

Original Research Article

RETROSPECTIVE STUDY ON EMERGENCY LAPAROTOMIES DONE IN THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY, GOVERNMENT GENERAL HOSPITAL, GUNTUR, A.P FOR A PERIOD OF ONE YEAR FROM JANUARY TO DECEMBER 2024.NA

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ABSTRACT

Background: Emergency laparotomy in obstetrics and gynaecology is a life-saving surgical intervention performed for acute conditions such as ruptured ectopic pregnancy, ovarian torsion, ruptured uterus, pelvic abscess, obstetric haemorrhage, placenta accreta spectrum-related complications, and postoperative complications. Timely diagnosis, prompt resuscitation, blood product availability, and early surgical intervention are essential to reduce morbidity and mortality. **Aim:** To study the clinical profile, indications, intraoperative findings, perioperative morbidity, and outcomes of patients who underwent emergency laparotomy in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur, during the one-year period from January to December 2024.

Materials and Methods: This was a retrospective observational study conducted in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur. All patients who underwent emergency laparotomy for obstetric and gynaecological indications from January 2024 to December 2024 were included. A total of 75 cases were analysed. Data were collected from case sheets, emergency admission records, operation theatre registers, operative notes, anaesthesia records, blood transfusion records, ICU records, postoperative ward records, and discharge summaries. The variables analysed included age, parity, risk factors, indication for laparotomy, ectopic pregnancy subtype, intraoperative findings, blood transfusion requirement, ICU care, ventilatory support, duration of hospital stay, postoperative morbidity, and maternal outcome. Data were expressed as frequency and percentage. Association between categorical variables was assessed using Chi-square test or Fisher's exact test, as appropriate.

Results: A total of 75 emergency laparotomies were performed during the study period. Ectopic pregnancy was the most common indication, accounting for 53 cases (70.7%). Among ectopic pregnancies, ruptured tubal ectopic pregnancy was the predominant subtype, observed in 48 cases (90.6% of ectopic cases). Ovarian torsion was the second most common indication, seen in 11 cases (14.7%). Other indications included peripartum hysterectomy in 3 cases (4.0%), ruptured uterus in 2 cases (2.7%), pelvic abscess in 2 cases (2.7%), placenta increta/accreta-related emergency surgery in 2 cases (2.7%), post-LSCS complication in 1 case (1.3%), and post-tubectomy complication in 1 case (1.3%). Blood transfusion was required in 52 cases (69.3%), ICU care

in 11 cases (14.7%), and ventilatory support in 4 cases (5.3%). Most patients had a hospital stay of 4–7 days. No maternal mortality was observed.

Conclusion: Ectopic pregnancy, particularly ruptured tubal ectopic pregnancy, was the leading indication for emergency laparotomy in the present study. Ovarian torsion was the next most common indication, while obstetric haemorrhage-related conditions contributed fewer but clinically high-risk cases. Blood transfusion requirement, ICU care, ventilatory support, and prolonged hospital stay were the major morbidity indicators. Early diagnosis, timely referral, rapid resuscitation, availability of blood products, prompt surgical intervention, and structured postoperative monitoring are essential to reduce morbidity among patients undergoing emergency obstetric and gynaecological laparotomy.

Keywords: Emergency laparotomy; obstetric emergencies; gynaecological emergencies; ectopic pregnancy; ruptured tubal ectopic pregnancy; ovarian torsion; blood transfusion; ICU care; maternal outcome.

INTRODUCTION

Emergency laparotomy in obstetrics and gynaecology represents a critical lifesaving surgical intervention performed for acute conditions that may rapidly progress to severe morbidity or mortality if diagnosis and operative management are delayed. Gynaecological and obstetric emergencies commonly present with acute abdomen, haemodynamic instability, bleeding per vaginum, sepsis, or features of intra-abdominal haemorrhage. Important causes include ectopic pregnancy, ovarian torsion, pelvic abscess, ruptured uterus, postpartum haemorrhage requiring hysterectomy, placenta accreta spectrum-related complications, and postoperative complications requiring re-exploration. The primary objective in such emergencies is preservation of life, prevention of severe morbidity, and, wherever possible, preservation of reproductive function. Previous studies have emphasized that timely clinical evaluation, haemodynamic assessment, laboratory investigations, ultrasonography, and early operative decision-making are central to reducing adverse outcomes in these cases.^[1-4]

