



NON-OBSTETRICAL SURGICAL EMERGENCIES IN PREGNANCY: DOUBLE TROUBLE

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ABSTRACT **Background:** Non-obstetrical surgical emergencies in pregnancy, though uncommon, can be life-threatening for both mother and fetus. Physiological changes during pregnancy often obscure clinical signs, leading to delays in diagnosis and management. Appendicitis, biliary disease, intestinal obstruction, trauma, and burns constitute the majority of such emergencies. **Objective:** To evaluate the incidence, spectrum, and fetomaternal outcomes of non-obstetrical surgical emergencies in pregnancy. **Methods:** This retrospective observational study was conducted at MGM Medical College and Hospital, Kamothe, Navi Mumbai, over five years (August 2020 –August 2025). Records of pregnant women admitted with surgical emergencies were reviewed. Obstetric complications, adnexal pathology, and orthopedic emergencies were excluded. Data on demographics, diagnosis, management, and outcomes were analyzed descriptively. **Results:** Out of 10,732 pregnancies, 45 cases of non-obstetrical surgical emergencies were identified, giving an overall incidence of 1 in 228 pregnancies (0.419%). Appendicitis was the most frequent condition (12 cases, 1 in 894; 0.112%), followed by biliary disease (8 cases, 1 in 1342; 0.075%), burns and intestinal obstruction (7 cases each, 1 in 1533; 0.065%), peritonitis (5 cases, 1 in 2146; 0.047%), and trauma and others (3 cases each, 1 in 3577; 0.028%). The majority of cases occurred in the second (33.3%) and third trimesters (48.9%). There were 5 maternal deaths (0.047%), mainly due to burns and peritonitis, and 2 fetal deaths (0.084%), most commonly associated with burns. **Conclusion:** Non-obstetrical surgical emergencies, though rare, are clinically significant in pregnancy. Appendicitis was the most common condition, while burns and peritonitis contributed to the highest maternal and fetal mortality. Early recognition, timely surgical intervention, and multidisciplinary care are critical to improving fetomaternal outcomes.

KEYWORDS : Non-obstetric Surgical Emergencies, Pregnancy, Appendicitis, Maternal Mortality, Fetal Outcome**INTRODUCTION**

Non-obstetrical surgical emergencies in pregnancy, though relatively uncommon, present a unique clinical challenge to both obstetricians and surgeons. Pregnancy is associated with significant physiological and anatomical changes, which may mask or mimic the symptoms of acute surgical conditions, thereby leading to delays in diagnosis and treatment. The dual responsibility of safeguarding maternal health while ensuring fetal well-being further complicates clinical decision-making. The reported incidence of non-obstetric surgical emergencies ranges between 1 in 500 to 1 in 6,600 pregnancies worldwide, with appendicitis, cholecystitis, bowel obstruction, and trauma being the most common conditions encountered [1,2].

Among these, appendicitis is the most frequent non-obstetric surgical condition complicating pregnancy, with an estimated incidence of 0.05%–0.2% [3,4]. Delayed diagnosis is common due to overlapping symptoms with normal pregnancy, leading to higher rates of perforation and complications. Similarly, biliary tract disease and cholecystitis are reported to occur in 0.05%–0.3% of pregnancies, and although surgical intervention is often necessary, maternal and fetal outcomes are usually favorable with timely management [5,6]. Intestinal obstruction, though rare, is associated with high morbidity and mortality, most often due to volvulus or adhesions [7]. Trauma, particularly road traffic accidents and burns, contributes significantly to maternal and fetal mortality in low- and middle-income countries [8].

The maternal and fetal outcomes of these emergencies depend largely on the severity of the underlying disease and the timeliness of surgical intervention, rather than pregnancy itself increasing surgical risk [9]. Advances in imaging modalities, such as ultrasonography and magnetic resonance imaging, have improved diagnostic accuracy without significant fetal exposure to ionizing radiation [10]. Despite these advances, non-obstetric surgical emergencies continue to contribute to maternal and perinatal morbidity and mortality, particularly in resource-limited settings where delayed presentation and inadequate facilities remain challenges.

