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RETROSPECTIVE ANALYSIS OF CALCULOUS CHOLECYSTITIS PATIENT IN A TERTIARY CARE HOSPITAL- CLINICOPATHOLOGICAL ANALYSIS AND TREATMENT OUTCOME

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Abstract

Background: Calculous cholecystitis, an inflammation of the gallbladder due to gallstones, is a common and significant gastrointestinal condition that often presents in patients in tertiary care hospitals. The disease is characterized by the presence of gallstones obstructing the cystic duct, leading to inflammation, infection, and sometimes, severe complications such as gallbladder perforation, empyema, or gangrene. Understanding the clinicopathological features of calculous cholecystitis is crucial for timely diagnosis and effective treatment. The clinical presentation can vary from mild abdominal discomfort to severe acute cholecystitis, necessitating different therapeutic approaches. Analyzing patient demographics, clinical symptoms, laboratory findings, imaging results, and histopathological features can provide valuable insights into the disease's progression and outcomes.

Methods: A retrospective analysis was conducted at Saveetha Medical College and Hospital, reviewing the patients who underwent laparoscopic IPOM or E-TEPP between January 2022 and December 2023. The study included Patients presenting with symptomatic
gallstones . Diagnosis of symptomatic gallstones confirmed by imaging studies showing, evidence of calculus cholecystitis.The study excluded Patients with asymptomatic gallstones. Patients with symptomatic gallstones but medically unfit for surgery due to comorbidities. Previous history of cholecystectomy.Patients with alternative diagnoses mimicking gallstone disease.Refusal to undergo laparoscopic cholecystectomy. This analysis not only contributes valuable insights into the management of calculus cholecystitis but also informs future approaches to optimize clinical pathways and improve patient

Results: The oldest patient in this study was 84 years old, and the youngest patient had a higher prevalence of cholecystitis in the third decade. There were 20 (40%) male patients and 30 (60%) female patients. Males made up 20% of ACC patients, while
emales made up 80%. Of the CCC patients, 54% were female and 46% were male. There are 1.5 females for every ale.42.93 years old (SD 15.31) was the average age at presentation. Females were 43.5 (SD 14.1) years old on average. The
average age of the men was 44.35 years (SD 12.35)

Conclusion: This retrospective study at the SMCH provides valuable insights into the clinical profile and management outcomes of symptomatic gallstone disease, particularly highlighting the higher prevalence and clinical presentation in females. The consistent effectiveness of laparoscopic cholecystectomy in this cohort underscores its role as the preferred treatment modality for such cases. Moving forward, prospective studies with larger sample sizes could further enhance our understanding and optimize management strategies for this common biliary condition.

Keywords: Calculus Cholecystitis, Laparoscopic Cholecystectomy.

INTRODUCTION

Calculous cholecystitis is a common and significant medical condition characterized by the inflammation of the gallbladder due to the presence of gallstones. Gallstones can obstruct the cystic duct, leading to increased pressure within the gallbladder, chemical inflammation, and, in some cases, bacterial infection. This condition can cause severe abdominal pain, fever, nausea, and other gastrointestinal symptoms, necessitating prompt and effective medical intervention.The pathogenesis of calculous cholecystitis begins with the formation of gallstones in the

gallbladder. These stones can migrate and become lodged in the cystic duct, leading to bile stasis and increased intraluminal pressure. This obstruction triggers an inflammatory response, causing the gallbladder wall to become edematous and thickened. In severe cases, this can progress to ischemia, necrosis, or perforation of the gallbladder wall.

Patients with calculous cholecystitis typically present with acute right upper quadrant abdominal pain, which may radiate to the back or shoulder. The pain is often severe and can be accompanied by fever, chills, nausea, and vomiting. On physical examination, patients may exhibit Murphy's sign, a specific finding where there is a marked increase in pain and inspiratory arrest upon palpation of the right upper quadrant during deep inspiration.

Diagnosis

-The diagnosis of calculous cholecystitis involves a combination of clinical evaluation, laboratory tests, and imaging studies. Laboratory tests may reveal elevated white blood cell counts and liver function abnormalities. Ultrasound is the primary imaging modality used to confirm the presence of gallstones and assess for gallbladder wall thickening, pericholecystic fluid, and other signs of inflammation. In certain cases, additional imaging such as CT scans or HIDA scans may be utilized.

Treatment-The primary treatment for calculous cholecystitis is cholecystectomy, the surgical removal of the gallbladder. This procedure can be performed laparoscopically or via an open approach, depending on the severity of the inflammation and the patient's overall condition. Antibiotic therapy is often initiated to manage bacterial infection, and supportive care includes pain management, hydration, and correction of electrolyte imbalances.

