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A study on acute abdominal emergencies in a tertiary care obstetric ICU in South India

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Abstract
Background: Acute abdomen is one of the most challenging acute emergency situation in the field of obstetrics and gynaecology. It is the sudden onset of severe pain in the abdominal region which is associated with vomiting, abdominal distension, diarrhoea and constipation. If the diagnosis got delayed results in life threatening lethal mortality and morbidity. For diagnosing the acute abdominal emergencies we require good clinical examination and various diagnostic modalities including USG, X-Ray, CT abdomen and MRI. The treatment is mainly depends on the clinical diagnosis at the time of admission and the hemodynamic status of the patient at the health care institute.
Methods: The present study was conducted on a prospective observational basis over the period from May 2023 to April 2024 in the department of Obstetrics and Gynecology at Chengalpattu Medical College and Hospital, Tamil Nadu, India.
Results: Among the 40 women's studied the incidence of acute abdominal emergency 0.002 in Chengalpattu Medical College. With acute abdomen during pregnancy of these 22 women had obstetric cause of acute abdomen which is accounts for 55% of the cases. The remaining 18 patients of 45% are due to non-obstetric causes of acute abdominal emergencies. Among the non-obstetric cause highest is being acute appendicitis 7 cases (17.5%), cholecystitis 2 cases and splenic rupture 2 cases were equal contributors both sharing around (5%) each, Hydroureteronephrosis1 case, Appendicular perforation 1 case, Acute pancreatitis 1 case, Fibroid uterus 1 case all shares about (2.5%) each. The most common obstetric cause was ectopic pregnancy 19 cases (48%) with higher incidence in Second gravidas (55%) than primi gravidas (27.5%). The incidence was higher in the age group between 20-25 years 22 cases is (55%) and in 25-30 years of age 9 cases the incidence is 22.5% the incidence is very low in < 20 years of age which is about 4 cases(10%). Gynaecological conditions accounted for 10% of the cases equally shared by fibroid uterus, ovarian torsion and ruptured follicular cyst of pregnancy. All these womens were saved from life threatening morbidity without any mortality because of early identification with resuscitation and management.
Conclusion: Improving the conditions of peripheral healthcare centres with facilities such as specialist doctors and proper transportation is crucial. Equally important is raising awareness among the population and fostering a proactive attitude to ensure early referrals to these centres, ultimately enhancing pregnancy outcomes.

Keywords: Acute abdomen, ectopic gestation, rupture uterus, appendicitis, speenic rupture

Introduction
As per the World Health Organization "Obstetrical Emergencies" are the most common causes for maternal mortality, particularly in developing countries due to lack of awareness, poverty, illiteracy, poor transport facilities, inadequate equipment, staffing and delay in seeking care by the patient and attenders Resulting in delay in diagnosis of acute abdominal emergencies resulting in mortality [1]. These emergencies are not only limited to the perinatal period as postpartum hemorrhage, uterine rupture, retained placenta and abortion complications. All of which carry potentially life-threatening risks [2-5]. Though there are many measures has been taken to reduce Maternal Mortality and achieved the rate worldwide but still the rates are high in poorly developing countries as per WHO data analysis [6]. Maternal health status is assessed through measurement of mortality and morbidity. Acute abdomen accounts for nearly 5-10% of all emergency department visits of which the causes could be obstetric, gynaecological or surgical or medical. The term acute abdomen refers to any sudden onset of serious acute intra-abdominal condition accompanied by abdominal pain, tenderness, vomiting, fever, abdominal distension and muscular physiological changes during pregnancy and rigidity, for which patients

requires emergency clinical evaluation and imaging studies followed by surgical intervention is contemplated. The challenge in management of acute abdomen pregnancy lies in the anatomical and restriction in diagnostic imagining techniques. Physical findings are less prominent when compared to the non-pregnant states [7]. The management of acute abdomen in pregnancy also has a conflict of opinions some advocating an aggressive early surgical intervention [8] while others adopt an initial trial of medical management and resort to surgical management if medical management fails.

