

**ACUTE ABDOMEN in PREGNANCY: AETIOLOGY & OUTCOME in BASRAH.****Fouad Hamad Al-Dahhan\* , Ehab A. Hassan#**

\*M.B.Ch.B., MRCOG, Assist. Professor and Chairman, Dept. of Obstetrics & Gynecology, College of Medicine, University of Basrah AND Consultant Obstetrician & Gynecologist, Basrah Maternity and Child Hospital. #M.B.Ch.B, CABOG, The late Dr Ehab was Specialist Obstetrician & Gynecologist, Basrah Maternity and Child Hospital, Basrah; IRAQ. Dr Ehab tragically died, along with several members of her family, by a rocket fired at their house by a British jet fighter.

**Abstract**

This is a prospective study conducted in all major hospitals in Basrah (Basrah Maternity & Child Hospital, Basrah Teaching hospital and Basra General hospital) to prove that 'acute abdomen in pregnancy' is common and that the effect of delayed diagnosis can have serious implication on both maternal and fetal outcome. Two hundred and fourteen pregnant females were included. Their age ranged from 16-42 years (mean age was 27 years). Operations were performed whenever indicated by a registrar or consultant gynecologist. Abruption placenta was the causative factor in 33.17% of cases, ectopic gestation in 24.7%, acute appendicitis in 11.21% and the remaining 30.9% resulted from miscellaneous conditions. Most of the patients (94.39%) presented within the first twenty-four hours of their initial complaint. Delayed diagnoses were made in 12 with 50% maternal mortality and 100% perinatal mortality. One hundred and sixty nine patients (78.97%) underwent emergency operations, while forty-five patients (21.02%) were treated conservatively. Various complications were encountered; the most common was wound infection (19.8%).

**Introduction**

**I**n acute abdomen of pregnancy a major problem is delay in the diagnosis and definitive treatment which represents the most significant risk

for poor outcome for both the mother and the fetus. Acute abdomen is any situation in which the patient complains of acute abdominal symptoms that suggest a disease which definitely or possibly threatens life<sup>1</sup>. Acute abdomen is a common surgical emergency; the diagnosis is usually made by junior surgical staff in the majority of cases being satisfactorily treated as part of day-to-day work in hospital. To find that

**Correspondence to**

Dr. Fouad Al- Dahan. Department of Obstetrics & Gynecology, Basrah College of Medicine, University of Basrah, Basrah; IRAQ.

a patient presenting with an 'acute abdomen' is pregnant seems to lead to many problems. The morbidity, and indeed mortality, of such conditions is relatively high in pregnancy due to delay, or sometimes, failure and in making the diagnosis and the prompt institution of the correct treatment<sup>2</sup>. A pregnant abdomen can be difficult to examine and may hide or change what would otherwise be a classic finding in several diseases. Many physicians tend to be more cautious and conservative with pregnant patients which may actually lead to more harm by causing a delay in diagnosis and treatment<sup>4</sup>. Incidence, maternal morbidity & mortality in addition to fetal outcome were studied including obstetrical and non-obstetrical conditions.

### Patient & Methods

This is a prospective study conducted from May 2000 till June 2001 at Basrah General Hospital, Basrah Maternity & Child Hospital and Basrah Teaching Hospital. A total of 214 pregnant female patients were included with an age range of 16-42 years (mean age 27 was years). Seventy-five pts (35%) were referred from private clinics of either specialist Gynecologist, Surgeon or Physician and the other 139 (65%) were first seen by a Senior House Officers in gynecology or surgery at the Casualty Department. Detailed history was taken and careful physical examination was made. We investigated them with routine general investigations and specific investigations like ultrasonography (abdominal and pelvic) were made to some of them according to their availability and to the patient's general conditions. Plain x-ray was done to patients with suspected intestinal obstruction some of whom were in critical general condition with signs of severe hypovolemic shock. Resuscitation was routinely carried out

through two intravenous lines with intravenous Ringer Lactate solution. Blood transfusion was given when necessary. Laparoscopy was performed in some cases of suspected ectopic pregnancy. Either a Consultant surgeon, Gynecologist or the Registrar on duty performed the operations.