While extensive literature is available from western countries, Indian data on the subject remain sparse. Most available reports highlight variable incidence and outcome patterns, underscoring the need for regional studies to better inform practice [11]. This study was therefore undertaken to evaluate the incidence, spectrum, and fetomaternal outcomes of non-obstetric surgical emergencies in pregnancy at a tertiary care hospital over a five-year period.

MATERIAL AND METHODS

This was a retrospective observational study conducted at the MGM's Medical College and Hospital, Kamothe, Navi Mumbai, over a period of five years from August 2020 to August 2025. All pregnant women admitted with general surgical emergencies during this period were included in the study. Non-obstetric surgical conditions such as appendicitis, biliary tract disease, intestinal obstruction, peritonitis, trauma, and burns were analyzed. Patients with obstetric complications, adnexal pathology, and orthopedic emergencies were excluded.

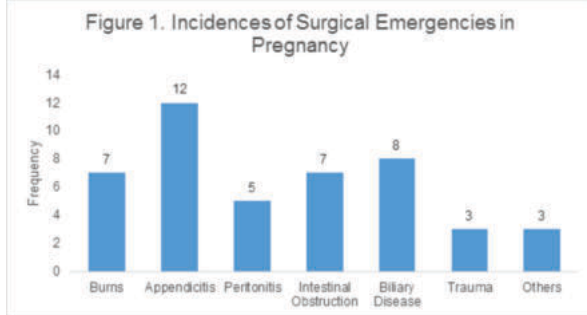
Data were retrieved from hospital case records, operative notes, and discharge summaries. Information collected included demographic details (age, parity, and gestational age), clinical presentation, diagnosis, type of surgical or conservative management, and maternal and fetal outcomes. Gestational age was confirmed by last menstrual period and/or ultrasonography. Emergency diagnoses were established by clinical examination and confirmed using appropriate investigations such as ultrasonography, plain radiographs when essential, and operative findings.

Maternal outcome was defined in terms of survival or death, while fetal outcome was categorized as live birth, intrauterine death, stillbirth, or termination of pregnancy. Cases were also analyzed with respect to distribution by trimester and parity. Data were compiled, tabulated, and expressed as incidence per pregnancies/deliveries, and descriptive statistics were used to summarize results.

RESULTS

During the study period, 45 cases of non-obstetrical surgical emergencies were identified among 10,732 pregnancies, yielding an overall incidence of 1 in 228 pregnancies (0.419%) (Table 1). The most frequent condition was appendicitis (12 cases; 1 in 894, 0.112%), followed by biliary disease (8 cases; 1 in 1342, 0.075%), burns and intestinal obstruction (7 cases each; 1 in 1533, 0.065%), peritonitis (5 cases; 1 in 2146, 0.047%), and trauma and others (3 cases each; 1 in 3577, 0.028%).

Sl. No	Disease	Incidence	Percentage	No. of Cases
1	Burns	1:1533	0.065%	7
2	Appendicitis	1:894	0.112%	12
3	Peritonitis	1:2146	0.047%	5
4	Intestinal Obstruction	1:1533	0.065%	7
5	Biliary Disease	1:1342	0.075%	8
6	Trauma	1:3577	0.028%	3
7	Others	1:3577	0.028%	3
Total	All cases	1:228	0.419%	45



When analyzed according to the stage of pregnancy (Table 2), the second trimester accounted for the highest proportion of cases (15 cases, 33.3%), followed by the third trimester (22 cases, 48.9%), and the first trimester (8 cases, 17.8%). Appendicitis was most frequent in the second trimester (6 cases), while intestinal obstruction and biliary disease were more common in the third trimester (5 cases each). Burns occurred across all trimesters, with three cases in the first trimester and two cases each in the second and third trimesters.

