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Evaluation and Validation of Scoring Method in Assessment of Struggle in Laparoscopic Cholecystectomy at A Tertiary Care Centre

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Conflicts of Interest: Nil

Abstract

Introduction: Laparoscopic cholecystectomy is the procedure of choice for most patients with gallbladder disease. The concept of the Struggle, gall-bladder occupies a pivotal place in modern biliary surgery.

Aims and Objectives:

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1. To evaluation and validation of scoring method in laparoscopic cholecystectomy.
2. To quantifying their discriminatory accuracy for key endpoints;

Objectives:

1. Identifying modifiable variables to optimise operative strategy
2. Proposing evidence-based recommendations for integration of validated scoring into surgical training, consent and quality-assurance pathways.

Material and Method:

Study Design: A Prospective and observational study.

Study Period: From 01 January 2023 to 30 June 2024

Place of study: Department of Surgery at a tertiary care hospital.

Sample Size: A total of 100 patients

Result: A total of 100 patients were included in this study. This is devided into two groups. In Group I participants were female 50%, and Group II male participants were 50%.

Discussion: Laparoscopic cholecystectomy (LC) has emerged as the standard treatment for symptomatic gallstone disease.

Keywords: Gallstone Disease, Laparoscopic Cholecystectomy, Scoring Method

Introduction

Laparoscopic cholecystectomy is the procedure of choice for most patients with gallbladder disease. The concept of the Struggle, gall-bladder occupies a pivotal place in modern biliary surgery. Adverse events cluster in operations described intra-operatively as ―difficult‖, characterised by

oedematous or fibrotic Calot's triangles, gangrenous gall-bladders, Mirizzi syndrome or aberrant anatomy. Pre-operative tools such as the Randhawa-Pujahari score incorporate clinical, laboratory and sonographic variables to anticipate technical challenge before anaesthesia is induced. Intra-operative scales including the Parkland Grading Scale (PGS) offer rapid, image-based stratification of inflammatory severity, Commercial platforms further demonstrate that phase recognition algorithms can classify difficulty grades in real time and may one day trigger context-aware alerts or recommend bailout strategies when critical views are compromised.

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Inclusion criteria

- Adults aged 20 years and above.
- Patients agreeing to undertake laparoscopic cholecystectomy.

Exclusion criteria

- Age < 20 years.
- Conversion to open cholecystectomy for symptoms unrelated to operative difficulty

Result

Table 1: Patient Socio-demographic profile (N=100)

Variable	Category / Value	n (%) / Mean (SD)
Age (years)	Mean (SD)	50.00 (25.00)
	Range	20.00 – 80.00
Gender	Female	50 (50 %)
	Male	50 (50 %)

A total of 100 patients were included in the study. The mean age of the participants was 50 years, with a standard deviation (SD) of 25 years, and the age ranged from 20 to 80 years. Patient participants were female (50%), while male participants were 50%.

Graph 1:

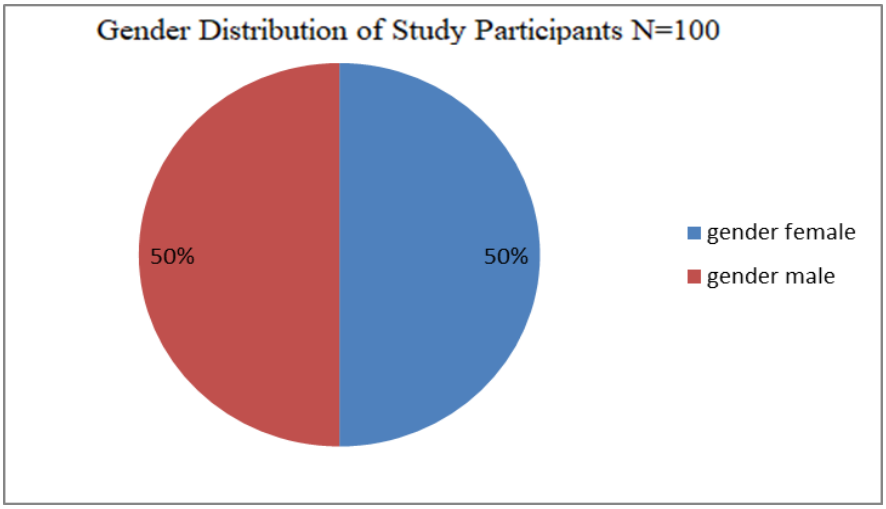


Table 2: Clinical signs on physical examination among the study participants (N=100)

Sign	n	%
Tenderness in right hypochondrium	100	100.0%

Table shows the clinical signs observed during physical examination. All 100 participants (100.0%) exhibited tenderness in the right hypochondrium, making it a universal clinical finding among the study population.

Graph 2:

