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Study Of Role Of Laparoscopy And Advantages In Acute Abdomen.

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ABSTRACT

Acute abdomen poses diagnostic challenges, and laparoscopy has emerged as a promising approach. Our retrospective study aimed to assess the role and advantages of laparoscopy in acute abdomen management. Sixty patients, aged 18-70 years, underwent laparoscopic interventions in last six months were included in our study. Demographic, operative, and postoperative data were analyzed, including age, gender, comorbidities, diagnoses, operative time, complications, hospital stay, readmission rates, and patient satisfaction. Mean patient age was 45.2 years, with a gender distribution of 32 males and 28 females. Appendicitis (46.7%) was the most common diagnosis. Operative time averaged 78.5 minutes, with a low conversion rate (6.7%) and 5.0% intraoperative complications. Postoperative outcomes included a mean hospital stay of 3.2 days, 11.7% complications, and a 3.3% 30-day readmission rate. Patient satisfaction was high, with a mean score of 9.1 out of 10. Laparoscopy demonstrated efficacy in managing acute abdomen, providing favourable operative details, postoperative outcomes, and patient satisfaction. These findings support the continued integration of laparoscopy as a preferred approach for selected acute abdominal conditions.

Keywords: Laparoscopy, acute abdomen, minimally invasive surgery.

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INTRODUCTION

Acute abdomen, characterized by sudden and severe abdominal pain, remains a diagnostic challenge in clinical practice [1]. Traditional diagnostic approaches often involve open surgical exploration, exposing patients to significant morbidity and prolonged recovery [2, 3]. In recent years, laparoscopy has emerged as a promising alternative, revolutionizing the management of acute abdominal conditions. Our research study aims to investigate the pivotal role of laparoscopy in the evaluation and treatment of acute abdomen, shedding light on its advantages over conventional methods [4].

Laparoscopy, with its minimally invasive nature, offers a diagnostic and therapeutic paradigm shift, allowing for precise visualization of intra-abdominal structures with minimal tissue disruption [5]. The potential benefits include reduced postoperative pain, shorter hospital stays, and faster recovery times. As technology continues to advance, understanding the evolving role of laparoscopy in acute abdomen becomes paramount for optimizing patient outcomes and shaping the future of abdominal surgical interventions. Our study endeavours to contribute to the growing body of knowledge in this field, fostering evidence-based improvements in the management of acute abdominal conditions.

METHODOLOGY

The study was conducted retrospectively, involving a cohort of 60 patients presenting with acute abdomen for six months duration.

Patients were selected through a thorough review of electronic medical records, identifying those who underwent laparoscopic interventions for acute abdomen during the specified timeframe.

Inclusion criteria encompassed patients aged 18-70 years with a confirmed diagnosis of acute abdomen requiring surgical intervention.

Exclusion criteria comprised cases where laparoscopy was contraindicated, incomplete medical records, or a history of previous abdominal surgery that could impact the laparoscopic procedure.

Data collection involved a comprehensive review of patient demographics, clinical presentations, preoperative imaging findings, intraoperative details, and postoperative outcomes. Variables such as operative time, length of hospital stay, complications, and conversion rates to open surgery were meticulously recorded.

Statistical analysis was performed using appropriate tests, comparing outcomes between different subsets of patients to identify trends, correlations, and the overall impact of laparoscopy on managing acute abdomen. The study aimed to provide valuable insights into the effectiveness and feasibility of laparoscopy in this clinical context, contributing to the existing knowledge base and guiding future research in the field.

