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## Original Research Article

## Two-sites incision laparoscopic cholecystectomy



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## ABSTRACT

**Introduction:** Laparoscopic cholecystectomy has become the gold standard in treating patients presenting cholecystitis. Standard laparoscopic cholecystectomy involves access to the abdominal cavity through two or three incisions outside the umbilicus, which are potential infection sites and may determine poor cosmetic outcomes.

In order to eliminate the aforementioned disadvantages of “traditional” laparoscopic surgery methods, several modifications have been recently introduced, which are significantly less invasive. Effort is being made to reduce the amount of trocars accessing the abdominal cavity via the abdominal wall, or to eliminate them completely.

**Aim:** The aim of the work was to describe a modification of traditional laparoscopic cholecystectomy, which consists of reducing the amount of integumental incisions.

**Material and methods:** From October 2009 through July 2011, 21 patients were operated on using laparoscopic cholecystectomy in the general surgery department in Kędzierzyn-Koźle District Hospital. Our control group consisted of 25 patients, operated on schedule between March and July 2011 in the same hospital.

**Results and discussion:** Postoperative course was uneventful. Aesthetic results were regarded as “very good” by both patients and surgeons. One advantage of the described method is the possibility to convert to “traditional” laparoscopic cholecystectomy at any point during the operation.

**Conclusions:** Described method is a safe and efficient alternative for standard laparoscopic cholecystectomy and may be introduced virtually in every surgery department operating by means of laparoscopic techniques.

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## 1. Introduction

Laparoscopic cholecystectomy has become the gold standard in the treatment of patients presenting cholecystitis symptoms. It was 1987 when Philippe Mouret introduced this new method into clinical practice.<sup>1</sup> Standard laparoscopic cholecystectomy involves access to the abdominal cavity through two or three incisions outside the umbilicus, which are potential infection sites and may determine poor cosmetic outcomes, as well as causing postoperative pain.

In order to eliminate the aforementioned disadvantages of "traditional" laparoscopic surgery methods, several modifications have been recently introduced, which are significantly less invasive. Effort is being made to reduce the amount of trocars accessing the abdominal cavity via the abdominal wall, or to eliminate them completely. In some cases, as in sleeve gastrectomy or adjustable gastric band placement, implementation of a single incision access may eliminate up to five or six other incision sites outside the umbilicus.<sup>2-4</sup> Depending on the type of modification, techniques of laparoendoscopic single-site surgery (LESS) are divided into natural orifice transluminal endoscopic surgery (NOTES) and single incision laparoscopic surgery (SILS), usually localized in the umbilicus – one port umbilical surgery (OPUS). When operating with one port only, specially designed, curved instruments are essential to obtain proper operating angle.

Single incision laparoscopy was introduced by Navarra,<sup>5</sup> and since then, was implemented both in adults<sup>6-10</sup> and in children<sup>11,12,16,21</sup> in numerous procedures.<sup>1,11,13,14,18,22</sup>

These modifications of "classic" laparoscopic cholecystectomy result in diminished postoperative pain, reduced rates of complications and duration of hospitalizations, and better cosmetic results – cholecystectomy without a visible scar. In order to perform LESS, specially designed equipment is needed. Several manufacturers provide surgeons various single ports with multiple access lumens (SILS) or an elastic membrane (Gelport). Moreover, in order to obtain a proper operating angle between the instruments, it is essential to use bent (articulated) operating instruments.

## 2. Aim

The aim of the work was to describe a modification of traditional laparoscopic cholecystectomy, which consists of reducing the amount of integumental incisions.

## 3. Material and methods

Authors describe a modification of standard cholecystectomy by reducing the number of skin incisions to two: one in the umbilicus and the other on the left flank. Two and one standard trocars were introduced through each of the incisions, respectively. Standard, straight (not articulated) instruments were used. It was essential to use straight instruments, as these are not as price burdening and are widely used throughout surgery departments. In order to immobilize and suspend the gallbladder, one transabdominal

suture was used. Further course of laparoscopy was standardized.

In the period from October 2009 to July 2011, in the general surgery department of the district hospital in Kędzierzyn-Koźle, 21 patients were operated on by means of the described technique.

The experimental group consisted of 5 men and 16 women. Their age ranged from 21 to 63 years with a mean age of 40.9 years. All the patients were operated on as a scheduled procedure. Their ASA score was I to II. The mean time from first symptoms to the operation was 11.9 months (range 0–36). All patients signed a declaration of approval for the study.

The control group had 25 patients: 8 men and 17 women. Their age ranged from 25 to 80 years with a mean age 48.8 years. Our patients from the control group were chosen from those operated on as a scheduled procedure as well. Their ASA score was I to III.

### 3.1. Operative techniques

All the surgeries were performed by the same surgeon (Mariusz Lipka).

In the supine patient, a horizontally oriented, semilunar incision in the upper pole of the umbilicus was made about 15–18 mm. Dissection of the skin from underlying fascia was then performed. A Varesse needle was introduced and a 10–12 mmHg pneumoperitoneum was created. A 10 mm straight trocar or 30° oblique optics was introduced followed by a 5 mm trocar placed laterally in the same skin incision via an adjacent fascia cut. Another small incision for a 10 mm trocar was made in the left lateral epigastrium (Fig. 1). Next, the patient's position was modified to anti-Trendelenburg, rotated towards the operator. Both operator and the assistant were standing on the left side of the patient. After introduction of standard (straight) laparoscopic instruments, a 2/0 Vicryl gallbladder suspension transintegumental suture was placed in the upper right quadrant of the abdomen (Fig. 2). The suture was placed intramurally; however, bile leak was noted at times within the abdominal cavity and was immediately aspirated and rinsed.

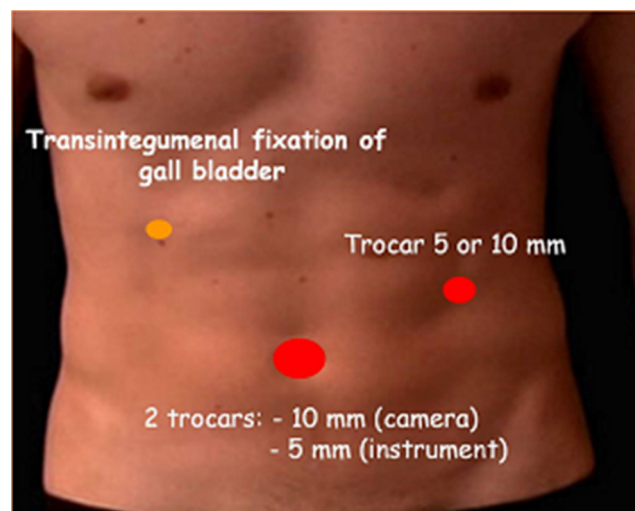


Fig. 1 – Surgical access (scheme).

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