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Research Article

**THE CRITICAL VIEW OF SAFETY: WHY LAPAROSCOPIC
CHOLECYSTECTOMY STANDARD OF CARE DOES NOT
REQUIRE IT AS THE ONLY DUCTAL IDENTIFICATION
METHOD**¹Talha Bin Awan, ²Muhammad Uzair, ³Maryam Khan¹Email: talhabinawan@gmail.com, PMC no. 118669-P, ²Email: Uxr148@gmail.com, PMC no. 118656-p, ³Email: maryamalikhan96@gmail.com, PMC no. 118661-p**Article Received:** September 2022**Accepted:** October 2022**Published:** October 2022**Abstract:**

Around 1990, laparoscopic cholecystectomy became widely used and has since been shown to be beneficial to patients. But it was linked to a dramatic rise in serious bile duct injuries. Biliary injuries are unpleasant, expensive, and the subject of lawsuits. Although they are mostly iatrogenic and not the result of neglect, they lessen the benefits of laparoscopic cholecystectomy. Misidentification is the leading cause of serious bile duct damage. The common bile duct is believed to be the cystic duct and is separated in the "classical damage." Additionally, the cavernous conduit or cystic artery may be misinterpreted for abnormal hepatic ducts. The cystic duct and the cystic artery are the targets of the Critical View of Safety (CVS), a technique for target identification. Today, CVS is extensively taught and used. Its usage complies with the established standards of care and is recognized as a reliable method of identifying cystic formations. The goal of this surgical viewpoint is to assess if CVS has become the sole procedure recognized for identifying structures during laparoscopic cholecystectomy.

Keywords: *Critical View, Safety, Laparoscopic Cholecystectomy Standard, Care, Ductal Identification Method.*

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INTRODUCTION:

Critical View Of Safety History: In an analytical analysis that was produced in reaction to the unexpected rise in biliary damage linked to laparoscopic cholecystectomy, the phrase "Critical View of Safety" was coined. [1] By taking the gallbladder off the cystic plate so that it is only linked by the two cystic structures, the gallbladder is removed using CVS, a modified version of a secure identification technique used in open cholecystectomy. [2] Secure target identification is only possible after that. This phase was adjusted to simply call for the lower section of the gallbladder (approximately one-third) to be detached from the cystic plate since full dissociation of the bladder from the cystic plate renders excision of the cystic structures difficult during laparoscopic surgery. The additional conditions, which include removing all fat and fibrous tissue from the hepatocytic triangle and ensuring that only two structures are still connected to the gallbladder, are the same as for the open procedure. The three components of CVS should be proven during a "time-out" during which intraoperative CVS should be validated.

The utility of CVS in operations where biliary damage had occurred was investigated after the invention of CVS in 1995 by examining the operational records. [3] It was discovered that the target identification technique that was ineffective was not CVS but the infundibular technique, which identifies the cystic duct by exposing the funnel-shaped region where the gallbladder's infundibulum joins the cystic duct. The common hepatic duct may become juxtaposed or adhere to the side of the gallbladder as a result of inflammatory fusion and contraction. Under these conditions, the infundibular approach of classification may produce a convincing visual illusion that the common bile duct is the cystic duct. [3] Given that achieving CVS requires more structural exposure, CVS is less vulnerable to this trick. Achieving the CVS is either prevented by operative conditions like severe acute or chronic inflammation, by which time the anatomic situation is typically clarified, or it is achieved. When the CVS cannot be reached in the latter scenario, one of several crucial "bail-out" strategies, such as subtotal fenestration cholecystectomy, can be used to prevent bile duct injury. Of course, the CVS should not be viewed in isolation, but rather as a component of a larger scheme for a "Culture of Safety in Cholecystectomy" that also makes use of other components like effective bail-out techniques, effective access techniques, and other safety-related components.

The critical view of safety (cvs) effectiveness:

The CVS is a useful tool for identifying targets, according to two main lines of research. First, there are multiple instances with thousands of patients in whom CVS was used for target acquisition without even a biliary injury owing to misidentification [5, 6] while it would be predicted that there would be roughly 20 biliary injuries predicated on a prevalence of biliary damage of 3 to 4/1000 cases. Second, CVS has seldom been mentioned as a strategy of target identification in research that has looked at the processes of significant biliary damage. [7,8] When seen together, these studies provide strong evidence for the effectiveness of CVS, but from the standpoint of evidence-based medicine, they only provide moderate support. So why hasn't there been randomized research comparing target identification techniques after 25 years?.

The reason is that although there are still many serious biliary injuries, between 2000 to 3000 annually in the United States, the event rate for cholecystectomies is only around 3 per 1000 (up from approximately 1 per 1000 during the open cholecystectomy period). Because the incident rate is so low, around 4500 people per arm would be needed, making a randomized study impractical. Despite the low occurrence incidence, cholecystectomies, which are done yearly in the USA at a rate of roughly 800,000, resulting in a significant number of biliary injuries. Biliary damage thus has characteristics of both a rare illness and a common condition. There are significant corollaries as well. The majority of the time, laparoscopic cholecystectomies case series are too limited to shed light on the reasons for biliary damage. For population studies to provide useful insights, there must be enough events from thousands of patients. Because of this, for over a century, the majority of knowledge on biliary damage has come from case studies of actual injuries rather than cholecystectomies.