### Results

This study revealed that 71 of the patients (33.17%) had placental abruption, 53 (24.7%) had ectopic gestation, 24 (11.21%) had acute appendicitis, 20 (9.34%) had complicated ovarian cysts and 14 (6.54%) had renal problems (Table I).

Symptoms	No.	percent
Abdominal pain	214	100
Vaginal bleeding	110	51.4
Fainting attacks	90	42.05
Vomiting	87	40.6
Nausea	75	35.04
Urinary tract symptoms	45	21.02
Fever	20	9.3
Absolute constipation	5	2.33

**Table II: Symptoms of the patients.**

All of the patients presented with abdominal pain and tenderness (Tables II & III), 95 (42.9%) were in the third trimester. (Table IV). Most of the patients {202 (94.39%)} presented in the first 24 hours. On the other hand, delayed diagnosis was made in 12 patients after 48 hours of their hospitalization with 50% maternal mortality and 100% perinatal mortality. Ultrasound examination was done for 145 patients only and was helpful for diagnosis in 92.5% of the cases.

Sign	No.	percent
Abdominal tenderness	214	100
Pallor	165	77.1
Tachycardia	140	65.4
Hypotention	95	44.39
Cervical excitation	68	31.7
Empty rectum	3	1.4

**Table III: Signs of the patients.**

One hundred sixty nine patients (78.97%) underwent emergency surgical operations while 45 (21.02%) were treated conservatively. We found that right-sided ectopic gestation formed (77.3%) of the total while the left side formed (22.7%).

Our study revealed various degrees of complications. The most common of which was wound infection (19.8%) followed by preterm labor (9.3%) and abortion (3.2%); (Table V).

## Discussion

Acute abdomen is a common problem facing every doctor during his medical practice representing a serious challenge, which should be solved properly, and urgently<sup>4</sup>. Surgical disorders may be either incidental to or directly related to the pregnancy and experienced judgment is important regarding the timing, methods and extent of treatment<sup>5</sup>. This study revealed that about two thirds of our patients were in the second half of the third decade of age with a mean age of 26 years. The vast majority of our patients presented before the elapse of 24 hours from the first complaint. The diagnosis of acute abdomen has been made in some of the cases on clinical basis only. In other patients, where the diagnosis was not sure, ultrasound

examination was done and was very helpful in the diagnosis of 92.5% of the cases. This was consistent with other studies<sup>6,7,8</sup>.

Gestational age	1 <sup>st</sup> Tri-mester		2 <sup>nd</sup> Tri-mester		3 <sup>rd</sup> Tri-mester	
	No.	%	No.	%	No.	%
CONDITION						
Placental abruption	0	0	8	3.7	63	29.4
Ectopic gestation	51	23.8	2	0.9	0	0
Acute appendicitis	17	7.9	5	2.33	2	0.9
Complicated ovarian cyst	6	2.8	9	4.2	5	2.3
Renal problems	4	1.87	5	2.33	7	3.2
Ruptured uterus	0	0	1	0.4	6	2.8
Acute calculus Cholecystitis	1	0.4	4	1.8	1	0.4
Intestinal obstruction	0	0	1	0.4	3	1.4
Complicated fibroid with pregnancy	0	0	2	0.9	2	0.9
Sickle cell crisis	0	0	2	0.9	1	0.4
Perforated duodenal ulcer	0	0	0	0	2	0.9
Obstructed hernia	0	0	0	0	2	0.9
Perforated typhoid ulcer	1	0.4	0	0	0	0
complicated hydatid cyst of the liver	0	0	1	0.4	0	0
Shell injury	0	0	0	0	1	0.4
Pulmonary embolism	0	0	1	0.4	0	0
Total	80	37.17 %	41	18.66 %	95	43.9 %

**Table IV: Relationship between the condition of the patient with the gestational age.** Percentage of each condition has been taken from the total number of patients. From this table we can see that ninety-three (43.9%) of the patients were in the third trimester

Ultrasonography has proven to be an accurate complementary imaging method in acute abdominal conditions in pregnancy. It proved to be useful if correlated with an accurate history and clinical examination with an accuracy

rate of 96 %<sup>9</sup>. Diagnostic laparoscopy was done to three patients only. In this series, placental abruption formed 33.17% of the cases of acute abdomen during pregnancy; approximately 0.5% of all pregnancies attending the hospital during the period of the study. This result is lower than that reported by Sharief 1996<sup>10</sup> (2%) where all cases of abruption were included. Our study, in comparison, included the high-risk moderate to severe cases of acute abdominal conditions during pregnancy.