A thorough understanding of the clinicopathological features and treatment outcomes of calculous cholecystitis is essential for improving patient care. This retrospective analysis aims to provide valuable insights into the demographic patterns, clinical presentations, diagnostic modalities, pathological findings, and treatment outcomes of patients with calculous cholecystitis in a tertiary care hospital setting. By identifying trends and outcomes, the study seeks to inform clinical practice and guide future research in the management of this common and potentially serious condition.

METHODOLOGY

Study design: This retrospective analysis aimed to to analyze the clinicopathological features and treatment outcomes of patients with calculus cholecystitis treated at a tertiary care hospital's Department of General Surgery at Saveetha Medical College and Hospital. The retrospective nature of the study allowed for the examination of past medical records without intervening in patient care. This design enabled the comprehensive evaluation of a relatively large sample of patients over a defined period, offering insights into the management of calculus cholecystitis but also informs future approaches to optimize clinical pathways and improve patient

Study population: The study population comprised all patients with calculus cholecystitis at Saveetha Medical College and Hospital between January 2022 and December 2023. This timeframe was chosen to ensure a sufficient sample size while capturing recent data reflective of current clinical practices. A total of 50 patients were included in the study ensuring an adequately representative sample for meaningful statistical inference.

Data collection: The datas were systematically retrieved from the hospital's electronic medical records system. Trained personnel, and research assistants, meticulously reviewed these reports to extract relevant data points. The study included Patients presenting with symptomatic gallstones . Diagnosis of symptomatic gallstones confirmed by imaging studies showing, evidence of calculus cholecystitis.The study excluded Patients with asymptomatic gallstones. Patients with symptomatic gallstones but medically unfit for surgery due to comorbidities. Previous history of cholecystectomy.Patients with alternative diagnoses mimicking gallstone disease.Refusal to undergo laparoscopic cholecystectomy.

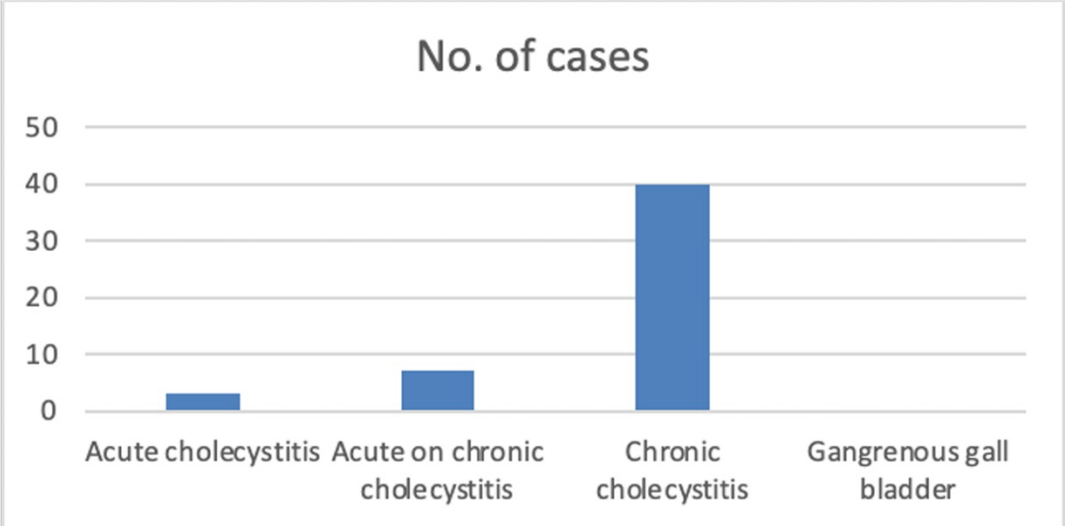
Data Analysis: This retrospective study aims to analyze the clinicopathological features and treatment outcomes of patients with calculus cholecystitis treated at a tertiary care hospital's Department of General Surgery.By examining a cohort of patients over a specified period, we seek to identify key factors influencing the disease course, diagnostic methods employed, surgical interventions performed, and subsequent patient recovery.This analysis not only contributes valuable insights into the management of calculus cholecystitis but also informs future approaches to optimize clinical pathways and improve patient

Statistical Analysis: Data were collected and evaluated by using SPSS V 1.2.5001 software. Continuous variables were expressed in terms of mean±SD, whereas categorical variables were presented as percentage and frequency. Normally distributed continuous variables were compared using the student T-test. Categorical variables were analyzed either by chi-square test or Fischer extract test. $P<0.05$ was considered statistically significant.

Ethical Considerations: The study was conducted in strict adherence to ethical principles outlined in the Declaration of Helsinki. Approval was obtained from the Institutional Review Board of Saveetha Medical College and Hospital prior to the commencement of data collection. Patient confidentiality was safeguarded throughout the study process, with all collected data anonymized to prevent identification. Informed consent was waived

given the retrospective nature of the study, and no patient identifiers were included in the analysis to ensure privacy and confidentiality.