Methods

This is an prospective observational study conducted in the department of Obstetrics and Gynecology, Chengalapttu Medical College and Hospital, chengalpattu, Tamil Nadu, India from May 2023 to April 2024. Cases of acute abdomen that presented in various trimesters of pregnancy admitted in Obstetrics Intensive Care Unit. Among the 16092 admissions a total of 40 pregnant women who admitted to the obstetric emergency intensive care unit for Acute Abdominal Emergencies, initial assessment and resuscitative measures were done, following which conservative management and surgical intervention done were studied and various parameters were reviewed in terms of whether obstetric or non-obstetric conditions, age group distribution, trimester of occurence, Socio-economic status, educational status, obstetrics score, modes of management, postoperative complications and duration of hospital stay all these were analysed.

Results and Discussion

Among the 40 women's studied the incidence of acute abdominal emergency 0.002 in the Chengalpattu Medical College. With acute abdomen during pregnancy of these 22 women had obstetric cause of acute abdomen which is accounts for 55%. The remaining 18 patients of 45% are due to non-obstetric causes of acute abdominal Emergencies. Among the non-obstetric cause highest is being acute appendicitis 7 cases (17.5%), cholecystitis 2 cases and splenic rupture 2 cases were equal contributors both sharing around (5%) each, hydroureteronephrosis 1 case, appendicular perforation 1 case, acute pancreatitis 1 case, fibroid uterus 1 case all shares about (2.5%) each. The most common obstetric cause was ectopic pregnancy 19 cases (48%) with higher incidence in Second gravidas (55%) than primi gravidas (27.5%). The incidence was higher in the age group between 20-25 years 22 cases is (55%) and in 25-30 years of age 9 cases the incidence is 22.5% the incidence is very low in < 20 years of age which is about 4 cases(10%). Gynaecological conditions accounted for 10% of the cases equally shared by fibroid uterus, ovarian torsion and ruptured follicular cyst of pregnancy. All these womens were saved from life threatening morbidity without any mortality because of early identification with resuscitation and management.

Table 1: Table showing the age wise distribution of acute obstetric emergencies

S. No	Age Group in years	Number of cases (n)	Incidence (%)
1	< 20	4	10%
2	20-25	22	55%
3	25-30	9	22.5%
4	> 30	5	12.5%

The incidence of acute abdomen is more in pregnant women of the age group 20 to 25 yrs. (55%) and the lowest age group affected is less than 20 years of age which is around 4 in no accounts for (10%).

Table 2: Incidence of Obstetrics emergencies in relation with obstetric score or parity distribution

S. No.	Obstetric score	Incidence	Percentage (%)
1	Primi	11 (27.5%)	20%
2	Second gravida (G2)	22 (55%)	35%
3	Third gravida (G3)	5 (12.5)	35%
4	Fourth gravid (G4)	2 (5%)	10%

Rupture of a solid organ was more common in the third trimester like uterine or splenic rupture. Appendicitis was more commonly seen in young primigravidas in their early trimester during which surgical management also did not pose much challange. Ectopic and abdominal pregnancy were more in the early trimester due to the accurate diagnosis in order to enable earlier removal of the ectopic. Women usually presented with complaints of abdominal pain and few with complaints such as vomiting, and hemoperitoneum was the clinching point in diagnosis. Rupture of a solid organ was more common in the third trimester like uterine or splenic rupture usually present with acute Abdomen with hemoperitoneum.

Table 3: Table illustrating the incidence of acute abdominal emergencies in different trimesters and its distribution

S. No	Trimester distribution	Number of patients(n)	Percentage (%)
1.	First	30	75%
2.	Second	7	17.5%
3.	Third	3	5%

In other words medical and surgical causes were more seen in the first and second trimesters of pregnancy enabling early diagnosis and appropriate conservative or surgical management thus saving the pregnancy [9].

Early trimester usually the first trimester. Majority of them needed surgical management. Medical management proved to be much less of use in first trimester of regnancy.