Ectopic pregnancies formed 24.7% of the cases. We disagree with Stephen (1990) who found that about 40% of the cases were due to ruptured ectopic gestation and stated that "any women in the reproductive age group presenting with severe abdominal pain with signs of hypovolaemia is suffering from ruptured ectopic gestation until proved otherwise"<sup>11</sup>. We found a predominance of right sided ectopic gestation (77.3%) compared to left ectopic gestation (22.7%); this fact is possibly explained by the proximity of the appendix to the right tube which could be involved by inflammation in appendicitis<sup>12,13</sup>.

Acute appendicitis formed 11.2% of cases in this series of cases and this is comparable with other studies of acute appendicitis in pregnancy, which generally represents around 12% of the case<sup>14</sup>. There was a delay in the diagnosis of 3 cases of acute appendicitis, which could be due to the change in the anatomical position of the appendix<sup>14</sup>. It is the commonest non-obstetric surgical cause in this study; just like the observation of Epstein FB. 1994<sup>15</sup>.

Ovarian tumors or cysts occurring during pregnancy pose considerable problems in respect of diagnosis and treatment<sup>17</sup>. This study revealed that complicated ovarian cyst accounted for (9.34%) of the cases of acute abdomen in pregnancy. One percent of all complicated ovarian cysts were ruptured,

while torsion accounted for 5% of the cases of ovarian cyst during pregnancy and this is comparable with a study conducted by Schmid-Matthiesen<sup>18</sup>, in 1993, which stated that "only 2% of complicated ovarian masses will rupture during gestation and much more likely undergo torsion (50-60%)" a rate higher than that reported in this study.

Renal problem accounted for 6.54% of the cases. Out of them, 2.33% were due to acute pyelonephritis which is the most serious bacterial infection of pregnancy affecting 1-3% of women<sup>17</sup>.

Ruptured uterus occurred in 3.27% of cases, approximately 0.3/1000 pregnancies. This is comparable to study of Fedorkow *et al* (1987)<sup>17</sup>. Out of our cases, 98% were referred from rural areas with a history of midwife interference.

Complicated fibroid with pregnancy formed 1.87% of the cases which is again comparable to a study performed by Allen-JR. (0.3-2.6)<sup>19</sup>.

Acute intestinal obstruction accounted for 1.87% of the cases, of which adhesions were the cause in 60% of instances. Allen reported 8% incidence of intestinal obstruction in pregnancy, 55% of them due to adhesions from previous surgery. A similar result was also reported by other authors<sup>19</sup>. Volvulus was reported in 1 of our patients (25%) with intestinal obstruction; just similar to that reported by Allen<sup>19</sup>.

Plain x-ray of the abdomen was done only to 9 patients in whom the suspicion of intestinal obstruction or perforated duodenal ulcer was suspected, and gave a positive result in 6 patients. Any irradiation carries a potential risk for oncogenesis and increases cancer risk. Despite this fact, there must be no delay in ordering radiological studies because delay can lead to increased complication<sup>3</sup>.

Although pregnancy appears to be somewhat protective against the

development of gastro-intestinal ulcers<sup>20</sup> ulcers have been reported in two patients (0.93%), both of whom had history of using non-steroidal anti-inflammatory drugs before pregnancy. Burch et al reported that 78% of patients in his series died of perforated or bleeding ulcers<sup>21</sup>. Fortunately both of our patients recovered smoothly after operation with no complication.

Sickle patients are at increased risk for cholelithiasis secondary to chronic haemolysis<sup>9</sup>, we had two (9.9%) sickle patients.

We had one patient (0.4%) with perforated typhoid ulcer who died due to delay in the diagnosis and surgical interference. A mortality of 32% of the cases of perforated typhoid enteritis was reported by Meier-DE<sup>23</sup>. The key to improved survival in this deadly disease lies not in a better operation or improved peri-operative care but in the prevention of typhoid fever by providing safe drinking water and improved sanitation for all of the community<sup>23</sup>. Due to salvages, shell injury was reported only in one patient.