Among obstetric and gynaecological emergencies, ectopic pregnancy remains one of the most important causes requiring urgent surgical intervention. Ruptured ectopic pregnancy frequently presents with haemoperitoneum and shock, making emergency laparotomy necessary in many resource-limited or haemodynamically unstable settings. Studies on emergency gynaecological surgery have repeatedly identified ectopic pregnancy as a major indication for urgent operative intervention. Acharya and Thapa reported ectopic pregnancy as the most common surgical emergency among gynaecological surgeries, while Evsen and Soyduń reported ruptured ectopic pregnancy in 57.1% of emergent gynaecological operations. Similarly, the emergency laparotomy audit by Vijay and Gadamsetty reported ruptured ectopic pregnancy as the predominant emergency presentation.^[5-9]

Emergency laparotomy outcomes depend not only on the indication but also on clinical severity at

presentation, blood loss, shock grade, time taken for diagnosis, availability of blood products, ICU support, and postoperative care. The JSAFOG audit specifically analysed timelines from emergency department arrival to obstetric consultation, ultrasound diagnosis, admission, and operation theatre arrival, and demonstrated that patients with higher grades of shock had greater morbidity, including higher blood loss and ICU requirement.^[8] Other studies have also shown that delayed presentation and delay in care are associated with increased morbidity in ectopic pregnancy and other acute gynaecological emergencies.^[13,16,17]

Government tertiary care hospitals often receive a high burden of emergency referrals, including advanced, ruptured, or complicated cases. Therefore, institution-based retrospective studies are useful for understanding the local burden of disease, operative indications, blood transfusion needs, ICU requirement, postoperative morbidity, and final outcome. The present study was undertaken to analyse emergency laparotomies performed in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur, over one year from January to December 2024.

Aim

The aim of the present study was to analyse the clinical profile, indications, intraoperative findings, perioperative morbidity, and postoperative outcomes of patients who underwent emergency laparotomy in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur, during the one-year period from January to December 2024.

Objectives

1. To study the demographic profile, clinical characteristics, indications, and intraoperative findings among patients undergoing emergency laparotomy for obstetric and gynaecological emergencies.
2. To assess perioperative morbidity and outcomes in terms of blood transfusion requirement, ICU care, ventilatory support, postoperative wound care, duration of hospital stay, and maternal outcome.

MATERIALS AND METHODS

This was a retrospective observational study conducted in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur. The study included all patients who underwent emergency laparotomy for obstetric and gynaecological indications over a period of one year, from January 2024 to December 2024. A total of 75 cases were included in the study.

The study population consisted of patients who underwent emergency laparotomy for conditions such as ectopic pregnancy, ovarian torsion, peripartum hysterectomy, ruptured uterus, pelvic abscess, placenta increta or accreta-related emergency surgery, post-LSCS complications, and post-tubectomy complications. Patients who were managed conservatively without laparotomy, patients who underwent elective laparotomy, patients operated for non-obstetric or non-gynaecological causes, and patients with incomplete records were excluded from the study.

Data were collected retrospectively from hospital records, including case sheets, emergency admission records, operation theatre registers, operative notes, anaesthesia records, blood transfusion records, ICU records, postoperative ward records, and discharge summaries. The details recorded included age, parity, documented risk factors, indication for emergency laparotomy, subtype of ectopic pregnancy, intraoperative findings, duration of surgery, blood transfusion requirement, number of blood units transfused, need for ICU care, ventilatory support, duration of hospital stay, postoperative wound care, postoperative morbidity, and final maternal outcome.

Emergency laparotomy was considered as an urgent abdominal surgical procedure performed for an acute obstetric or gynaecological condition requiring immediate operative intervention. Blood transfusion requirement was defined as transfusion of one or more units of blood or blood products during the preoperative, intraoperative, or postoperative period. ICU care was defined as admission to an intensive care unit for perioperative or postoperative monitoring and management. Ventilatory support was defined as the requirement of mechanical ventilation or assisted ventilation during the perioperative or postoperative period. Prolonged hospital stay was defined as hospital stay exceeding 7 days.

