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ORIGINAL ARTICLE

Abdominal Surgical Emergencies in the Puerperium: A Descriptive Study

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ABSTRACT

Background: Puerperal abdominal surgical emergencies are rare but potentially fatal diseases that are difficult to diagnose and treat. The classical signs of acute abdomen are usually masked by physiological alterations postpartum, which contributes to making the diagnosis late and causing further maternal morbidity. This may be due to both obstetric and non-obstetric factors, but the burden is rising in the number of cesarean sections.

Objective: To characterize the spectrum, clinical expression, management plan, and outcome of abdominal surgical emergencies that occur in the puerperium of a tertiary care hospital.

Methods: The study was a descriptive retrospective study that was carried out in a Khalifa Gul Nawaz Teaching Hospital Bannu during a period November 2022 to June 2023. The review of the medical records of women who made presentations within six weeks after delivery with abdominal surgical emergencies was done. The descriptive statistics were used to analyze data about demographic features, delivery mode, time of presentation, diagnosis, imaging techniques, surgery, post-operational complications, and maternal outcome.

Results: One hundred and thirty-eight puerperal women who had abdominal surgical emergencies were identified. Most of them were multiparous, and had a cesarean birth. Majority of the patients came during the first two weeks after childbirth. The diagnoses were mostly acute appendicitis, then intestinal obstruction and post-cesarean intra-abdominal sepsis. More than three-quarters of cases needed emergency surgical intervention. Minority of patients were found to have postoperative complications with wound infection and paralytic ileus being the most common ones. None of the mothers died.

Conclusion: Emergencies of abdominal surgery during the puerperium can be characterized by high morbidity, though good results could be obtained when they are detected early, imaged promptly and surgical intervention is administered. Referral systems and low surgical evaluation threshold are important areas of enhancement that enhance maternal outcomes.

Keywords: puerperium; acute abdomen; cesarean section; surgical emergencies.

INTRODUCTION

Puerperal abdominal surgical emergencies are a rare but potentially fatal set of conditions that have a high index of clinical suspicion and requires timely intervention. The puerperium, as the phase up to six weeks following birth, is marked by significant anatomical, physiologic and hormonal alterations that could confound or alter the typical manifestation of acute abdominal pathology. Consequently, it has led to common delay in diagnosis and management leading to higher maternal morbidity and mortality[1].

Abdominal pain during the puerperium presents a particularly difficult clinical examination because it is difficult to distinguish between changes that are expected after childbirth and pathology. The early warning signs of surgical emergency may be distorted by the processes of uterine involution, lochia, and postsurgery pain after cesarean birth as well as the changes in gastrointestinal motility. In addition, the leukocytosis, tachycardia and low-grade fever, which are usually regarded as physiological in the post partum, might result in the underestimation of the severity of diseases[2].

During the puerperium, a large range of abdominal surgical emergency cases can arise, including acute appendicitis, intestinal obstruction, perforated viscus, gallbladder disease, pancreatitis, and postoperative complications such as intra-abdominal hemorrhage or sepsis following cesarean section. Though obstetric pathology is the most common, non-obstetric surgical pathology constitutes a large percentage of acute abdominal presentations in the postpartum period, and is linked to a delay in surgical referral[3].

A significant risk factor of puerperal abdominal surgical emergency is cesarean delivery. Surgical site infections, adhesions, surgery to bowel injury, paralytic ileus, and bowel injuries may be seen days to weeks following the surgery. Moreover, this has contributed to the emergence of more secondary abdominal complications due to the increase in the prevalence of cesarean section procedures in the world, especially in low and middle-income nations where postoperative surveillance might be inadequate[4].

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Puerperal imaging and diagnostic approaches need special attention in order to weigh diagnostic accuracy and maternal safety. The first imaging modality should be ultrasonography; but in the cases where there is ambiguity, computed tomography is frequently needed in the process of making definitive diagnosis. The issue of radiation exposure and breast feeding can also pose a problem in decision-making and result in delays in the diagnosis[5].

Socioeconomic factors, inaccessibility of high-quality imaging, and late referral of the patient by peripheral health facilities contribute to the severity of the burden of puerperal abdominal emergencies in resource-limited settings, including most tertiary referral centers in South Asia. These aspects often lead to high stage of presentation of the disease, more emergency laparotomy is necessary, and more postoperative complications[6].