Although pulmonary embolism occurs rarely during pregnancy<sup>17</sup>, it has been reported in one patient (diagnosis based on clinical presentation) who was referred from a rural area in her second trimester of pregnancy with history of sickle cell anemia; she died one hour after admission to our hospital.

Various complications were obtained, the commonest was wound infection (18.8%) and this may be due to the lack of adequate and suitable antibiotics (sanctions), improper sterilization and

inadequate local homeostasis.

Preterm labor constituted 11.8% of the cases, most of them (9.3%) due to placental abruption while 2.5% were due to non obstetrical emergencies, compared to a study conducted by Allen *et al* who showed that the actual preterm delivery rate was approximately 12% of non obstetric abdominal surgery in pregnant women<sup>24</sup>.

Other complications included abortion (6.3%) and acute renal failure (4.9%). Surgical treatment was used in 78.97% of our patients with success, this is because of the large number of patients with placental abruption and ectopic gestation, while 21.02 % of the patients were treated conservatively. We noticed that the morbidity and mortality was more in the late-presenting group, all of whom developed some sort of complication to various degree of severity with a 50% maternal mortality and 100% fetal loss. This could be due to severe hypovolaemic shock or presence of septicaemia. The overall maternal mortality rate was 7 (3.27%) and fetal loss rate (20.3%) mainly due to placental abruption.

## Conclusion

Acute abdomen in pregnancy is a common serious condition.

Clinical experience of the examining clinician still has its major and vital role in the diagnosis. Ultrasonography is a very helpful investigation. Delayed diagnosis and treatment leads to tragedies in maternal and foetal outcome.

Condition	No.	%
Placental abruption	71	33.17
Ectopic gestation	53	24.7
Acute appendicitis	24	11.21
Complicated ovarian cyst	20	9.34
Renal problems	14	6.54
Ruptured uterus	7	3.27
Acute cholecystitis	6	2.8
Intestinal abstruction	4	1.87
Complicated fibroid with pregnancy	4	1.87
Sickle cell crisis	3	1.4
Perforted duodenal ulcer	2	0.93
Obstructed hernia	2	0.93
Perforted typhoid ulcer	1	0.46
Complicated hydatid cyst of the liver	1	0.46
Shell injury	1	0.46
Pulmonary embolism	1	0.46
<b>Total</b>	<b>214</b>	<b>100%</b>

**Table 1- Shows the frequency of acute abdominal conditions during pregnancy**

	Wound infection	Wound dehiscence	Stress ulcer	abortion	Preterm labour	Acute renal failure
Placental abruption	10 (4.6%)	2 (0.9%)	1 (0.4%)	7 (3.2%)	20 (9.3%)	8 (3.7%)
Ectopic gestation	15 (7%)	0	0	0	0	0
Acute appendicitis	6 (28%)	1 (0.4%)	0	3 (1.4%)	0	0
Complicated ovarian cyst	3 (1.4%)	1 (0.4%)	0	2 (0.9%)	1 (0.4%)	0
Renal problems	0	0	0	1 (0.4%)	2 (0.9%)	0
Ruptured uterus	3 (1.4%)	1 (0.4%)	0	0	0	1 (0.4%)
Intestinal obstruction	2 (0.9%)	1 (0.4%)	0	0	1 (0.4%)	0
Acute calculus Cholecystitis	2 (0.9%)	0	0	1 (0.4%)	0	0
Completed fibroid with pregnancy	0	0	0	0	1 (0.4%)	0
Sickle cell crisis	0	0	0	0	0	0
Perforated duodenal ulcer	0	0	0	0	0	0
Perf. typhoid ulcer	0	0	0	0	0	1 (0.4%)
Obstructed hernia	1 (0.4%)	0	0	1(0.4)	0	0
Shell injury	1 (0.4%)	0	0	0	1 (0.4%)	0
Pul.embolism	0	0	0	0	0	1 (0.4%)
Hydatid cyst liver	0	0	0	0	0	0
<b>Total</b>	<b>43 (45%)</b>	<b>6 (2.5%)</b>	<b>1(0.4%)</b>	<b>15(6.7%)</b>	<b>26(11.8%)</b>	<b>11(4.9%)</b>