What elements make up a standard of care?:

The legal phrase for the obligation owed by one person to another is "standard of care," and it applies in both medical and non-medical circumstances (such as driving a car). It is the level of caution that a prudent individual would use to avoid hurting another person. A medical doctor must use the level of ability, knowledge, and care typically exercised by members of his or her profession in comparable circumstances while acting in a medical-legal setting. Whether a certain treatment or method complies with the standards of practice—which are set by professional authorities in writings and documented electronic communications—determines whether it is acceptable

under the standard of care. In recent years, the strength of the evidence offered in these communications has been rated on a scale of 1 to 5, with randomized trials scoring extremely highly and case studies and expert opinion scoring lower. Several diagnostic or therapeutic approaches often meet the standards of care. Consensus meetings that evaluate the available data on a specific style of treatment may sometimes come to the conclusion that there is strong evidence that this type of care is better than all others. If such a finding were supported by substantial data, it may be determined that failing to employ a certain sort of care in a given circumstance would almost certainly fall short of the required standard. The failure to provide antibiotics in the case of cellulitis or other acute bacterial infection would be a clear example. Finally, if a certain style of therapy is widely used by skilled surgeons is a crucial factor in setting the standard of care. There is a strong case that it complies with the standard of care if it is, even by a modest number of surgeons.

During laparoscopic cholecystectomy, is the critical view of safety the only acceptable method of ductal identification?:

Some techniques that have been recommended for object recognition in cholecystectomy are a Critical View of Safety, regular cholangiography, the infundibular technique, imaging of the common bile duct and hepatic artery duct, and top-down cholecystectomy.

For the following reasons, CVS is not the only treatment option that falls inside the scope of service. Surgery textbooks may or may not suggest CVS as a technique for target identification. Level 4, or case series, provides proof that CVS is preferable to all other methodologies. No consensus conference has issued a directive stating that CVS is the sole reliable technique for identifying targets. Currently, many surgeons employ and feel secure using other techniques. [9,10,11] Even if all other methods are excluded from the standard of care, some experts still think that CVS is the best way to identify targets during laparoscopic cholecystectomy. In other words, CVS is not currently the sole technique for ductal identification that falls within the purview of the standard of care.

Critical view of safety problems:

In surgery, it might be challenging to spread new knowledge. The requirements for CVS are often poorly understood by surgeons, even after over 20 years, and they may mistake it for the infundibular method. [12,13] Another difficulty is resistance to

using novel strategies or practices. The low occurrence rate of biliary damage in the context of CVS makes an erroneous trap like the interventricular approach even more difficult to escape. If it succeeds 299 times out of 300, there is a vast reservoir of trust in it if it only fails 1 out of 300 times. [14,15] Moreover, compared to CVS, the infundibular approach is simpler and requires less dissection. Although the dictated operational note may indicate that the CVS was attained, current research reveals that this is generally not the case. The accomplishment of the CVS is not typically recorded or photographically documented. [16-18].

Critical view of safety(cvs) future:

The Culture of Safety in Cholecystectomy (COSIC) includes the Critical View of Safety, and SAGES has taken on this issue with a ground-breaking initiative dubbed "Safe Cholecystectomy." The SAGES Safe Cholecystectomy initiative strives to further spread knowledge of CVS and other preventative measures for biliary damage, including the use of interventional procedures and tactics for the challenging gallbladder that include appropriate bail-out procedures. [19] To research and improve safety in cholecystectomy, a multi-society consensus development conference on the issue of bile duct damage is scheduled for 2017. In that arena, the function and implementation of CVS and other preventative measures for biliary damage will be rigorously analyzed. For surgeons who want to visually document CVS, there is now a reliable and simple way accessible. [20] It is crucial to note that without achieving all 3 components of this approach of target identification, CVS cannot be claimed to have been accomplished for those who seek to include it in their operational notes. We suggest it as a great exercise and dictate these 3 components into operational notes.