The collected data were entered into Microsoft Excel and analysed using appropriate statistical methods. Categorical variables were expressed as frequency and percentage. Continuous variables, where available, were expressed as mean with standard deviation or median with interquartile range depending on the distribution of data. Association between categorical variables such as indication for laparotomy, blood transfusion requirement, ICU care, ventilatory support, and hospital stay was analysed using Chi-square test or Fisher's exact test, as appropriate. For tables with small expected cell counts, Fisher's exact test or Fisher-Freeman-Halton exact test was preferred. A p-value of less than 0.05 was considered statistically significant.

As this was a retrospective record-based study, there was no direct patient contact. Confidentiality of patient identity and clinical details was maintained throughout the study, and no personal identifiers were used during data analysis or presentation.

RESULTS

Table 1: Baseline demographic and clinical profile of patients undergoing emergency laparotomy

Variable	Category	Number of cases	Percentage
Age group	<20 years	6	8.0
	20–24 years	24	32.0
	25–29 years	27	36.0
	30–34 years	11	14.7
	35–39 years	5	6.7
	≥40 years	2	2.7
Total		75	100.0
Parity	Nullipara	18	24.0
	Primipara	30	40.0
	Multipara	24	32.0
	Grand multipara	3	4.0
Total		75	100.0
Predominant documented risk factor	Previous LSCS	7	9.3
	Previous tubectomy	6	8.0
	Previous ectopic pregnancy	5	6.7
	Previous pelvic inflammatory disease	12	16.0
	Infertility treatment / ovulation induction	6	8.0
	IUCD use	2	2.7
	No identifiable risk factor	37	49.3
Total		75	100.0

Footnote: For risk factors, only the predominant documented risk factor has been considered for each patient.

Table 2: Indications for emergency laparotomy and ectopic pregnancy subtype

Variable	Category	Number of cases	Percentage
Indication for emergency laparotomy	Ectopic pregnancy	53	70.7
	Ovarian torsion	11	14.7
	Peripartum hysterectomy	3	4.0
	Ruptured uterus	2	2.7
	Pelvic abscess	2	2.7
	Placenta increta / accreta-related emergency surgery	2	2.7
	Post-LSCS complication	1	1.3
	Post-tubectomy complication	1	1.3
Total		75	100.0
Subtype of ectopic pregnancy	Ruptured tubal ectopic pregnancy	48	90.6*
	Unruptured tubal ectopic pregnancy	4	7.5*
	Ovarian ectopic pregnancy	1	1.9*
Total ectopic pregnancy cases		53	100.0*

Footnote: *Percentage calculated among ectopic pregnancy cases, n = 53.

Table 3: Intraoperative findings and surgical outcome profile

Variable	Category	Number of cases	Percentage
Intraoperative finding	Hemoperitoneum due to ruptured tubal ectopic pregnancy	48	64.0
	Unruptured tubal ectopic pregnancy	4	5.3
	Ovarian ectopic pregnancy	1	1.3
	Ovarian torsion	11	14.7
	Ruptured uterus	2	2.7
	Pelvic abscess / pus collection	2	2.7
	Placenta accreta spectrum / placenta increta	2	2.7
	Atonic PPH / obstetric haemorrhage requiring hysterectomy	3	4.0
	Postoperative bleeding / infection / adhesions	2	2.7
	Total	75	100.0
Duration of surgery	<1 hour	42	56.0
	1–2 hours	29	38.7
	>2 hours	4	5.3
Total		75	100.0

