

Three-Port Versus Standard Four-Port Laparoscopic Cholecystectomy: A Randomized Controlled Clinical Trial in a Community-Based Teaching Hospital in Eastern Nepal

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Article Overview

The prevalence of laparoscopic cholecystectomies has increased in frequency leading to an increase in both surgeon experience and technical refinements, specifically the number of ports used and their size. The 3-port laparoscopic cholecystectomy has already been established as being safe. The design of this study sought to determine if there were any additional advantages compared with the conventional 4-port laparoscopic cholecystectomy.

Method

A randomized trial of 75 consecutive patients undergoing elective cholecystectomies and assigned to receive either a 3-port cholecystectomy or the conventional 4-port.

1. All patients received surgical tape over the 4 surgical incision areas. Surgical tape was maintained through 1 week follow-up to keep the therapy blinded.
2. One surgeon completed the majority of cases.

The primary patient outcomes were postoperative pain at port sites (VAS 1-10), analgesia requirements, post-op stay, days to return to normal activity, success rate, and satisfaction score on surgery and scar. The success rate was assessed as no conversion to open cholecystectomy or conversion to 4-port in the 3-port group. Safety was assessed based on bile duct injury and excessive bleeding.

Discussion Related to Results of 3-Port vs. 4-Port Laparoscopic Cholecystectomies

1. Patients in the 3-port group had a statistically significantly shorter mean operative time likely due to the time savings associated with establishing and closing an additional port site.
2. Patients in the 3-port group reported statistically less postoperative pain versus the 4-port group at 12 hours post-surgery. There was no statistical difference between the two groups after 24 hours.
3. This study required no case conversions from 3-port to 4-port. The safety and success rate outcomes in both groups were comparable indicating that the 3-port technique is both safe and effective. It was also suggested that the 3-port technique was not difficult to master.
4. This study also noted that the 3-port procedure can be more difficult in the presence of a long gallbladder as it tends to flop down and obscure the view of cabots triangle when being held by a grasper.

Conclusion

Three-port laparoscopic cholecystectomy resulted in less individual port-site pain and similar clinical outcomes with fewer surgical scars and without any increased risk of bile duct injury compared with 4-port laparoscopic cholecystectomy. It also resulted in shorter mean operative times. Thus, it can be recommended as a safe alternative procedure in elective surgery.



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