RESULTS

Table 1: Demographics and Clinical Characteristics

Characteristic	Laparoscopy Group (n=60)
Age (Mean \pm SD)	45.2 \pm 12.3 years
Gender (Male/Female)	32/28
Comorbidities (n, %)	22 (36.7%)
Diagnosis	
- Appendicitis	28 (46.7%)
- Cholecystitis	18 (30.0%)
- Perforated Peptic Ulcer	14 (23.3%)

Table 2: Operative Details

Parameter	Laparoscopy Group (n=60)
Operative Time (Mean ± SD, minutes)	78.5 ± 15.2
Conversion to Open Surgery (n, %)	4 (6.7%)
Intraoperative Complications (n, %)	3 (5.0%)

Table 3: Postoperative Outcomes

Outcome	Laparoscopy Group (n=60)
Length of Hospital Stay (Mean ± SD, days)	3.2 ± 1.4
Postoperative Complications (n, %)	7 (11.7%)
30-day Readmission Rate (n, %)	2 (3.3%)

Table 4: Patient Satisfaction

Parameter	Laparoscopy Group (n=60)
Overall Satisfaction (Scale 1-10)	9.1 ± 0.8
Return to Normal Activities (Mean ± SD, days)	10.6 ± 3.2

DISCUSSION

Our study aimed to investigate the role of laparoscopy in the management of acute abdomen and assess its advantages over traditional open surgical approaches. The results obtained from a retrospective analysis of 60 patients undergoing laparoscopic interventions provide valuable insights into demographic characteristics, operative details, postoperative outcomes, and patient satisfaction. This discussion aims to contextualize and interpret these findings within the broader landscape of acute abdomen management [6, 7].

Demographic Characteristics

The demographic profile of the study cohort revealed a mean age of 45.2 years, with a nearly equal distribution of gender. This is consistent with the typical age range for acute abdominal conditions and reflects the prevalence of these issues across both sexes. Comorbidities were present in approximately 36.7% of patients, emphasizing the need for careful consideration of the overall health status when approaching surgical interventions in the acute abdomen setting. The distribution of specific diagnoses, with appendicitis being the most common (46.7%), aligns with epidemiological trends reported in the literature [8].

Operative Details

The operative details presented in the results offer a comprehensive overview of the technical aspects of laparoscopic interventions. The mean operative time of 78.5 minutes suggests that, on average, laparoscopic procedures for acute abdomen were performed efficiently. The low conversion rate to open surgery (6.7%) indicates a high degree of success in completing the procedures laparoscopically. This is crucial, as avoiding conversions preserves the benefits of minimally invasive surgery, such as reduced postoperative pain and faster recovery.

Intraoperative complications occurred in 5.0% of cases, a rate comparable to findings reported in previous studies. These complications, although relatively low, warrant thorough investigation to identify contributing factors and implement strategies for prevention. Factors such as surgeon experience, patient anatomy, and the complexity of the specific acute abdominal condition may influence intraoperative challenges [9].

Postoperative Outcomes

One of the key advantages of laparoscopy in acute abdomen is the potential for enhanced postoperative recovery. The results indicate a mean length of hospital stay of 3.2 days, reflecting a shorter

duration compared to traditional open procedures. This aligns with the established benefits of laparoscopy, including reduced pain, quicker mobilization, and earlier return to normal activities [10, 11].

Postoperative complications occurred in 11.7% of cases, with the most common issues being minor surgical site infections and transient ileus. While this rate is within the range reported in the literature, further investigation is necessary to identify specific risk factors and refine patient selection criteria. The 30-day readmission rate of 3.3% suggests a favourable postoperative course, emphasizing the durability of laparoscopic interventions in preventing complications that might necessitate hospital readmission.

Patient Satisfaction

Patient-reported outcomes are increasingly recognized as essential measures of surgical success. In this study, overall patient satisfaction was high, with a mean score of 9.1 out of 10. This reflects the positive impact of laparoscopy on the patient experience in the acute abdomen setting. The quick return to normal activities, as evidenced by a mean duration of 10.6 days, contributes to the favourable perception of laparoscopic interventions.

Comparative Analysis and Clinical Implications

The results of this study align with existing literature supporting the use of laparoscopy in the management of acute abdomen. Compared to traditional open surgery, laparoscopy offers advantages such as reduced postoperative pain, shorter hospital stays, and improved cosmetic outcomes. The low conversion rate in our study further emphasizes the feasibility of laparoscopic interventions across a spectrum of acute abdominal conditions.

The findings also prompt a comparative analysis with recent studies exploring similar research questions. While our study aligns with previous research in terms of patient demographics and overall outcomes, nuances in operative details and complications warrant consideration. Variability in surgical techniques, patient populations, and healthcare settings may contribute to differences in outcomes across studies.

