

ORIGINAL RESEARCH

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Our laparoscopic gynecological surgery experience through a single incision

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Abstract

Laparoscopic surgery has special importance for patients with cosmetic concerns. This cosmetic concern also reflects the willingness to take surgical approach as few incisions as possible. The aim of this study is to report the results of bilateral tubal ligation and salpingectomy with an incision of approximately 1 cm from the umbilicus and to introduce this simple and aesthetic technique. Between January 2018 and November 2018, 7 women were admitted to Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Obstetrics and Gynecology with a request for permanent contraception. Under general anesthesia, under sterile conditions, 1 mm infraumbilical skin incision with a 5mm guide blade removed trocar was entered into the abdomen, insufflation of the abdominal cavity with 15 mm Hg pressure was inflated with carbon dioxide, pneumoperitoneum was provided. 5 mm, 30 degrees optical (Storz ®) trocar was entered into the abdomen. After removal of optic, bluntly penetrated from the same 1 cm skin incision, just next to the 5 mm trocar, if it does not penetrate the fascia, this procedure was performed by expanding the fascial entry with blunt and sharp dissection, followed by 5 mm laparoscopic LigaSure (Covidien ®) was entered into the abdomen through 5-mm trocar. In 7 cases; bilateral tubal ligation and, if necessary, salpingectomy were performed. The mean duration of the cases was 20 (+/- 5) and the time to enter the abdomen was 3 (+/- 1) minutes. Blood loss was negligible since the cases were short-duration minimally invasive cases. In our series of 7 cases, two patients underwent bilateral salpingectomy, in which single incision was not compelling to perform salpingectomy. As aesthetic concerns and the need to reduce the length of hospital stay with less incision and the need for cost-effectiveness increase, these new methods will be developed, further.

Keywords: Single incision, laparoscopy, gynecologic surgery, tubal ligation, salpingectomy

Introduction

Laparoscopic surgery has been implemented since the beginning of the twentieth century [1]. In gynecology, laparoscopic approach is performed in almost every surgery. Laparoscopic surgery has special importance for patients with cosmetic concerns. This cosmetic concern also reflects the willingness to take surgical approach through as few incisions as possible.

Surgery from a single port is first described in the 1970s, but it has been mainly implemented since the late 1990s [2, 3], but accessories in single port surgery usually provide access to the abdomen through a port of 2-3 cm [4].

The aim of this study is to report the results of bilateral tubal ligation and salpingectomy with an incision of approximately 1 cm from the umbilicus and to introduce this simple and aesthetic technique.

Material and Methods

Between January 2018 and November 2018, seven patients were admitted to Zonguldak Bülent Ecevit University Faculty of Medicine, Department of Obstetrics and Gynecology with the requirement of permanent contraception. The patients were between 30-41 years of age, bilateral tubal ligation were planned because they completed the fertility, but there were 3 patients who had to be treated with additional diagnoses such as paratubal cysts and hydrosalpinx preoperatively.

Body mass index (BMI) of the patients ranged from 28 to 34 kg/m², with no additional diseases and no abdominal surgery. The patients were taken to the operating room under the appropriate conditions after the consent of the patient before the operation.

Surgery was performed, under general anesthesia, under sterile conditions, in the lithotomy position, the primary surgeon (GS) was on the left side of the patient, the first assistant was on the right side of the patient, while the second assistant was to control the uterine manipulator (VCare® Plus uterine manipulator, Conmed) at the patient's foot side.

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The primary surgeon hold the umbilicus with the Pean-clamp (hemostat), then with the number 11 scalpel blades 1-cm skin incision caudally as seen in Figure 1, and then dissected subcutaneous adipose tissue by the nut-shaped sponge to observe fascia. Then, while with the Pean holding from the umbilicus, the fascia was transversely cut with a metzenbaum scissor or with the scalpel and the abdomen was entered with open technique.

