	66.66
Acute Pain abdomen	15	100
Peritonism	12	92.00
Lump abdomen, tenderness	5	33.34
Positive Urine preg test/ beta HCG/ usg	15	100.00
Positive ultrasonography	12	92.00
Anemia HB less than 8gms%	5	33.34

Results -all patients had pain in the abdomen. 12 (92%) had features of peritonism. 5 (33.34%) had palpable and tender lump or tenderness. 12(92%) had positive ultrasonography suggesting causes. 3(20%) presented with acute bout of abdominal pain , discomfort, distension and required resuscitation. 5 (33.34%) had HB less than 8 gm%.

**Table 5:** Management

Treatment	No of Patients	Percentage
resuscitation	3	20
Blood transfusion	7	46.66
laparotomy	10	66.66
laparoscopy	3	20
Conservative treatment	5	46.66
Definitive surgery	9	62

Maximum 10 (66.66%) cases required laparotomy and 9 (62%) cases required definitive surgery

**Table 6:** Maternal and Fetal outcome

S. N.	Maternal/ fetal	Number	%
1	Maternal death	0	0.00
2	Maternal morbidity	3	20.00
3	Fetal death	2	13.34
4	Fetal morbidity	3	20.00

Result = there has been no maternal deaths. 3(20%) mothers required initial resuscitation and prolonged hospitalization. 2(13.34 %) were fetal deaths and 3(20%) new born babies required prolonged hospital care for survival.



**Photo 1:** Team of obstetrician and general surgeon operating on pregnancy with intestinal obstruction with gangrenous gut.

## Discussion

Non-obstetric surgical intervention rarely leads to maternal death if the diagnosis is made early and appropriate surgical intervention is done immediately [15]. In the present study there has been no maternal mortality. The incidence reported in the systematic review of 12452 patients in 54 studies is 0.006 % [16]. Maternal physiology begins to adapt to the pregnancy after 6-8 weeks gestation and there are alterations in cardiac, hemodynamic, respiratory, metabolic and pharmacological parameters. With the increase in minute ventilation and oxygen consumption and a decrease in oxygen reserve (decreased functional residual capacity and residual

volume), pregnant women become hypoxemic more rapidly. Airway management may become more challenging, due to weight gain affecting the soft tissues of the neck and increased vascularity of the mucous membranes. The body's handling of drugs also alters due to changes in plasma proteins and volume of distribution [17]. With advanced tests like urine pregnancy tests beta HCG and sonography all cases of pregnancy were detected in time. Otherwise in an undetected or undisclosed pregnancy the adaptations required to anesthetic technique and drug dosing will not be considered, and anesthetic adverse events may be more common. Studies appear to show that there is an increased risk of spontaneous miscarriage in patients who have been exposed to anesthesia and surgery during pregnancy. One study reported a rate of 7.1% fetal loss, compared with 6.5% in controls who had no surgery, while the systematic review reported an incidence of 5.8% in all patients who underwent a surgical intervention in pregnancy, increased to 10.5% if the surgery occurred in the first trimester. Several smaller studies have reported fetal death rates of 11.1%, 8.5% loss of pregnancy where surgery was undertaken in the first trimester (control group 2.0%) [13], and 9.6% (control group 5.1%). Although higher than the control groups, these rates are similar to the miscarriage rate quoted for pregnancies in women aged less than 20 years [18]. Studies looking specifically at appendectomy in pregnancy have reported miscarriage rates of 13.3% and 26% in patients whose operation took place during early pregnancy. In the present study, two (13.34%) fetal losses and high morbidity in the form of prolonged hospitalization in three cases (20%) has been recorded.

*Risks to the Fetus are Prematurity, Low Birth Weight and Infant Death*

There appears to be an increase in very-low- and low-birth-weight infants in the offspring of women having surgery during pregnancy, due both to premature birth and intrauterine growth retardation. The incidence of early infant death is also increased [19].

An important question to answer is whether exposure to anesthesia and surgery during pregnancy increases the risk of congenital malformations. The taking of medication during pregnancy is generally viewed with extreme caution, particularly during the first trimester, and many drugs have been shown to be associated with teratogenic effects. The teratogenic effects of medications vary depending on the time taken during pregnancy. The fetus's susceptibility to injury depends on its period of development. Different

organs have different critical periods, though the span from gestational day 15 to day 60 is critical for many organs. The heart is most sensitive during the third and fourth weeks of gestation, whereas the external genitalia are most sensitive during the eighth and ninth weeks. The brain and skeleton are sensitive from the beginning of the third week to the end of pregnancy and into the neonatal period. It does not appear that anaesthetic agents have teratogenic effects in humans. However anesthesia and surgery during pregnancy are associated with an increased risk of miscarriage, premature birth, low birth weight infants and infant death [20]. Large studies of populations of pregnant women have shown no statistically significant difference in the rates of congenital abnormalities in babies of those who have had surgery during pregnancy compared with controls. Although two studies have suggested that there could be an association between anesthesia in the first trimester and neural tube defects or the combination of hydrocephalus and eye defects in the fetus, it is felt that this is as yet unproven. There has also been concern that chronic benzodiazepine use may be associated with an increased risk of cleft palate anomalies but this is not an association seen with use of benzodiazepines solely during anesthesia. There is ongoing concern about the risk of increased neuronal apoptosis, with associated adverse effects on neurodevelopment outcome, in babies exposed to anesthetic agents in utero or during the neonatal period and infancy. It is felt that this effect is more likely to be of influence if anesthesia occurs after 28 weeks gestation, but further work is awaited to determine if the results seen in rodent studies can be extrapolated into the human population. At present, it appears that although many drugs have been identified that have teratogenic effects in pregnancy, anaesthetic medications, including induction drugs, barbiturates, opioids, muscle relaxants, volatile agents and local anaesthetics are associated with safe use in humans during pregnancy. Nitrous oxide remains controversial, because of effects on B12 metabolism, and its use in the first trimester is not recommended [21].

The risks associated with surgery during pregnancy did not seem to be associated with any particular type of surgery in a large study including patients having both abdominal and non-abdominal surgery, No difference was found between five fetal outcome measures when patients having laparoscopy or laparotomy between 4 and 20 weeks gestation were compared. It is suggested that the incidence of appendicitis during pregnancy lies between 1 in 655 to 1 in 6635 pregnancies, but that it occurs more commonly in teenage women than in other age

groups. 9 Surgery for appendicitis during pregnancy is associated with a high rate of surgery-induced labor (4.6%). Fetal loss associated with appendectomy is 2.6%, but this increases to 10.9% if peritonitis is present [22].

### Conclusion

It is mandatory to confirm or negate pregnancy of any gestation in all the females presenting with general surgical emergencies. Early diagnosis and prompt management reduces maternal and fetal morbidity and mortality. It is always advisable to work in a team with surgeon, obstetrician, pediatrician and nursing staff.

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