The early diagnosis and surgical intervention are important outcome determinants in puerperal abdominal crises. To improve the outcomes of mothers it is common to have multidisciplinary teams of obstetricians, general surgeons, anesthetists, and intensivists. The significance of awareness of atypical presentations and low threshold to surgical assessment is necessary to lessen the preventable morbidity and mortality among mothers[7].

Due to the challenges in diagnosis, diverse etiology, and possibly serious outcomes of abdominal surgical emergencies in the puerperium, the determination of the clinical patterns and results should be discussed in detail. Developing the range of these emergencies within the context of a tertiary care facility could be helpful in optimizing diagnostic algorithms, referral patterns, and treatment plans[8].

Objective: This study was aimed at describing the spectrum, clinical presentation, diagnostic issues, and surgical outcomes of abdominal surgical emergencies that occurred in the puerperium in a tertiary care hospital.

METHODOLOGY

Study Design and Setting: The study was a descriptive retrospective, done at Khalifa Gul Nawaz Teaching Hospital Bannu during a period November 2022 to June 2023.

The population of this study involved 138 women who were approaching their sixth week post partum; that is, they were in the puerperium, and were diagnosed having an abdominal surgical emergency that necessitated operative or urgent surgical care. Obstetric and non obstetric surgical conditions were both taken into account. All patients delivery at the study hospital and those who had been referred to it throughout the peripherals were also included in order to have the entire gamut of puerperal abdominal emergencies faced at a tertiary level.

Inclusion and Exclusion Criteria: Women aged 18 years and above who appeared during the puerperal period with conditions of acute abdomen and needed surgical attention were included. The diagnoses that were eligible included acute appendicitis, intestinal obstruction, perforated viscus, gallbladder disease, pancreatitis, intra-abdominal sepsis, and postoperative complications of cesarean section, and other acute abdominal pathology verified clinically, radiologically or intraoperatively. Patients that had only gynecological causes of abdominal pain that were treated conservatively, medical causes of abdominal pain or those with incomplete medical records were excluded.

Data Collection Procedure: Emergency department records, surgical admission logs and operative theater registers, radiology reports, and patient case files were used as retrospective in the collection of data. Uniformity was provided with the help of a standardized data extraction sheet. The variables that were recorded were patient demographics, parity, mode and place of delivery, period between delivery and presentation, presenting symptoms and signs, provisional diagnosis, imaging modalities used, final diagnosis, and operative findings. Review of postoperative course was also carried out and documented complications.

Diagnostic and Management Approach: Preliminary evaluation was conducted by obstetric and surgical teams, and the diagnostic evaluation was used based on clinical findings and existing imaging. The first-line imaging modality was applied as ultrasonography and computed tomography in the cases of a lack of diagnostic certainty or a presence of bowel pathology. Surgical decision making was made on clinical deterioration, radiographic evidence or pathological confirmation during surgery. The surgeries were carried out based on the institutional conventions.

Follow-Up and Postoperative Care: Intensive monitoring (where clinically necessary) was used in the management of postoperative prevention, antibiotic therapy, pain management and supportive care. The postoperative period was given priority in lactation issues and maternal hemodynamic stability. Patients were trailed in the sense of staying in a hospital and later in outpatient clinics where applicable and their outcomes were measured using recovery, complications and re-intervention.

Outcome Measures: The main outcomes were the nature and rate of abdominal surgical emergencies that experienced a puerperium and the necessity to undergo emergency surgery. The secondary outcomes were postoperative complications, hospital stay, and maternal outcomes. The analysis of the data was based on descriptive statistics to describe the trends and the results of the puerperal abdominal surgical emergencies.

Ethical Considerations: The study was initiated with ethical approval of the institutional review committee beforehand. Anonymity ensured patient confidentiality because all data were extracted and analysed anonymously. Since it was a retrospective study of medical records available, informed consent was not sought because it is against the institutional guidelines.

RESULTS

A total of 138 women were introduced with abdominal surgical emergencies in the puerperium period and needed surgical assessment and treatment during the study period. The average age of the patients was 28.4 years with standard deviation of 5.1. Majority of the women were multiparous as well as majority of them had delivered through cesarean section. There was a high percentage of patients who were referred to the periphery health facilities and mostly late in their presentation, which led to a high degree of advanced disease at admission.