**TableV: Distribution of the complications according to the condition of acute**

## References

- 1-McN.Inglis T.C. The acute abdomen in pregnancy; Hospital update Nov.1979, 1021-1028.
- 2-AL-Manaseer MF. The acute abdomen in pregnancy in Basra General Hospital. A thesis submitted for Iraqi Comity for Medical Specialization in Surgery 1998.
- 3-Hector M . *et.al* . The acute abdomen and the acute abdomen in pregnancy. *Surgical Clinics of North America* 1997; **77(6)**: 1371-1391.
- 4-Al-Musawi SH. Abruptio placenta: Perinatal outcome in normotensive and hypertensive patients in Basra Maternity Hospital. A thesis submitted for Basra Medical Collage for Diploma in Gynaecology and Obstetric 1996.
- 5-Niebyl JR. Drugs with potential fetal toxicity. *Contemp. Obst. Gyneco* 1991;**36**:68-71.
- 6-Beyer D & Schulte B. Radiological diagnosis of acute abdomen. *Bildgebung* 1993; **12(58)**: 6-19.
- 7-Herbert R & White RG. Ultrasound of the acute abdomen. *Radiogr. Today*. Belfast city hospital 1990; **56(640)**:27-30.
- 8-Cilotti A & Weis. Echography in gynaecologic emergencies. *Radiol. Med*. Torino 1992; **83(5)**: 630-5.
- 9-Arnold G. *et.al*. The acute abdomen. Sabiston, *Textbook of Surgery*. 15<sup>th</sup> (ed). Washington: W.B. Saunders, 1997: 825-894.
- 10Chamberlain G. *Obstetrics by Ten Teachers*. 16<sup>th</sup> (ed). London: Arnold, 1996
- 11-Stephen M & Gordon. Acute abdomen in pregnancy. *PostGraduate Doctors* 1990; **13(2)**: 62-3.
- 12-Weinstein L. *et.al*. Ectopic pregnancy, a new surgical epidemic. *Obst. Gyneco* 1983; **61**: 698-99.
- 13-Tamir IL, Bongard FS & Klein SR: Acute appendicitis in the pregnancy patient. *Am J Surgery* 1990; **160**:57.
- 14-Schriber JH. Laparoscopic appendectomy in pregnancy. *Surg. Endosc* 1999; **4**: 100-101.
- 18-Epstein FB. Acute abdominal pain in pregnancy. *Emerg. Med. Clin. North. Am* 1994; **12(1)**: 151-65.
- 19-Heidenreich W & Hitzmann H. Giant ovarian cystoma in mature pregnancy. *Geburtshilfe, Frauenheilkd* 1994; **54(10)**: 589-91.
- 10-Edmonds K D. Dewhurst *Textbook of Obstetric and Gynaecology for Postgraduate*. 6<sup>th</sup> (ed). London: Blackwell Scientific Publication, 1999.
- 21-Karpathios S. *et.al*. Ovarian neoplasm and pregnancy. *Int. Surg* 1977; **62**: 80-85
- 22-Allen JR, Helling TS & Langerfeld M. Intra abdominal surgery during pregnancy. *Am J Surg* 1989; **158**: 567-68.
- 23-Rustgi VK & Cooper JN. Gastrointestinal and hepatic complications in pregnancy. Wiley 1986. **26(4)**: 11-19.
- 24-Burch JM. *et...al*. The abdominal compartment syndrome. *Surg. Clin. North. Am* 1996; **76**: 833.
- 25-Rick W. *et.al*. Surgical diseases and disorders in pregnancy. *Current Textbook of Obstetric and Gynaecology*. 16<sup>th</sup> (ed). California: Lang Medical Publication, 1996 :299-310.
- 26-Tarpley JL. Perforated typhoid enteritis. *Am .J. Surg* 1989; **157(4)**: 423-7.
- 28-Hector M . *et.al* . The acute abdomen and the acute abdomen in pregnancy. *Surgical Clinics of North America* 1997; **77(6)** : 1371-1391.