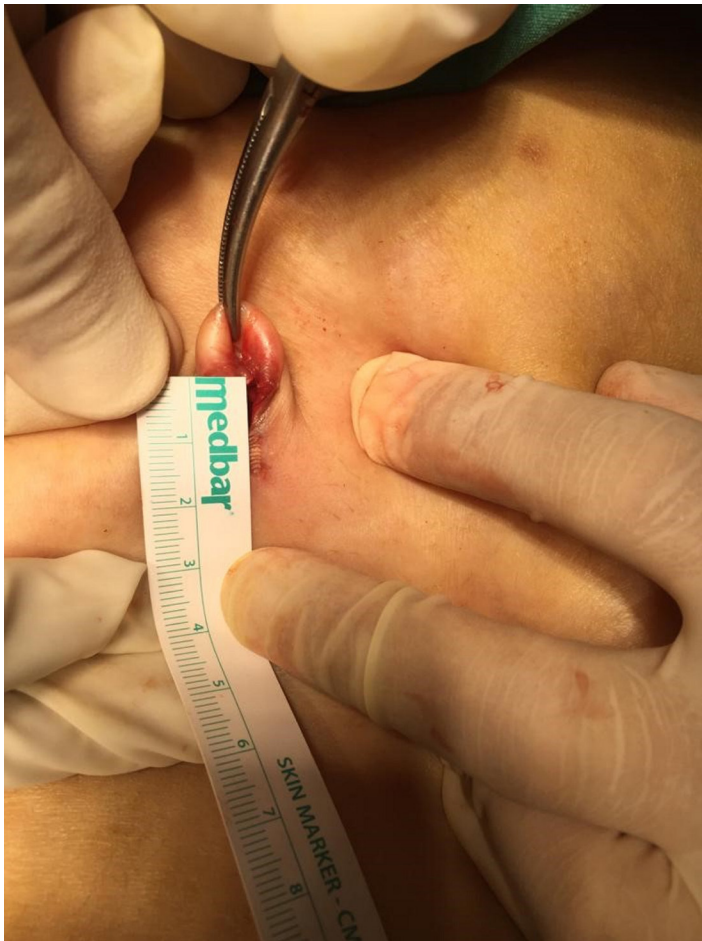


Figure 1. 1 cm, skin incision (Postop view)

The 5 mm trocar was inserted into the abdomen, with the removed blade guide and the insufflation was started. The 15 mm Hg pressure was provided with carbon dioxide and pneumoperitoneum was provided. 5 mm, 30 degrees endoscope (Storz ®) was entered into the abdomen. Intraabdominal structures, uterus and adnexal structures were observed. The mobilization of the uterus and adnexa with the uterine manipulator was tested. Since there was no history of previous surgery and pelvic inflammatory disease, in any of the patients, that we operated, intraabdominal adhesion was not observed. The endoscope was removed, the endoscope was bluntly entered from the same 1-cm skin incision near to the 5 mm trocar, if it did not exceed the fascia, then the fascia was expanded by blunt and sharp dissection and then 5 mm laparoscopic LigaSure (Covidien ®) through 5-mm trocar was introduced into the abdomen. Bilateral fallopian tubes were coagulated from the midline. In cases where salpingectomy was required, it was coagulated and cut into the uterus starting from the fimbrial end. With the help of Grasper, the pathology was taken out of the abdomen.

Both endoscope (Storz ®) and LigaSure (Covidien ®) were

introduced into the abdomen through 1-cm skin incision (Figure 2). The point to note here is that the optics are not 0 degrees, since it is unlikely to see LigaSure (Covidien ®) or another straight tool with zero degreed optics. The skin incision was squeezed with a Pean or clamp in order to secure the inner pressure of the abdomen.

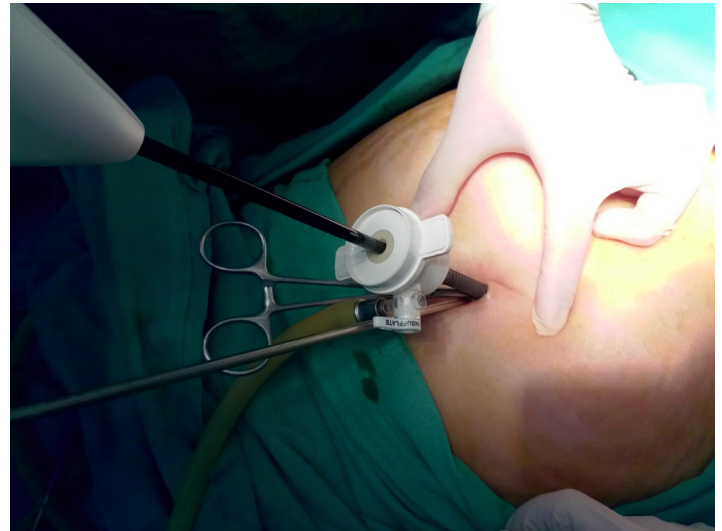


Figure 2. The position of the 5 mm trocar and endoscope.

