Laparoscopic Peritoneal Repair for Stab Injury

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In an isolated peritoneal stab injury without intra-abdominal organ injury, the injured peritoneum must be repaired because of the risk for incisional hernia. Extracorporeal peritoneum repair without the laparoscopic approach is usually performed with unnecessary extension of the incision in cases of small stab wounds. However, the lacerated peritoneum can be intracorporeally repaired under laparoscopic view without additional incision. I describe several techniques of peritoneum repair in laparoscopic surgery, such as intracorporeal simple suturing, use of barbed suture, and use of extracorporeal tie with suture passer.

Key Words: Laparoscopy, Wounds, Stab, Peritoneum, Repair

2. A 32-year-old man with stab injury (2.7 cm long) in the right upper quadrant underwent laparoscopic primary repair of the peritoneum with barbed sutures. The peritoneal laceration was continuously sutured with knotless, unidirectional, barbed monofilament absorbable sutures (V-LocTM; Video 2).

3. A 50-year-old woman with a stab injury (1.2 cm long) in the right upper quadrant underwent surgery under laparoscopic view. The suture passer was pulled through each fascia margin of the wound so that the end of each prepared suture rested in the abdominal cavity. On the injured fascia, a knot was extracorporeally tied, and peritoneal repair was completed (Video 3).

DISCUSSION

In addition to the unnecessary extension of incisions, the practice of routine laparotomy for abdominal stab injuries...
wounds has also been questioned because it yields high nontherapeutic operative rates (up to 61%). Diagnostic laparoscopy enables the identification of intra-abdominal injuries, which improves diagnosis and, by ruling out other injuries, reduces the use of nontherapeutic laparotomy. Diagnostic laparoscopy can be used safely in hemodynamically stable patients and can be therapeutic in patients with selected injuries (1).

Diagnostic laparoscopy for stab wounds is nontherapeutic if no intra-abdominal organs are injured. However, injuries of the peritoneum caused by abdominal stab wounds must be repaired because of the risk for incisional hernia. Even in laparoscopy, the risk of incisional hernia at the port site is between 0.23% to 3.1%, especially when trocars 10 mm in size or larger are used (2,3). The cases described demonstrate that lacerated peritoneum can be intracorporeally repaired under laparoscopic view without additional incision. Despite these results, few reports have been published about the benefits of using these laparoscopic repair techniques for the definitive management of isolated peritoneum laceration. Nonetheless, these techniques of peritoneum repair in laparoscopic surgery, such as intracorporeal simple suture, knotless barbed suture with V-Loc™, and extracorporeal tie with suture passer (possibly effective in treating a relatively small wound), may be safe and feasible and may reduce the rate of incisional hernia among penetrating stab injuries of abdomen.

Conflicts of Interest Statement
None of authors have a conflict of interest.

REFERENCE

Video Legends
Video 1. Laparoscopic simple suturing of injured peritoneum intracorporeally.
Video 2. Laparoscopic continuous repair of injured peritoneum with knotless barbed suture (V-LocTM).
Video 3. Extracorporeal tying of a knot through a stab wound with suture passer in the laparoscopic view.