Most of the patients were presented within the two weeks after their delivery and the most frequent presenting complaint was acute abdominal pain. The other symptoms related to it were fever, vomiting, abdominal distention, and bowel habit changes. Physiological changes after parturition often made clinical assessment difficult as they were overlapping. In the majority of cases, imaging played a role in making a diagnosis, and ultrasonography was used as the first one; in some patients who had suspected bowel pathology or inconclusive results, computed tomography was utilized.

A large percentage of puerperal abdominal emergency was due to non-obstetric surgery. The most common condition that was diagnosed was acute appendicitis, then intestinal obstruction and intra-abdominal sepsis following cesarean section. Other less common yet clinically significant diagnoses were perforated viscus, acute cholecystitis, and pancreatitis. Surgery complications in obstetrics were significantly observed after cesarean delivery and were accompanied with prolonged hospitalization.

Most of the patients needed emergency surgical intervention and only a few were treated conservatively with close observation. The most common procedure conducted was laparotomy especially when there was a bowel obstruction, perforation as well as intra-abdominal sepsis. Emergency surgery patients had a greater likelihood of postoperative complications than patients who were treated conservatively, though in the majority of cases, timely intervention proved to be the best outcome that allowed the maternal outcome.

The complications associated with the postoperative stage were wound infection, paralytic ileus and intra-abdominal collections. A minority of the patients, who mostly appeared with sepsis or hemodynamic instability, had to be admitted to intensive care unit. Maternal mortality was not experienced in the study period but there were multiple morbidity and delayed hospital stay due to delay in presentation and referral.

Table 1: Demographic and Obstetric Characteristics of Patients (n = 138)

Variable	Frequency	Percentage (%)
Age ≤20 years	14	10.1
Age 21–30 years	78	56.5
Age >30 years	46	33.4
Primiparous	44	31.9
Multiparous	94	68.1
Vaginal delivery	42	30.4
Cesarean section	96	69.6
Referred cases	82	59.4

Table 2: Timing of Presentation During the Puerperium

Time After Delivery	Number of Patients	Percentage (%)
≤7 days	58	42.0
8–14 days	44	31.9
15–28 days	26	18.8
>28 days	10	7.3

Table 3: Spectrum of Abdominal Surgical Emergencies

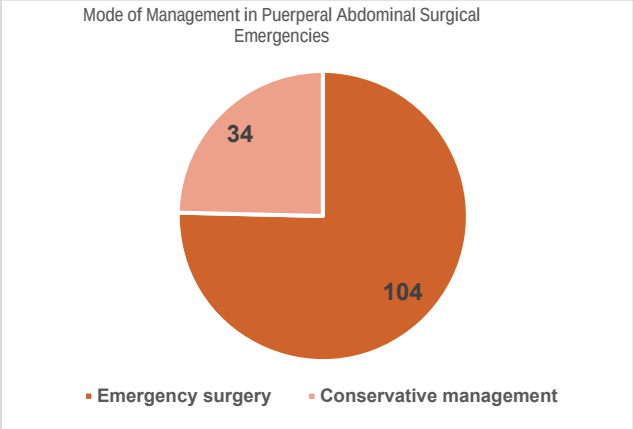
Diagnosis	Number of Patients	Percentage (%)
Acute appendicitis	38	27.5
Intestinal obstruction	32	23.2
Post-cesarean intra-abdominal sepsis	26	18.8
Perforated viscus	18	13.0
Acute cholecystitis	14	10.1
Acute pancreatitis	10	7.2

The general experience was good as the vast majority of the patients recovered fully after proper surgical treatment. Early diagnosis, multidisciplinary intervention, as well as timely surgical intervention were some of the most significant factors that led to positive outcomes of puerperal abdominal surgical situations.

Table 4: Management and Postoperative Outcomes

Parameter	Frequency	Percentage (%)
Emergency surgery performed	104	75.4
Conservative management	34	24.6
Uneventful recovery	112	81.2
Postoperative wound infection	14	10.1
Paralytic ileus	8	5.8
ICU admission	4	2.9

Figure 1: Mode of Management in Puerperal Abdominal Surgical Emergencies



DISCUSSION

The current paper has pointed out the wide range of abdominal surgical crisis that occurs during the puerperium as well as the diagnostic and management dilemmas that are related to the peculiar physiological stage. Our cohort on non-obstetric surgical conditions is also consistent with the recent literature wherein it is noted that acute abdomen in the puerperium is often because of general surgical pathologies as opposed to obstetric causes. A number of recent reports have found acute appendicitis and intestinal obstruction as the most common diagnoses in postpartum women, as we did[9,10].