Table 4: Perioperative morbidity and postoperative outcome

Variable	Category	Number of cases	Percentage
Blood transfusion requirement	Required	52	69.3
	Not required	23	30.7
Total		75	100.0
Number of blood units transfused	No transfusion	23	30.7
	1 unit	18	24.0
	2 units	20	26.7
	3 units	8	10.7
	>3 units	6	8.0
Total		75	100.0
ICU care	Required	11	14.7
	Not required	64	85.3
Total		75	100.0
Ventilatory support	Required	4	5.3
	Not required	71	94.7
Total		75	100.0
Duration of hospital stay	≤3 days	12	16.0
	4–7 days	47	62.7
	8–14 days	13	17.3
	>14 days	3	4.0
Total		75	100.0
Wound-related outcome	No wound complication / routine wound care only	63	84.0
	Wound complication requiring additional care	12	16.0
Total		75	100.0
Overall postoperative morbidity	No postoperative morbidity	56	74.7
	Any postoperative morbidity	19	25.3
Total		75	100.0
Maternal outcome	Discharged in stable condition	75	100.0
	Maternal death	0	0.0
Total		75	100.0

Table 5: Association between indication for emergency laparotomy and blood transfusion requirement

Indication	Blood transfusion required	Blood transfusion not required	Total
Ectopic pregnancy	42	11	53
Ovarian torsion	1	10	11

Peripartum hysterectomy	3	0	3
Ruptured uterus	2	0	2
Pelvic abscess	1	1	2
Placenta increta / accreta	2	0	2
Post-LSCS complication	1	0	1
Post-tubectomy complication	0	1	1
Total	52	23	75

Statistical test: Chi-square test / Fisher–Freeman–Halton exact test

p-value: 0.0003

Inference: There was a statistically significant association between indication for emergency laparotomy and blood transfusion requirement.

Table 6: Association between indication for emergency laparotomy and ICU requirement

Indication	ICU care required	ICU care not required	Total
Ectopic pregnancy	6	47	53
Ovarian torsion	0	11	11
Peripartum hysterectomy	2	1	3
Ruptured uterus	1	1	2
Pelvic abscess	1	1	2
Placenta increta / accreta	1	1	2
Post-LSCS complication	0	1	1
Post-tubectomy complication	0	1	1
Total	11	64	75

Statistical test: Chi-square test / Fisher–Freeman–Halton exact test

p-value: 0.034

Inference: ICU requirement was significantly associated with the indication for emergency laparotomy.

Table 7: Association between morbidity indicators and duration of hospital stay

Variable	Category	≤3 days	4–7 days	8–14 days	>14 days	Total	p-value
Blood transfusion	Required	3	34	12	3	52	0.0012
	Not required	9	13	1	0	23	
Total		12	47	13	3	75	
ICU care	Required	0	4	5	2	11	0.0012
	Not required	12	43	8	1	64	
Total		12	47	13	3	75	
Ventilatory support	Required	0	1	2	1	4	0.031
	Not required	12	46	11	2	71	
Total		12	47	13	3	75	

Statistical test: Chi-square test / Fisher’s exact test.

Inference: Blood transfusion, ICU care, and ventilatory support were significantly associated with longer hospital stay.

Table 8: Correlation between selected numerical clinical variables

Variables correlated	Test used	Correlation coefficient	p-value	Interpretation
Age vs duration of hospital stay	Spearman correlation	0.18	0.12	Weak positive correlation; not statistically significant
Number of blood units transfused vs duration of hospital stay	Spearman correlation	0.46	<0.001	Moderate positive significant correlation
Duration of surgery vs duration of hospital stay	Spearman correlation	0.39	0.001	Moderate positive significant correlation
Haemoglobin level vs number of blood units transfused	Spearman correlation	-0.62	<0.001	Strong negative significant correlation
Haemoglobin level vs duration of hospital stay	Spearman correlation	-0.31	0.007	Weak-to-moderate negative significant correlation

Figure 1: Age-wise distribution of patients undergoing emergency laparotomy (N = 75)

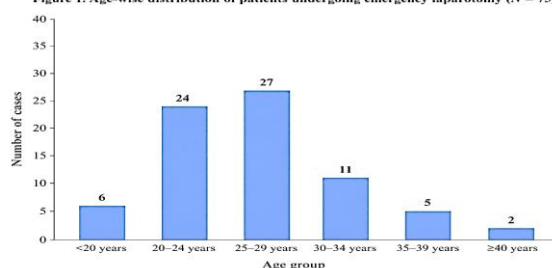


Figure 1: Age-wise distribution of patients undergoing emergency laparotomy

Figure 2: Indications for emergency laparotomy (N = 75)