The clinical implications of our findings are noteworthy. The data suggest that laparoscopy is a safe and effective approach for a variety of acute abdominal conditions, particularly appendicitis and cholecystitis. Surgeons and healthcare providers should consider laparoscopy as a viable option, weighing the benefits of minimally invasive surgery against patient-specific factors and the complexity of the condition [12].

Limitations and Future Directions

The retrospective design introduces inherent biases, and the reliance on electronic medical records may result in incomplete or missing data. The single-center nature of the study also limits the generalizability of findings to diverse healthcare settings.

Future research should focus on prospective, multicentre studies with larger sample sizes to enhance the robustness and generalizability of findings. Subgroup analyses based on specific acute abdominal conditions and patient characteristics can provide more targeted insights. Additionally, long-term follow-up studies are essential to assess the durability of outcomes and identify potential late complications associated with laparoscopic interventions.

CONCLUSION

In conclusion, our study contributes valuable insights into the role of laparoscopy in the management of acute abdomen. The results highlight favourable operative details, postoperative outcomes, and patient satisfaction associated with laparoscopic interventions. While acknowledging the study's limitations, the findings align with existing literature and support the continued integration of laparoscopy into the surgical armamentarium for acute abdominal conditions. As technology advances and surgical techniques evolve, ongoing research is crucial to refine best practices and optimize patient outcomes in this dynamic field.

REFERENCES

- [1] Vinuela EF, Gonen M, Brennan MF, et al Laparoscopic versus open distal gastrectomy for gastric cancer: a meta-analysis of randomized controlled trials and high-quality nonrandomized studies. *Ann Surg* 2012; 255:446–456.
- [2] Fujikawa T, Tada S, Abe T, et al Is early laparoscopic cholecystectomy feasible for acute cholecystitis in the elderly?. *J Gastroenterol Hepatol Res* 2012; 1:247–251.
- [3] Agrusa A, Romano G, Di Buono G, Dafnomili A, Gulotta G. Laparoscopic approach in abdominal emergencies: a 5-year experience at a single center. *J Surg* 2012; 33:400–403.
- [4] Golash V, Willson PD. Early laparoscopy as a routine procedure in the management of acute abdominal pain: a review of 1,320 patients. *Surg Endosc Other Interv Techniq* 2005; 19:882–887.
- [5] Lockwood SL, Zafar A, Dromey B, Hartley JE. Diagnostic laparoscopy in the management of lower abdominal pain in female patients presenting on an acute surgical take. *Int J Surg* 2013; 11:708.
- [6] Shahzad M. Laparoscopic appendectomy is the gold standard in female patients. *Surg Endosc* 2013;27:S450.
- [7] Majweski W. Diagnostic laparoscopy in acute abdomen and trauma. *Surg Endosc* 2000; 14:930–937
- [8] Luke DP, Zaman S, Navaratne L. The use of ultrasound in suspected acute appendicitis; to request or not to request. *Eur J Trauma Emerg Surg* 2014;40: S144.
- [9] Mirabella A, Lupo M, Di Marco F, Mandala V. Gastroduodenal ulcer The Role of laparoscopy in emergency abdominal surgery. 2012;21st E-book Springer:27–35.
- [10] Chen CB, Palazzo F, Doane SM, Winter JM, Lavu H, Chojnacki KA, et al Increasing resident utilization and recognition of the critical view of safety during laparoscopic cholecystectomy: a pilot study from an academic medical center. *Surg Endosc* 2017; 31:1627–1635.
- [11] Smith EA, Dillman JR, Elsayes KM, Menias CO, Bude RO. Cross-sectional imaging of acute and chronic gallbladder inflammatory disease. *Am J Roentgenol* 2009; 192:188–196.
- [12] Babannavar PB, Thejeswi P, Ravishankar, Rao SP, Aravindan R, Ram HS, et al Role of laparoscopy in diagnosis and management of acute abdomen – in south Indian population. *Internet J Surg* 2013; 30:70–74.