REFERENCES:

1. Mohan Rao Voruganti, D., Mohammed, N., & Aditya, V. (2022). Evaluation of "critical view of safety" in laparoscopic cholecystectomy. *International Journal of Surgery*, 6(1), 01-05.
2. Sherrill, W. C., & Brunt, L. M. (2022). The Critical View of Safety: Creating Procedural Safety Benchmarks. In *The SAGES Manual of Quality, Outcomes and Patient Safety* (pp. 663-685). Springer, Cham.
3. Terho, P., Sallinen, V., Lampela, H., Harju, J., Koskenvuo, L., & Mentula, P. (2022). The Critical View of Safety in Laparoscopic Cholecystectomy: User Trends Among Residents and Consultants. *Surgical Laparoscopy*

- Endoscopy & Percutaneous Techniques*, 32(4), 453-461.
4. Jin, Y., Liu, R., Chen, Y., Liu, J., Zhao, Y., Wei, A., ... & Li, A. (2022). Critical view of safety in laparoscopic cholecystectomy: A prospective investigation from both cognitive and executive aspects. *Frontiers in surgery*, 9.
 5. Afaque, M. Y., Rehman, N., Alam, J., Varshney, H., Rizvi, S. A. A., & Aslam, M. (2022). Importance of Critical View of Safety, Rouviere's Sulcus, and Minimal Energy Device Usage in Reducing Biliary Injury in Laparoscopic Cholecystectomy. *Surgery Insights*.
 6. Iftikhar, M., Ahmad, S., & Aziz, K. (2022). Comparative Study of Critical View of Safety vs Infundibular Technique in Laparoscopic Cholecystectomy. *Journal of Gandhara Medical and Dental Science*, 9(2), 8-12.
 7. Narlapati, H. M., Telian, S. H., Peirce, G. S., & Kaplan, A. J. (2022). A Type V Aberrant Right Hepatic Duct Branching from the Cystic Duct: The Paramount Importance of Intraoperative Cholangiography in Supplementing the Critical View of Safety Technique in Laparoscopic Cholecystectomy. *CRSLS: MIS case reports from SLS*, 9(2).
 8. Terho, P. (2022). Laparoscopic Cholecystectomy For Cholecystitis and Gallstone Disease: Risk Factors for Adverse Outcomes, and the Role of the Surgeon and Surgical Technique.
 9. Jin, H., Yang, J., Lu, L., & Cui, M. (2022). Propensity score matching between conventional laparoscopic cholecystectomy and indocyanine green cholangiography-guided laparoscopic cholecystectomy: observational study. *Lasers in Medical Science*, 37(2), 1351-1359.
 10. Broderick, R. C., Li, J. Z., Huang, E. Y., Blitzer, R. R., Lee, A. M., Serra, J. L., ... & Horgan, S. (2022). Lighting the Way with Fluorescent Cholangiography in Laparoscopic Cholecystectomy: Reviewing 7 Years of Experience. *Journal of the American College of Surgeons*, 235(5), 713-723.
 11. Lucocq, J., Taylor, A., Driscoll, P., Naqvi, S., MacMillan, A., Bennett, S., ... & Robertson, A. G. (2022). Laparoscopic Lumen-guided cholecystectomy in face of the difficult gallbladder. *Surgical Endoscopy*, 1-8.
 12. Lucocq, J., Hamilton, D., Scollay, J., & Patil, P. (2022). Subtotal Cholecystectomy Results in High Peri-operative Morbidity and Its Risk-Profile Should be Emphasised During Consent. *World Journal of Surgery*, 46(12), 2955-2962.
 13. Choudhury, N., Choudhury, M. K., & Kowalski, R. B. (2022). Prevention of Common Bile Duct Injury: What Are we as Surgeons Doing to Prevent Injury. In *The SAGES Manual of Quality, Outcomes and Patient Safety* (pp. 923-932). Springer, Cham.
 14. Khan, Z. U. (2022). Difficult Laparoscopic Cholecystectomy, Primum non nocere!. *Pak J Surg*, 38(1), 3-7.
 15. Seretis, C., Zohdy, M., Padgett, B., & Janardhanan, P. (2022). Routine extensive dissection of the cystic duct during laparoscopic cholecystectomy to reduce the risk of residual choledocholithiasis: an unnecessary step and a potentially hazardous concept. *Gastroenterology Review/Przegląd Gastroenterologiczny*, 17(1), 67-72.
 16. Lunevicius, R. (2022). Cholecystectomy: Advances and Issues. *Journal of Clinical Medicine*, 11(12), 3534.
 17. Santorelli, J., & Costantini, T. (2022). Acute Cholecystitis. In *The Acute Management of Surgical Disease* (pp. 197-209). Springer, Cham.
 18. Brunt, L. M. (2022). Should We Utilize Routine Cholangiography?. *Advances in Surgery*, 56(1), 37-48.
 19. She, W. H., Cheung, T. T., Chan, M. Y., Chu, K. W., Ma, K. W., Tsang, S. H., ... & Lo, C. M. (2022). Routine use of ICG to enhance operative safety in emergency laparoscopic cholecystectomy: a randomized controlled trial. *Surgical Endoscopy*, 36(6), 4442-4451.
 20. Mistry, J., Rao, S., & Vala, H. (2022). Our Experience of Zero Bile Duct Injury in Consecutive 427 Laparoscopic Cholecystectomies: a Safe Zone of Dissection in Reference to Right Posterior Pedicle. *Indian Journal of Surgery*, 84(3), 491-497.