FEATURES OF THREE-PORT LAPAROSCOPIC CHOLECYSTECTOMY

Solijonova Umida Ilhamzhanovna
Gataulina Nelya Nailievna
Department: Clinical Disciplines, "Kimyo international university in Tashkent" Uzbekistan
Rakhimov B.K.
Scientific Supervisor: PhD in Medicine,
https://doi.org/10.5281/zenodo.17149241

Introduction

Calculous cholecystitis remains one of the most common diseases of the abdominal organs requiring surgical treatment. Over the past decades, laparoscopic cholecystectomy has been considered the "gold standard" for this pathology.

Traditionally, the operation is performed through four ports, which ensures sufficient visualization and convenient manipulation for the surgeon. However, the development of minimally invasive surgery has stimulated the search for ways to reduce the number of incisions and punctures in order to decrease tissue trauma and pain, improve cosmetic outcomes, and shorten hospital stay.

One of these approaches is three-port laparoscopic cholecystectomy, in which one of the trocars is omitted. Despite the obvious advantages of this method, discussions are still ongoing regarding its effectiveness and safety compared with the traditional technique.

Objective of the Study

To compare the methods of laparoscopic cholecystectomy using three and four ports, and to evaluate their effectiveness and safety, duration of surgery, frequency of complications, severity of pain syndrome, and length of hospital stay.

Materials and Methods

The study included 200 patients (134 women and 66 men) aged 21 to 65 years who underwent laparoscopic cholecystectomy in the surgical departments of the International University of Chemistry Clinic and the Viva Med Clinic in 2024–2025.

At the Viva Med Clinic, 100 patients (74 women and 26 men) underwent surgery using the three-port technique.

At the Chemistry International University Clinic, 100 patients (60 women and 40 men) underwent surgery using the four-port technique.

Evaluation Parameters

1. Duration of surgery (minutes).

2. Intraoperative complications (bleeding, bile duct injury).
3. Postoperative complications.
4. Pain syndrome during the first 24 hours after surgery (10-point scale).
5. Length of hospital stay (number of bed-days).
6. Cosmetic effect (according to patients' subjective evaluation).

Study Results

• Duration of surgery: with the three-port technique it was 40–50 minutes, while with the four-port technique it was 30–40 minutes. The slight increase in time is explained by the more limited access.

• Intraoperative complications: bleeding was recorded in 3 patients in the three-port group and in 4 patients in the four-port group.

• Bile duct injuries: none were observed in the three-port group; in the four-port group there was 1 case.

• Pain syndrome: during the first 24 hours after surgery, patients in the three-port group rated pain at an average of 3 points, whereas in the four-port group it was 5 points.

Length of Hospital Stay

In the three-port group, 92 patients were discharged on the first postoperative day, with an average hospital stay of 1.08 days.

In the four-port group, only 21 patients were discharged on the first day, with an average hospital stay of 2.13 days.

Cosmetic Result

Patients in the three-port group reported fewer postoperative scars, which increased satisfaction with treatment.

Discussion

The obtained data demonstrate that three-port laparoscopic cholecystectomy significantly reduces postoperative pain, accelerates recovery, and shortens hospital stay.

Despite a slight increase in operative time, this difference has no clinically significant impact on outcomes. An additional important advantage is the cosmetic effect, which is particularly relevant for younger patients.

The limitations of the study include its retrospective design and the lack of long-term follow-up of patients. Nevertheless, even within the scope of this analysis, it is evident that the three-port technique can be considered a promising alternative to the traditional four-port method.

Practical Significance

The technique is suitable for most patients with calculous cholecystitis.

It ensures rapid recovery and early discharge.

It can be implemented in clinics with experienced laparoscopic surgeons without the need for costly equipment.

Conclusion

Three-port laparoscopic cholecystectomy is a gentle and effective method of surgical treatment for calculous cholecystitis.

Its advantages include:

- reduced severity of postoperative pain syndrome;
- shorter hospital stay (up to 1 day);
- good cosmetic outcome.

With only a slight increase in operative time, the technique provides higher patient comfort and can be recommended for wide implementation in clinical practice.