Cesarean section also proved to be a crucial factor in creating puerperal abdominal surgical emergency in this research. A significant number of cases were caused by both post-cesarean intra-abdominal sepsis and bowel complications. Population-based and institutional studies have shown that there is a definite relationship between the rising rate of cesarean delivery and postoperative abdominal complications, especially in low- and middle-income nations whereby postoperative monitoring and infection control interventions may not be optimally applied[11,12]. Our results also prove that we should be especially attentive to the quality of postoperative care after cesarean birth.

Presentation time was important in the severity and results of a disease. The majority of the patients were presented in the first two weeks after childbirth as it has been reported in recent cohort studies, which indicate that early puerperium is the riskiest time of abdominal surgical emergency because of surgical trauma, infection, and disturbed gastrointestinal physiology[13]. Our environment also encountered delayed referrals by the peripheral centers which were related to higher levels of presentation pathology, a problem also evident in other South Asian and similar healthcare systems studies[14].

Diagnostic challenge is a significant issue of concern in abdominal emergencies in puerpera. Pregnancy-induced physiological postpartum alterations tend to obscure the classical symptoms of acute abdomen, making diagnosis delayed. Recent reviews state that the use of clinical assessment is not enough and presupposes the early application of imaging facilities, especially computer tomography, when the primary assessment is not conclusive[15]. Imaging was crucial in our research in making a diagnosis particularly where bowel obstruction and perforation was involved.

Most patients needed emergency surgical intervention, which showed the severity of conditions that were presented. Descriptive and retrospective studies over the recent past have also shown similar operative rates with timely surgical exploration being linked to good maternal outcomes even in cases of high morbidity upfront[16]. The fact that we do not have maternal mortality is congruent with the results of tertiary centers where multidisciplinary management and timely intervention can be accessed[17].

Our cohort had postoperative complications within acceptable limits and those that were comparable to current literature. The most common complications were wound infection and paralytic ileus, especially among sepsis patients and bowel pathology patients. According to recent research, delayed presentation, anemia and previous cesarean delivery are critical predictors of postoperative morbidity routinely seen amongst our patient population[18].

The general positive potentials noted in this research study support the essence of early diagnosis, prompt referral, and multidisciplinary team-based care on the management of puerperal abdominal surgical emergencies. More recent guidelines and expert reviews insist on a low cutoff point of surgical consultation of postpartum women with abdominal pain, particularly high-risk conditions[19,20]. Referral systems and primary care and obstetric providers awareness enhancement can help curb delays and related morbidity.

Limitations: This research study has quite some limitations that must be taken into consideration when making the interpretations. The retrospective design depended on the correctness and completeness of the medical records, restricting it in terms of assessing the clinical severity, diagnostic delays and functional outcomes in all patients to the same extent. Certain variables of interest that include the precise time to surgery intervention and standard postoperative quality-of-life measurements failed to be regularly retrieved. Since the study was done in one tertiary care facility, the results cannot be extrapolated to the primary or secondary healthcare facilities since there are differences in the availability of diagnostic facilities and surgical proficiency. There is also a high chance of referral bias, as cases with more severe or complex cases were overrepresented. Also, the follow-up time was not consistent across patients which might have underestimated the late postoperative complications. Potential multicenter researches using standardized evaluation instruments are necessary to determine the actual load and results of puerperal abdominal surgical emergencies.

CONCLUSION

This study indicates that non-obstetric surgical diseases with acute appendicitis, intestinal obstruction, and post- cesarean intra-abdominal sepsis, make up a large percentage of the puerperal abdominal emergencies in a tertiary care facility. The multidisciplinary teamwork should be utilized to provide positive maternal outcomes through early detection, timely imaging, and timely surgical intervention. Postoperative surveillance should be enhanced following a cesarean section and enhanced early referral routes between peripheral healthcare facilities and this could significantly decrease morbidity due to late diagnosis and treatment during the puerperium.

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