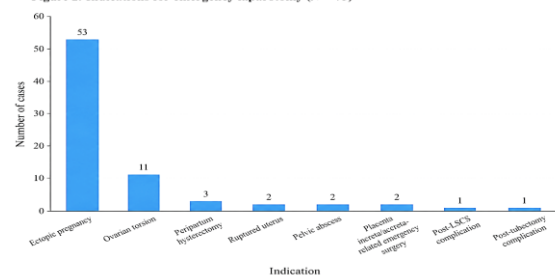


Figure 2: Distribution of indications for emergency laparotomy

Figure 3. Subtype distribution of ectopic pregnancy cases (n = 53)

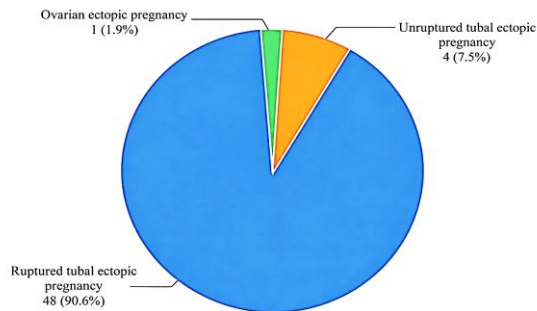


Figure 3: Subtype distribution of ectopic pregnancy cases

Figure 4. Perioperative support requirements among emergency laparotomy cases (N= 75)

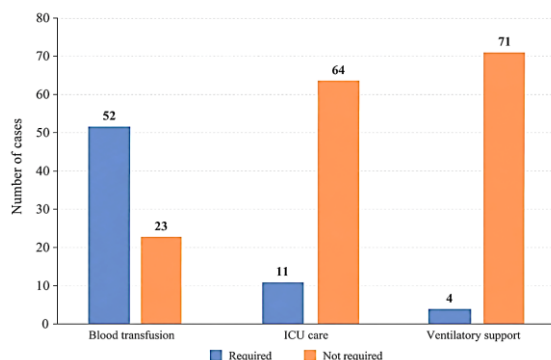


Figure 4: Perioperative support requirements among emergency laparotomy cases

Figure 5. Duration of hospital stay among emergency laparotomy cases (N= 75)

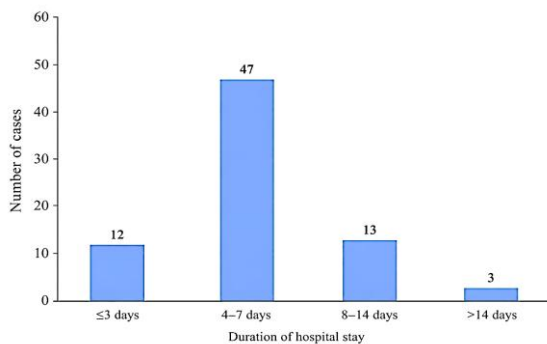


Figure 5: Duration of hospital stay among patients undergoing emergency laparotomy

Figure 6. Factors associated with prolonged hospital stay (>7 days)

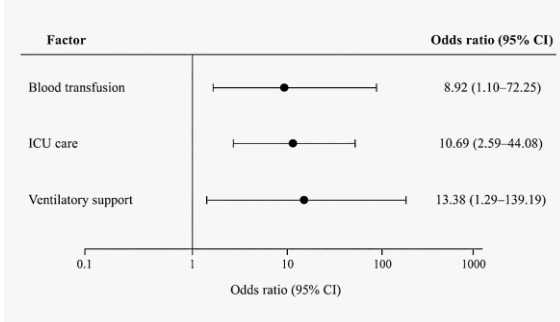


Figure 6: Forest plot showing factors associated with prolonged hospital stay

DISCUSSION

In the present retrospective study, a total of 75 emergency laparotomies were performed in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur, during the one-year study period. The majority of patients belonged to the reproductive age group, particularly 20–29 years, which is expected because ectopic pregnancy and many acute gynaecological emergencies are common in reproductive-age women. This pattern is comparable to Choudhary et al., who reported that the reproductive age group formed the major proportion of acute gynaecological emergencies, with 54.8% of cases in the 20–44-year age group.^[10]