Table 4: Causewise distribution of cases

S. No	Causes	Number of patients (N)	Percentage
1	Non obstetric	18	45%
2	Obstetric	22	55%
Total		40	100%

Table 5: Distribution of the cases based on aetiology

S. No	Cause	Number of patients (N)	Percentage (%)
1.	Ectopic pregnancy	18	45%
2.	Omental /and Ectopic	1	2.5%
3.	Ruptured ovarian cyst	1	2.5%
4.	Uterine rupture	3	7.5%
5.	Fibroid	1	2.5%
6.	Ovarian torsion	2	5%
7.	Acute appendicitis	7	17.5%
8.	Cholecystitis	2	5%
9.	Hydro ureteronephrosis	1	2.5%
10.	Appendicular perforation	1	2.5%
11.	Spleenic rupture	2	5%
12.	Pancreatitis	1	2.5%

Ectopic pregnancy was the most common cause of acute abdomen in pregnancy. Tubal ectopic pregnancy was the most common one. There were also ovarian pregnancy and an

abdominal pregnancy (as a part of heterotropic pregnancy) each. Patients presented with severe abdominal pain and sometimes vomiting. 3 of them presented in shock due to massive hemoperitoneum which was the commonest finding. Ectopic pregnancy was more common in multigravidas (G2 and more) which accounted for 22 cases of these 9 were ectopic. The incidence of ectopic pregnancy was more with patients with age group 20-25 yrs. and less in younger women less than 20 years which was around 4 womens [10]. Incidence is more in 10%. Among the three women that presented with adominal pain and vomiting one was a primi and two were second gravidas with previous LSCS.

There were 3 cases of uterine rupture which is around 7.5% of the total causes. Uterine rupture typically occurred in women with previous scar which was indicated by two of them occurring in women with previous LSCS and all of them occurred in the third trimester [11]. This was in sync with other studies on uterine scar rupture [12-14]. Among these women one had a previous history of uterine rupture which also presented at the end of second trimester. Management was surgical and rent repair was done. The outcome was good with good recovery.

Ruptured follicular ovarian cyst in Ovarian Hyperstimulation Syndrome and abdominal pregnancy both contributing for 2.5% each were seen in primigavidas who had taken infertility treatments. Appendicitis is the most common non-obstetric and splenic rupture were the most common causes both in 3 patients each however appendicitis was more prevalent in the early trimester and splenic rupture was seen in the late 2nd and 3rd trimester. Patients presented with acute pain abdomen with vomiting and history of fever in the former while pain abdomen and shock was features in the later [15-17]. Hemoperitoneum was an important finding in splenic rupture case 1 case due to RTA spleen could not be saved hence spleenectomy done and another case happened due to assault by her husband and spleen conservation done because of minimal bleeding. Both patients were discharged on 10th post-operative day. Appendicitis was more in young primi gravidas while splenic rupture was seen in multigravidas [18].

Table 6: Management distribution of Data's

S. No	Mode of treatment	Number of patients(n)	Percentage (%)
1	Medical	7	17.5%
2	Surgical	33	82.5

Cholecysytitis was seen in both primigravida and multigravida predominantly occurring in the second trimester however studies show cholecystitis can present in any trimester. Both conservative and surgical management were possible. One case of acute pancreatitis presented with abdominal pain in the trimester which was managed conservatively.