RESULTS



Three patients (6%), who had acute cholecystitis, and seven patients (14%), who had chronic cholecystitis, had acute gallbladder symptoms. Our investigation yielded no cancer cases.

DISCUSSION

In almost 90% of cases, cholelithiasis coexists with acute cholecystitis. It usually happens in a patient who already has chronic cholecystitis, but it can also happen on its own. The most common cause is an impinging gallstone that blocks the cystic duct in Hartmann's pouch. Up to the age of fifty, the prevalence of acute calculous cholecystitis in women is three times higher than in males; after that, it is roughly 1.5 times higher in women. Since roughly 30–60% of patients with acute cholecystitis have sterile bile or gallbladder wall cultures, the infection of the bile is comparatively less significant at this early stage.

The term "cholecystitis" should only be used to refer to gallbladders containing gallstones with varying degrees of inflammation, from mild mucosal or submucosal to gross transmural fibrosis leading to a contracted fibrous encasement of the biliary calculi. The most common cause of chronic cholecystitis (> 90%) is chronic gall bladder inflammation.

Sharma P et al. reported findings that were comparable to these in their study titled Clinical Study and Management of Calculous Cholecystitis. The study included a sample size of sixty patients and was conducted on each group.Vollmer CM et al.In his study, demonstrated that individuals who were obese and diabetic indicated that they had a greater number of patients who were diagnosed with calculus cholecystitis.The treatment's outcome was also dependent on the presence of varices calculus cholecystitis when it was administered.Alotaibi AM et al. reported in their study that patients with calculous cholecystitis had increased gallbladder thickening, which was comparable to what we found in our study, and had a significant impact on the outcome.

CONCLUSION

This retrospective study at the SMCH provides valuable insights into the clinical profile and management outcomes of
symptomatic gallstone disease, particularly highlighting the higher prevalence and clinical presentation in females. The consistent effectiveness of laparoscopic cholecystectomy in this cohort underscores its role as the preferred treatment modality for such cases. Moving forward, prospective studies with larger sample sizes could further enhance our understanding and optimize management strategies for this common biliary condition. This study sets the stage for future investigations to refine and validate these findings on a broader scale.

Recommendations

1. Standardized Diagnostic Protocols:

- Develop and implement standardized protocols for the diagnosis of calculous cholecystitis, incorporating the latest advancements in imaging and laboratory testing. This will help ensure accurate and timely diagnosis, reducing the risk of complications and improving patient outcomes.

2. Enhanced Preoperative Assessment:

- Emphasize comprehensive preoperative assessment, including risk stratification for potential surgical complications. This could involve developing predictive models to identify high-risk patients and tailor preoperative management accordingly.

3. Optimized Surgical Techniques:

- Encourage the adoption and training of minimally invasive surgical techniques, such as laparoscopic cholecystectomy, to reduce recovery times, postoperative pain, and overall complication rates. Investigate the role of robotic-assisted surgery in further enhancing surgical precision and outcomes.

4. Antibiotic Stewardship:

- Implement antibiotic stewardship programs to ensure the appropriate use of antibiotics in the management of calculous cholecystitis, reducing the risk of antibiotic resistance and minimizing adverse effects.

5. Postoperative Care and Follow-Up:

- Establish standardized postoperative care protocols and follow-up schedules to monitor for complications, manage pain, and provide nutritional and lifestyle guidance to prevent recurrence and promote overall health.

6. Patient Education and Lifestyle Modification:

- Develop comprehensive patient education programs focused on lifestyle modifications, such as dietary changes and weight management, to reduce the risk of gallstone formation and recurrence of calculous cholecystitis.

7. Multidisciplinary Approach:

- Foster a multidisciplinary approach to the management of calculous cholecystitis, involving surgeons, gastroenterologists, radiologists, and dietitians to provide holistic care and address all aspects of the patient's condition.

8.Research and Data Collection:

- Encourage ongoing research and the creation of registries to collect data on patient demographics, clinical presentations, treatment approaches, and outcomes. This will facilitate large-scale studies and improve the understanding of calculous cholecystitis in diverse populations.

9. Telemedicine Integration:

- Explore the integration of telemedicine for follow-up care and patient education, especially for those in remote or underserved areas. This can enhance accessibility to healthcare services and improve patient adherence to postoperative care recommendations.

10. Cost-Effectiveness Analysis:

- Conduct cost-effectiveness analyses of different treatment modalities and management strategies to identify the most efficient use of healthcare resources while maintaining high-quality care.

11. Guidelines and Policy Development:

- Collaborate with healthcare authorities and professional organizations to develop and update clinical guidelines and policies based on the latest evidence, ensuring that all healthcare providers adhere to best practices in the management of calculous cholecystitis.

By implementing these recommendations, healthcare providers can enhance the diagnosis, treatment, and overall management of calculous cholecystitis, leading to improved patient outcomes and more efficient use of healthcare resources in tertiary care settings.

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