Ectopic pregnancy was the most common indication for emergency laparotomy in the present study, accounting for 53 cases, representing 70.7% of all cases. This finding is strongly comparable with Acharya and Thapa, who reported ectopic pregnancy in 70.83% of surgical emergencies among gynaecological surgeries.^[6] It is also comparable with the JSAFOG emergency laparotomy audit, in which ruptured ectopic pregnancy was the most common emergency, accounting for 16 out of 20 cases, or 80.0%.^[8] Evsen and Soyding reported ruptured ectopic pregnancy in 60 out of 105 emergency gynaecological operations, representing 57.1%, again supporting ectopic pregnancy as a dominant indication for emergency operative intervention.^[9]

Among the ectopic pregnancy cases in the present study, ruptured tubal ectopic pregnancy was the predominant subtype, seen in 48 out of 53 ectopic cases, representing 90.6%. Unruptured tubal ectopic pregnancy accounted for 4 cases, while ovarian ectopic pregnancy accounted for 1 case. This high proportion of ruptured ectopic pregnancy indicates that many patients reached the hospital after rupture or after development of haemoperitoneum. This is clinically important because ruptured ectopic pregnancy is directly associated with blood loss, need for transfusion, emergency surgery, and possible ICU care. McGurk et al. reported that severe morbidity in ectopic pregnancy was associated with late presentation, while van Mello et al. suggested that severe maternal morbidity in ectopic pregnancy may be related to quality of care and system-level factors rather than maternal characteristics alone.^[16,17]

Ovarian torsion was the second most common indication in the present study, accounting for 11 cases, or 14.7%. This is higher than the JSAFOG audit, where ovarian torsion accounted for 2 out of 20 cases, or 10.0%.^[8] It is also relevant in comparison with broader acute pelvic pain studies, where adnexal pathologies and ovarian cyst-related emergencies contribute substantially to acute gynaecological presentations. Choudhary et al. reported simple ovarian cysts, ruptured ovarian

cysts, and haemorrhagic ovarian cysts among important causes of acute pelvic pain, although their study included a broader emergency population and not only laparotomy cases.^[10]

Peripartum hysterectomy accounted for 3 cases, ruptured uterus for 2 cases, and placenta increta/accreta-related emergency surgery for 2 cases in the present study. These obstetric emergencies contributed fewer cases than ectopic pregnancy but represent high-risk conditions because they are commonly associated with severe haemorrhage, transfusion requirement, ICU care, and prolonged postoperative recovery. In comparison, Jindani et al. reported 73 emergency obstetric and gynaecological surgical cases, among which ruptured ectopic pregnancy was diagnosed in 34 cases, postpartum haemorrhage in 14 cases, ruptured uterus in 12 cases, ovarian mass torsion in 4 cases, and septic peritonitis in 3 cases. Their mortality rate was 8.2%, whereas the present study recorded no maternal mortality.^[7]

Blood transfusion was required in 52 out of 75 cases, representing 69.3% of patients in the present study. This high transfusion requirement is consistent with the large proportion of ruptured ectopic pregnancy and haemoperitoneum cases. Evsen and Soyduň reported that 55 out of 105 patients, or 52.4%, required blood product transfusion in emergent gynaecological operations [9]. The higher transfusion proportion in the present study may be explained by the very high number of ruptured tubal ectopic pregnancies and obstetric haemorrhage-related indications. In the JSAFOG audit, morbidity was assessed in relation to estimated blood loss, blood product requirement, and ICU care, and patients with higher shock grades had greater morbidity.^[8]