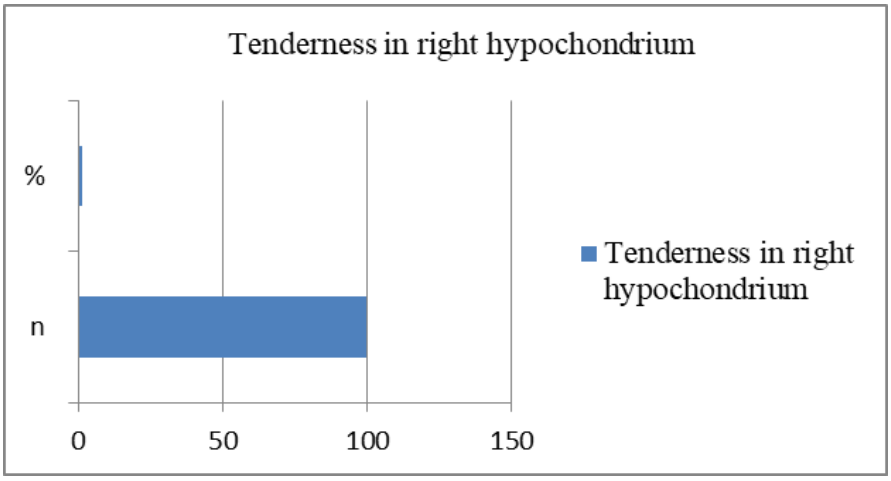
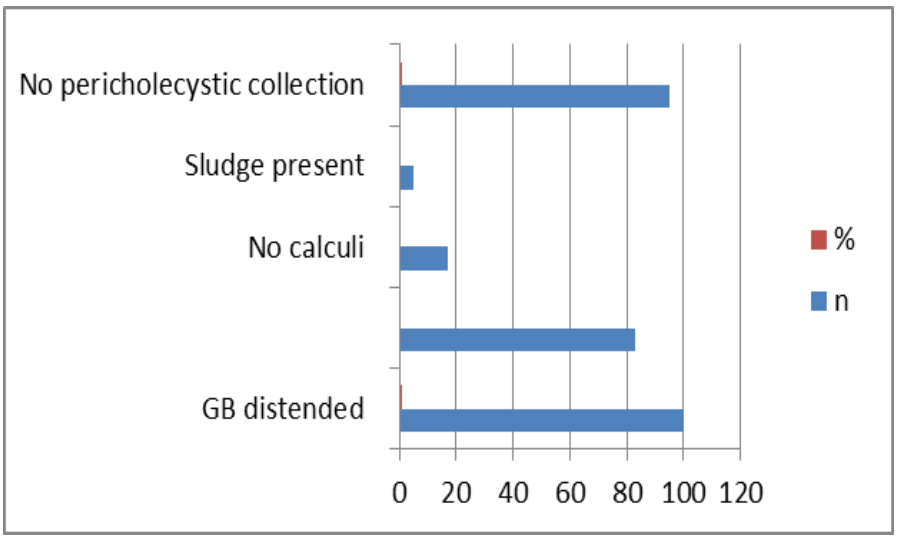


Table 3: Other sonographic features among the study participants (N=100)

Feature	n	%
GB distended	100	100.0%
Gallstones present (any number)	83	63.7%
No calculi	17	15.7%
Sludge present	5	5%
No pericholecystic collection	95	95%

Table 3 outlines additional sonographic features observed in the study population. A distended gallbladder (GB) was noted in all participants (100.0%). Gallstones were detected in 83 participants (63.7%), while no calculi were observed in 17 participants (15.7%). Sludge was present in 5 participants (5%), and no pericholecystic collection was found in 95 participants (95%).

Graph 3:



Discussion

Laparoscopic cholecystectomy (LC) has emerged as the standard treatment for symptomatic gallstone disease. However, the difficulty of the procedure can vary significantly due to factors such as dense adhesions in Calot's triangle, gallbladder inflammation, previous abdominal surgery, and certain sonographic features.

Conclusion

The primary objective of this study was to validate existing scoring systems in assessing the difficulty of laparoscopic cholecystectomy. Secondary objectives included evaluating the effectiveness of preoperative assessments in predicting surgical difficulty and comparing intraoperative findings with preoperative scores to assess consistency and accuracy.

References

1. Sugrue, M., Sahebally, S. M., Ansaloni, L., & Zielinski, M. (2015). Grading operative findings at laparoscopic cholecystectomy: A new scoring system. World Journal of Emergency Surgery, 10, 14.
2. Randhawa, J. S., & Pujahari, A. K. (2009). Preoperative prediction of difficult lap chole: a scoring method. Indian Journal of Surgery, 71(4), 198-201.
3. Ward, T. M., et al. (2022). Artificial intelligence prediction of cholecystectomy operative course from automated identification of gallbladder inflammation. Surgical Endoscopy, 36(12), 6832-6840.
4. Tranter-Entwistle, I., et al. (2022). Operative difficulty in laparoscopic cholecystectomy: Considering the role of machine-learning platforms in clinical practice. Artificial Intelligence Surgery, 2, 46-56.
5. Sakpal, S. V., Bindra, S. S., & Chamberlain, R. S. (2010). Laparoscopic cholecystectomy conversion rates two decades later. Journal of the Society of Laparoendoscopic Surgeons, 14(4), 476-483.
6. Gupta, N., et al. (2013). Validation of a scoring system to predict difficult laparoscopic

cholecystectomy. International Journal of Surgery, 11(9), 1002- 1006.

7. Kama NA, Kologlu M, Doganay M, Reis E, Atli M, Dolapci M. A risk score for conversion from laparoscopic to open cholecystectomy. Am J Surg. 2001;181:520–525.
8. Lal P, Agarwal PN, Malik VK, Chakravarti AL. A difficult laparoscopic cholecystectomy that requires conversion to open procedure can be predicted by pre-operative ultrasonography. JSLS. 2002;6:59–63.
9. Riaz S, Khan NA, Khalique A, Ramzan R, Aziz MA. Validation of a pre- existing scoring system for pre-operative prediction of difficulty in laparoscopic cholecystectomy. Pak J Med Health Sci. 2023; 17 (4):405.
10. Ramírez-Giraldo C, Isaza-Restrepo A, Monroy DC, et al. What is the best score for predicting difficult laparoscopic cholecystectomy? A diagnostic- trial study. Int J Surg. 2023;109(7):1871–1879.
11. Tongyoo A, Liwattanakun A, Sriussadaporn E, Limpavitayaporn P, Mingmalairak C. New proposed classification of difficulty in laparoscopic cholecystectomy. J Laparoendosc Adv Surg Tech. 2024;34(5):407–414.