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A different technique for the closure of trocar sites

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Summary

This study aims to present a different technique for the closure of trocar sites in laparoscopic surgeries. *Materials and Methods:* Retrospective records of cases who received the new closure technique were collected. Multifilament synthetic absorbable suture was used in this technique, with no additional tools. *Results:* This technique was applied in a total of ten cases, which included myomectomy, hysterectomy, sacrocolpopexy, and ectopic pregnancy. No intraoperative and postoperative complications were seen in any of the cases. *Conclusion:* This new and relatively easy-to-use technique can be used as an alternative technique for the closure of trocar sites in laparoscopy.

Key words: Laparoscopy; Trocar site closure; Trocar site herniation.

Introduction

Main complications associated with trocar site in laparoscopic surgeries include the incisional hernia and intraoperative and/or postoperative bleeding. These complications can be prevented with a careful intraoperative approach and simply by suturing trocar sites- Trocar site incisional hernias (TSIH), which are typically seen during late postoperative stage have been reported to be 0-6% in different series [1-4].

Various trocar closure and suturing methods were reported in current clinical trials, though not compared with each other. This study describes a new port closure technique.

Materials and Methods

The retrospective medical and sociodemographic records of patients who received the present port closure technique were collected and the technique was described in this study.

The procedure was conducted at the end of laparoscopic surgery, with the intact pneumoperitoneum and under direct visualization. Following surgery, a suture with its needle was sent to the abdominal cavity, from the targeted hole by using a grasper, but the end of the suture remained on the outside (Figure 1). Then the grasper and trocar were removed and a laparoscopic needle holder from another trocar grasped the needle and stitched the peritoneum and fascia intracorporeally (Figure 2). After this, a grasper was sent from the targeted hole and grasped the suture (or needle) and was extracted from the hole. The suture was then tied extracorporeally just above the fascia (Figure 3). Through this technique, only the peritoneal and fascial layers were closed.

Results

This technique was applied in ten cases and used for the closure of ten-mm trocar site in cases with myomectomy, hysterectomy, sacrocolpopexy, and ectopic pregnancy. The mean age of patients was 40 ± 4 years, with a body mass index (BMI) of 26.4 ± 4.5. The time needed to apply this technique was calculated to be 5.5 ± 2.5 minutes. No intraoperative complications were observed during the procedure. Multifilament synthetic absorbable suture was used in this technique. None of the cases presented with an early postoperative incisional hernia and bleeding during postoperative short period.

Discussion

There are many techniques for the closure of trocar sites [4-6]. What distinguishes the present technique from the others is that it allows the closure of the trocar site just by using the tools available in the surgery room, and without using special tools. There are also no additional learning curves associated with the technique, and the technique can be applied by any surgeon performing standard laparoscopic surgeries.

It is well known that hernias found on trocar sites are subclinical, so it is strongly possible that their prevalence is higher than the rates reported in the literature. The incidence of TSIH has been reported to be higher when the trocar site is not sutured [3]. There is no data available concerning how the present method will affect the incidence of TSIH as this study lacks long-term follow-up. However, the incidence of TSIH will actually decrease after suturing and closure of the incision site. Comparative studies are required to evaluate its impact on incidence.

Some clinicians have reported that closure of trocar site does not prevent TSIH, and that TSIH does not depend on

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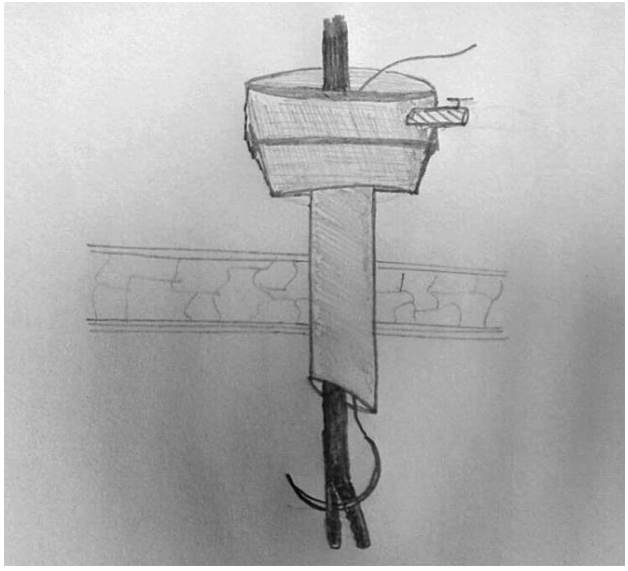

Figure 1. — Sending the needle from the targeted hole.

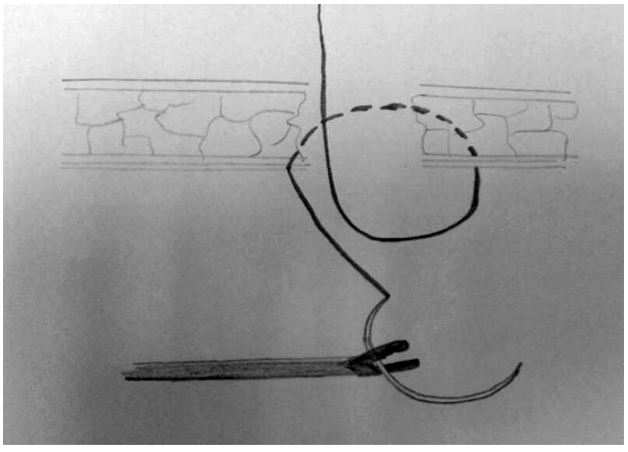

Figure 2. — Stitching the peritoneum and fascia.

trocar defect width [7]. Some authors claim that, when nonbladed laparoscopic trocars are used, that there is no of fascia closure [8]. Nevertheless, the present authors believe that the defect width at the trocar site is important; a great majority of TSIHs occurs with ten-mm trocars. Thus, the authors suggest that all ten-mm trocar sites should first be sutured. If five-mm trocars are inserted several times, the resulting weak tissues should also be sutured. This technique was applied only on ten-mm trocar sites, but there are no limitations concerning its use on five-mm trocar sites.

Some clinicians report of a possible increase in the infection rates of wound sites after suturing trocar sites [7]. This study found no infections on wound sites, which can be attributed to the suturing of only peritoneal and fascial

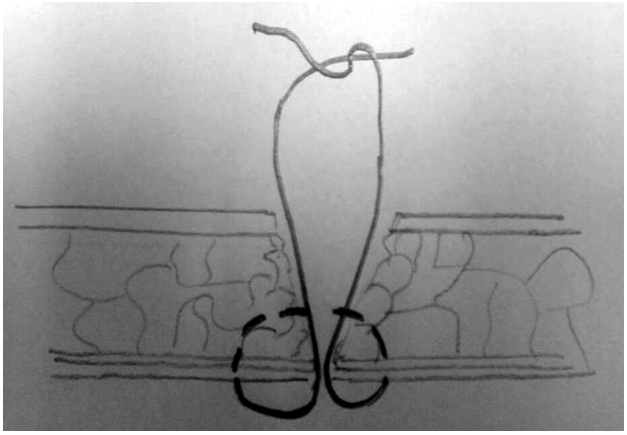

Figure 3. — Tying the suture.

structures without traumatizing the muscular and subcutaneous tissues. Moreover, dimple formation (dimpling) on abdominal skin is prevented by suturing only the peritoneum and the fascia. This provides a cosmetic advantage.

The authors conclude that this new method is simple, safe, and cost-effective because it is performed under direct visualization and it requires no additional instruments.

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