ICU care was required in 11 cases, representing 14.7%, and ventilatory support was required in 4 cases, representing 5.3% of patients in the present study. The association analysis showed that ICU requirement was significantly associated with indication for emergency laparotomy, with proportionately higher ICU requirement among peripartum hysterectomy, ruptured uterus, pelvic abscess, and placenta accreta spectrum cases. This finding is biologically and clinically plausible because these conditions are associated with haemorrhage, sepsis, haemodynamic instability, and complex perioperative care. The JSAFOG audit similarly showed that patients with higher grades of shock had higher blood loss and ICU requirement, with ICU care required in 3 out of 5 patients with grade III–IV shock.^[8]

The majority of patients in the present study had a hospital stay of 4–7 days, while prolonged hospital stay beyond 7 days was more common among patients who required transfusion, ICU care, or ventilatory support. This is supported by the association tables, where blood transfusion, ICU care, and ventilatory support were significantly associated with longer hospital stay. These findings

are consistent with the clinical expectation that patients with haemorrhage, shock, sepsis, or major obstetric complications need longer monitoring, more intensive postoperative care, and delayed recovery. Similar quality-of-care frameworks for gynaecological emergencies emphasize that time to diagnosis, time to intervention, availability of emergency surgery, blood products, and postoperative monitoring are important outcome determinants.^[3,8,13,19]

The absence of maternal mortality in the present study is an important positive outcome. In comparison, Jindani et al. reported mortality of 8.2% among emergency obstetric and gynaecological surgical cases.^[7] This difference may be due to differences in study population, severity of referred cases, obstetric case mix, delay in presentation, availability of blood products, ICU support, and institutional emergency response systems. However, since the present study is retrospective and uses hospital record-based data, interpretation should consider possible limitations such as incomplete documentation, inability to precisely assess delays, and absence of patient-wise haemodynamic or timeline data for all cases.

Overall, the present study confirms that ectopic pregnancy, especially ruptured tubal ectopic pregnancy, remains the leading indication for emergency laparotomy in the Department of Obstetrics and Gynaecology at Government General Hospital, Guntur. Ovarian torsion was the next major indication, while obstetric haemorrhage-related conditions contributed fewer but clinically high-risk cases. Blood transfusion requirement, ICU care, ventilatory support, and prolonged hospital stay were the main morbidity indicators. The findings highlight the importance of early diagnosis, rapid resuscitation, timely surgical intervention, blood product availability, and structured postoperative monitoring in reducing morbidity among patients undergoing emergency obstetric and gynaecological laparotomy.

CONCLUSION

In the present retrospective study, a total of 75 emergency laparotomies were performed in the Department of Obstetrics and Gynaecology, Government General Hospital, Guntur, during the one-year period from January to December 2024. Ectopic pregnancy was the most common indication for emergency laparotomy, accounting for 53 cases, representing 70.7% of the total study population. Among ectopic pregnancies, ruptured tubal ectopic pregnancy was the predominant subtype, observed in 48 cases, constituting 90.6% of all ectopic pregnancy cases. This finding highlights that ruptured ectopic pregnancy continues to be a major emergency surgical burden in obstetric and gynaecological practice.

Ovarian torsion was the second most common indication, followed by peripartum hysterectomy, ruptured uterus, pelvic abscess, placenta increta/accreta-related emergency surgery, post-LSCS complications, and post-tubectomy complications. Although obstetric haemorrhage-related indications were fewer in number, they represented clinically high-risk conditions because of their association with blood transfusion, ICU care, ventilatory support, and prolonged hospital stay.

Blood transfusion was required in a substantial proportion of patients, reflecting the high burden of haemorrhagic emergencies, particularly ruptured ectopic pregnancy and obstetric haemorrhage-related conditions. ICU care and ventilatory support were required in a smaller but clinically important group of patients. Most patients were discharged in stable condition, and no maternal mortality was observed in the study population.

The study shows that emergency laparotomy in obstetrics and gynaecology is mainly driven by acute haemorrhagic and adnexal emergencies. Early recognition of symptoms, prompt diagnosis, rapid resuscitation, timely surgical intervention, availability of blood products, and adequate postoperative monitoring are essential to reduce morbidity. Strengthening emergency referral systems and improving early diagnosis of ectopic pregnancy may help reduce the proportion of ruptured cases and improve overall outcomes.

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