Disease	1st Trimester (n=8)		2nd Trimester (n=15)		3rd Trimester (n=22)		Total (n=45)
	n	%	n	%	n	%	n
Burns	3	0.03%	2	0.02%	2	0.02%	7
Appendicitis	3	0.03%	6	0.06%	3	0.03%	12
Peritonitis	0	0.00%	2	0.02%	3	0.03%	5
Intestinal obstruction	0	0.00%	2	0.02%	5	0.05%	7
Biliary Disease	1	0.01%	2	0.02%	5	0.05%	8
Trauma	0	0.00%	1	0.01%	2	0.02%	3
Others	1	0.01%	0	0.00%	2	0.02%	3

Maternal and fetal outcomes are shown in Table 3. There were 2 maternal deaths, 1 maternal death due to burns and 1 maternal death due to intestinal obstruction, and 1 fetal death (0.009%) due to burns.

Disease	Maternal Mortality		Fetal Death	
	n	%	n	%
Burns	1	0.009%	0	0.000%
Appendicitis	0	0.000%	0	0.000%
Intestinal obstruction	1	0.009%	1	0.009%
Biliary Disease	0	0.000%	0	0.000%
Peritonitis	0	0.000%	0	0.000%
Trauma	0	0.000%	0	0.000%
Others	0	0.000%	0	0.000%
Total	2	0.019%	1	0.009%

Overall, appendicitis was the leading surgical emergency in pregnancy, while burns and peritonitis carried the highest risk of maternal and fetal mortality.

DISCUSSION

Non-obstetrical surgical emergencies in pregnancy are uncommon but potentially life-threatening for both mother and fetus. In the present study, the overall incidence was 1 in 228 pregnancies (0.419%), which

aligns with earlier reports that estimate the frequency of such conditions to range from 0.2% to 2% of pregnancies [1,12]. Appendicitis was the most common condition, consistent with the literature where it is widely reported as the leading non-obstetrical surgical emergency during pregnancy [3,13]. Our incidence of appendicitis (1 in 894 pregnancies, 0.112%) was slightly higher than some western studies, where rates around 1 in 1500 pregnancies have been documented [4]. This may reflect differences in case ascertainment, healthcare-seeking behavior, or referral patterns in our setting.

The trimester distribution of cases showed that emergencies were more frequent in the second and third trimesters, a pattern corroborated by previous studies [9,14]. Appendicitis was more frequent in the second trimester, while biliary disease and intestinal obstruction predominated in the third trimester. Physiological changes in pregnancy, such as uterine enlargement, altered intra-abdominal pressure, and displacement of abdominal organs, may contribute to this distribution [15]. Burns, though rarely reported in western series, were a significant contributor in our study, reflecting region-specific epidemiological differences where domestic or accidental burns are more prevalent among women of reproductive age.

Maternal and fetal outcomes remain key concerns. In our cohort, maternal mortality was 0.019% and fetal mortality was 0.019%. Burns and Intestinal obstruction were associated with the maternal deaths, while appendicitis had favorable outcomes with no mortality. This is consistent with prior studies, which highlight that delays in diagnosis and intervention, particularly in peritonitis and major burns, contribute substantially to poor outcomes [16,17]. Conversely, timely diagnosis and surgical intervention in appendicitis and biliary disease often result in favorable prognoses [6]. Our findings underscore the importance of early recognition, prompt surgical decision-making, and multidisciplinary care.

The present study provides valuable baseline data from an Indian tertiary care setting. However, limitations include its retrospective design and relatively small number of cases, which restrict generalizability. Despite this, the results highlight the need for improved preventive measures, particularly burn prevention strategies, and for strengthening early diagnostic capabilities. Future prospective studies with larger cohorts may provide greater clarity on risk factors and outcomes.

CONCLUSION

Non-obstetrical surgical emergencies in pregnancy, though uncommon, represent critical conditions with the potential for serious maternal and fetal morbidity and mortality. Appendicitis was the most frequent surgical emergency, while burns and peritonitis were associated with the highest mortality. Early recognition, prompt surgical intervention, and a multidisciplinary approach remain essential to optimize outcomes and reduce adverse consequences for both mother and child.

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