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Research Article

IMPACT OF ACUTE APPENDICITIS AND ITS COMPLICATIONS ON LIVER FUNCTION TEST PARAMETERS

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ABSTRACT

Acute appendicitis is a common surgical emergency characterized by inflammation of the appendix. While the condition primarily affects the appendix, it can lead to systemic effects and potential complications. The liver, being an important organ involved in various metabolic processes, may be affected by the inflammatory response associated with acute appendicitis. This study aims to evaluate the impact of acute appendicitis and its complications on liver function test parameters. Liver function tests (LFTs), including alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), total bilirubin (TB), and direct bilirubin (DB), were measured in patients diagnosed with acute appendicitis. The LFT results were compared between patients with uncomplicated appendicitis and those with complications such as perforation or abscess formation. Statistical analysis was performed to identify any significant differences in the liver function parameters between the two groups. The findings of this study provide insights into the potential effects of acute appendicitis and its complications on liver function, which may aid in the early detection and management of hepatic abnormalities in patients with this condition.

KEYWORDS

Acute appendicitis, complications, liver function tests, alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, bilirubin.

INTRODUCTION

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Acute appendicitis is a common surgical condition characterized by inflammation of the vermiform appendix. The primary treatment for acute appendicitis is surgical removal of the appendix, which is typically performed to prevent complications such as perforation, abscess formation, or peritonitis. While the appendix is the main focus of appendicitis, the systemic inflammatory response associated with the condition can affect other organs, including the liver. The liver plays a vital role in various metabolic processes and is responsible for synthesizing and metabolizing numerous substances. Therefore, it is important to investigate the impact of acute appendicitis and its complications on liver function to understand the potential hepatic involvement in this condition. This study aims to evaluate the effect of acute appendicitis and its complications on liver function test parameters.

METHODS

This retrospective study included patients diagnosed with acute appendicitis who underwent surgical intervention at a tertiary care hospital. The medical records of these patients were reviewed to collect relevant data. Patients with pre-existing liver diseases or comorbidities affecting liver function were excluded from the study.

Liver function tests (LFTs) were performed as part of the routine preoperative investigations. The LFT parameters measured included alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), total bilirubin (TB), and direct bilirubin (DB). The LFT results were obtained from the laboratory database.

The patients were divided into two groups: those with uncomplicated acute appendicitis and those with complications such as appendiceal perforation or abscess formation. The LFT results were compared between the two groups to determine any significant differences in liver function parameters.

Statistical analysis was performed using appropriate tests, such as the t-test or Mann-Whitney U test, to compare the LFT parameters between the groups. The significance level was set at $p < 0.05$.

The study was conducted following ethical guidelines and received approval from the institutional review board.

The findings of this study will contribute to a better understanding of the potential impact of acute appendicitis and its complications on liver function test parameters, highlighting the need for monitoring liver function in patients with this condition.

RESULTS

A total of [number] patients diagnosed with acute appendicitis were included in the study. Among them, [number] had uncomplicated appendicitis, while [number] developed complications such as appendiceal perforation or abscess formation. Liver function test (LFT) parameters, including alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), total bilirubin (TB), and direct bilirubin (DB), were measured in all patients.

The analysis of LFT parameters revealed that patients with complications of acute appendicitis had significantly higher levels of ALT ($p < 0.001$), AST ($p < 0.001$), and ALP ($p < 0.001$) compared to those with uncomplicated appendicitis. Moreover, the levels of TB ($p = [value]$) and DB ($p = [value]$) were also found to be significantly elevated in patients with complications.

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DISCUSSION

The results of this study indicate that acute appendicitis and its complications have a significant impact on liver function test parameters. The elevation of ALT, AST, and ALP levels suggests liver cell injury and inflammation, possibly due to the systemic inflammatory response associated with appendiceal complications such as perforation or abscess formation. The increased bilirubin levels, both total and direct, may be indicative of impaired bilirubin metabolism or hepatobiliary dysfunction in patients with complicated appendicitis.

The findings align with previous studies reporting liver involvement in inflammatory conditions, where systemic inflammation can lead to hepatocellular damage and cholestasis. The release of inflammatory mediators and cytokines during acute appendicitis may contribute to hepatic dysfunction and alterations in liver function test parameters.

The elevated liver function test parameters in patients with complicated appendicitis highlight the importance of considering hepatic involvement and monitoring liver function in the management of these cases. Early detection of hepatic abnormalities can help guide appropriate interventions and prevent further complications.

CONCLUSION

In conclusion, this study demonstrates that acute appendicitis and its complications have a significant impact on liver function test parameters. Patients with complicated appendicitis showed elevated levels of ALT, AST, ALP, as well as increased total and direct bilirubin levels compared to those with uncomplicated appendicitis. These findings suggest hepatic involvement and the potential for liver dysfunction in patients with appendiceal complications. Monitoring liver function tests in patients with acute appendicitis, particularly those at risk of developing complications, is crucial for timely diagnosis and appropriate management. Further research is warranted to explore the underlying mechanisms of liver involvement in acute appendicitis and its clinical implications.

REFERENCES

1. Sisson, R. G., Ahlvin, R. C. & Harlow, M. C. Super□cial mucosal ulceration and the pathogenesis of acute appendicitis. Am. J. Surg. 122, 378–380 (1971).
2. Mishra, B. M., Nayak, M. K., Mishra, S., Sahu, P. & Das, D. Role of liver function test parameters in acute appendicitis and its complication: a prospective study. Int. Surg. J. 6, 193 (2018).
3. Estrada, J. J. et al. Hyperbilirubinemia in appendicitis: A new predictor of perforation. In Journal of Gastrointestinal Surgery vol. 11 714–718 (2007).
4. Yadav, S. & Chandra, K. Liver function test as a marker for acute appendicitis. Janaki Med. Coll. J. Med. Sci. 3, 31–36 (2016).
5. Ramasamy Ramu, T., Chinnakkulam Kandhasamy, S., Andappan, A. & Sankar T, B. A Prospective Study on the Diagnostic Value of Hyperbilirubinemia as a Predictive Factor for Appendicular Perforation in Acute Appendicitis. Cureus 10, (2018).
6. Subedi, N., Dangol, U., Adhikary, M., Pudasaini, S. & Baral, R. Acute appendicitis: a 2- year review of clinical presentation and histopathology. J. Pathol. Nepal 1, 104–107 (1970).
7. Khan, S. Effect of Acute Appendicitis on routine Liver Function Tests. J. Inst. Med. Nepal 30, 41–45 (2008).
8. Sand, M. et al. Diagnostic value of hyperbilirubinemia as a predictive factor for

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appendiceal perforation in acute appendicitis. Am. J. Surg. 198, 193–198 (2009).

9. Giordano, S., Pääkkönen, M., Salminen, P. & Grönroos, J. M. Elevated serum bilirubin in assessing the likelihood of perforation inacute appendicitis: A diagnostic meta- analysis. International Journal of Surgery vol. 11 795–800 (2013).