After the operation, desufflation was done and the trocar was removed. Fascia was sutured with 0 Vicryl (Ethicon, Istanbul, Turkey), skin was subcutaneously sutured with 3-0 rapid vicryl (Ethicon, Istanbul, Turkey) (Figure 3).



Figure 3. End result, postop

As shown on the Table, seven cases were operated by using this method (Table 1). The mean duration of the cases was 20 (+/- 5) minutes, the time to enter the abdomen lasted an average of 3 (+/- 1) minutes. Since the cases were generally short-lasting minimally invasive cases, blood loss was negligible and intra-

abdominal flushing and aspiration were not needed.

Patients were discharged on the operation day or one day after the operation. No short-term complications were observed.

Table 1. Summary of 7 cases performed through single 1 cm incision

	BMI (Kg/m2)	Age	Operation name	Operation time (min)	Time for abdominal entrance (min)	Hgb mg/dl (preop/postop)	Discharge (Postop)
1	29	30	BTL	15	2	10.7/10.6	Same day
2	30	37	BTL	15	2	11.0/10.8	1 day later
3	28	41	Bilateral Salpingectomy	20	2,5	10.6/10.3	1 day later
4	32	39	Bilateral Salpingectomy	25	3	10.8/10.3	1 day later
5	34	34	BTL+Paratubal cyst excision	17	4	11.4/11.2	1 day later
6	31	37	BTL	15	2	11.0/11.0	Same day
7	31	34	BTL	15	2	10.1/10.0	Same day

BTL: Bilateral Tubal ligation

BMI: Body Mass Index

Discussion

The sterilization of women is the most commonly used contraception method in the world, with 19% [5]. Tubal ligation, one of the methods of permanent contraception, is the iatrogenic deterioration of the tubal structure to prevent tubal passage. Thus, the access of the tubal transport of the sperms and ovulated oocyte is blocked.

Also called sterilization, tubal ligation, could be performed immediately postpartum or interval sterilization. Postpartum sterilization is usually performed during cesarean section, and can also be performed by infraumbilical mini laparotomy or laparoscopy 24-48 hours after normal vaginal delivery.

There are various methods such as mini laparotomy, laparoscopic, vaginal and hysteroscopic approach. However, laparoscopic tubal ligation has been the preferred method for many years due to its ease and low morbidity [6].

In fact, gynecological surgery from a single port has been performed from time to time since the 1970s [4]. However, it was not accepted as general use, since the ease of more than one trocar was more appealing to performers.

However, as the number of ports increases, the risk of bleeding, infection, close-organ injury, soft tissue trauma, and hernia is increased [7]. However, it started to regain its popularity in general surgery after the 1990s; in 1997 and 1999, by respectively Navarra et al. and Piskun et al. [8,9].

Taşdemir et al, performed the technique with 15-20 mm skin incision with two 5 mm trocars were entered in series with three patients; a single trocar was used in our study, thus preventing the extension of the 1 cm skin incision further [10].

In our series of 7 cases, four patients underwent bilateral salpingectomy, in which single incision was not compelling to perform salpingectomy. The fact that LigaSure (Covidien ®), which is mostly experienced here, is outside the field of optics is that they overlap with each other like two swords. This is an obstacle that the surgeon can overcome as he experiences relatively non-compelling operations such as tubal ligation. Of course, it is important to note that the degree of optics is very important in order to wide angle observation of the interior structures. However, problems with the being outside of the angle of the camera could be overcome by the articulating Enseal (Ethicon ®) or other similar instruments, will be experienced less.

Study Limitations

Our study also had a limitation about number of patients. Future prospective studies in large numbers of patients are needed to better describe this technique.

Conclusion

As aesthetic concerns with smaller skin incision and the need to reduce the length of hospital stay and the need for cost-effectiveness increase, these new methods will be developed. The aim of this study is to show the surgery technique with single incision in the simplest possible way without special equipment.

Competing interests

The authors declare that they have no competing interest.

Financial Disclosure

All authors declare no financial support.

Ethical approval

All procedures performed in studies involving human were in accordance with the ethical standards of Zonguldak Bülent Ecevit University Training and Research Hospital at which the studies were conducted (approval no: 2018-227-21/11-3).

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