Fig 1: Specimen of splenectomy

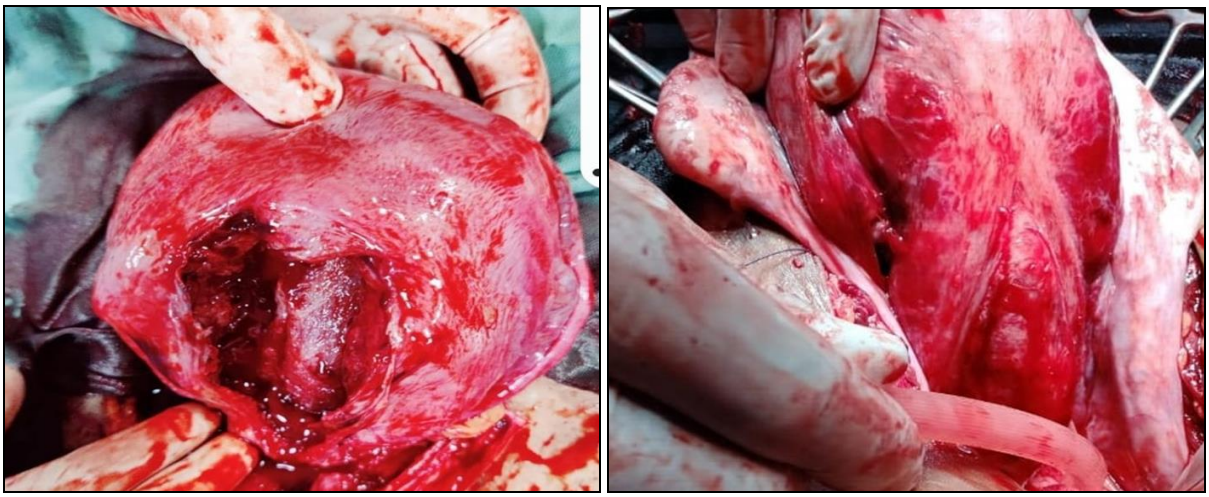

Fig 2: Image of uterine rupture

Fig 3: Image of abdominal pregnancy

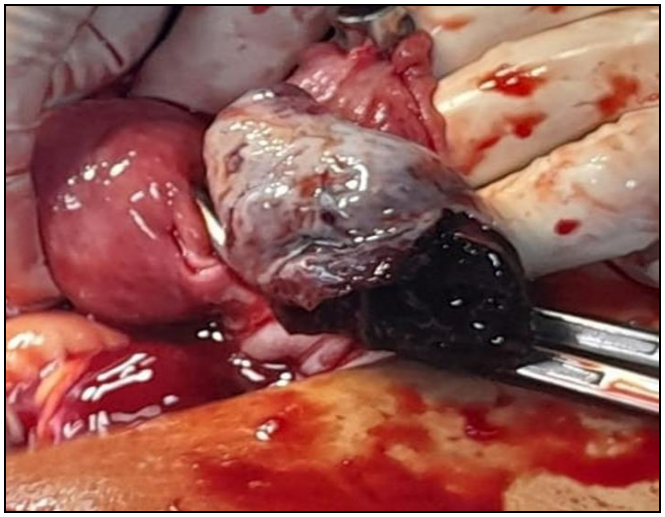

Fig 4: Image of ruptured follicular cyst in OHSS

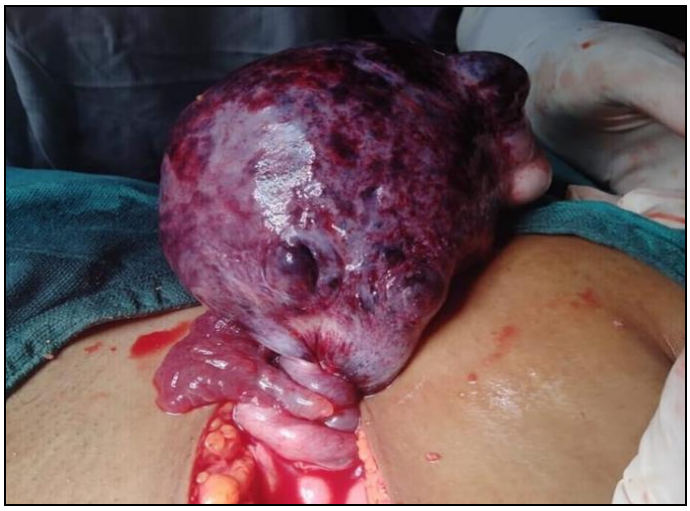

Fig 5: Image of torsion ovarian cyst

Conclusion

The overall results point towards the inference that obstetric causes are more common than non-obstetric cause of acute abdomen in pregnancy. Ectopic pregnancy ruptured being the leading cause of acute obstetric emergency among them. Though we are having adequate clinical knowledge and experts in their respective fields and imaging modalities, womens needs to be educated from reproductive age group it should be started from school education, regarding emergencies during reproductive age, antenatal periods to reduce the maternal mortality and morbidity of our nation. Every antenatal women to be routinely visited by concerned village health nurses and medical officers which will helps in further reduction in mortality and also helps in healthy living of each women in the world.

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Conflict of Interest

Not available

Financial Support

Not available

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