Brief Report

Small gauze, big skills—the application of gauze in laparoscopic gastrointestinal surgery

Deqing Wu, Weixian Hu, Yong Li

Department of General Surgery, Guangdong General Hospital, Guangdong Academy of Medical Sciences, Guangzhou 510080, China
Correspondence to: Yong Li. Department of General Surgery, Guangdong General Hospital, Guangdong Academy of Medical Sciences, Guangzhou 510080, China. Email: yuan821007@126.com.

Abstract: This article aims to introduce the application of gauze in laparoscopic gastrointestinal surgery. When we perform a gastrointestinal surgery, we usually use the instruments which were sharp and hard to help us to finish the surgery better, however, it also causes the extra damage. So the application of gauze is important. But what is the most suitable gauze and how to use it properly? This article is to solve this problem. We consider that a perfect gauze should have strong absorbing capability, has the proper size, with the clear mark, and can be positioned with X-ray. And we introduce the function of the gauze like compression, blockage, cushion, indication, prevention, blunt dissection, insulation. Of course, there are shortcomings of gauze, if you use the gauze improperly, it will be a nightmare.

Keywords: Gauze; laparoscopic surgery; gastrointestinal; compression; blockage; cushion; indication; prevention; blunt dissection; insulation

Received: 30 December 2016; Accepted: 04 February 2017; Published: 15 April 2017.
doi: 10.21037/ales.2017.03.15
View this article at: http://dx.doi.org/10.21037/ales.2017.03.15

In the process of learning laparoscopic gastrointestinal surgery, young surgeons always pay attention to the dissection and digestive tract reconstruction. Learning how to expose the operative field and cooperate harmoniously with the operators are very important for the assistants. However we rarely pay attention to the way the operator using his left hand to assist with the surgery.

I usually analog laparoscopic surgery to a duel which needs capable of both attack and defense. Harmonic scalpel and electrome are our swords for the tissue dissection. The instruments of laparoscopic surgery are mostly sharp and hard, it is sophisticated but also easy to damage the normal tissues and organs. We recommend soft gauze as shield during the laparoscopic surgery. It can make up for the shortcoming of the laparoscopic instruments, help us complete a preferable laparoscopic gastrointestinal surgery, reducing vice injury.

We use gauze on daily basis, but seldom considering much about how to choose it. A piece of perfect gauze should meet the following criteria:

(I) Strong absorbing capability, can absorb the blood, and make a clear view of the operation.
(II) Proper size, suitable for the operation of laparoscopic, and could access 12 mm trocar freely. We choose 20 cm × 4 cm gauze as a dedicated laparoscopic gauze, accord with most of the reports in literature abroad.
(III) Clear mark, can be identified easily during the operation.
(IV) X-ray developable mark line, it can be identified and positioned with X-ray.
(V) Based on my personal experiences, several methods are summarized here regarding how to use gauze in laparoscopic gastrointestinal surgery, and hope could be useful for surgical professionals.

Compression

Compression is the most commonly used function of gauze in surgery, and also it is one of the most important functions of gauze. When faced with small ooze blood in laparoscopic surgery, it's easy to damage the surrounding tissue if we

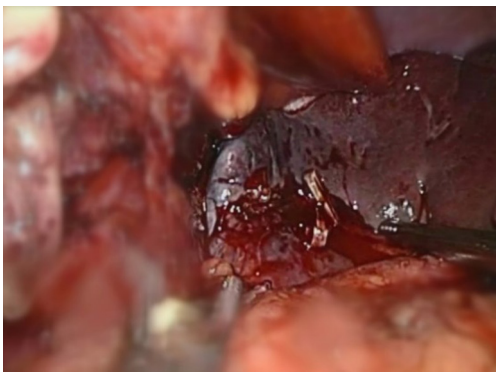

Figure 1 Superior spleen bleeding.

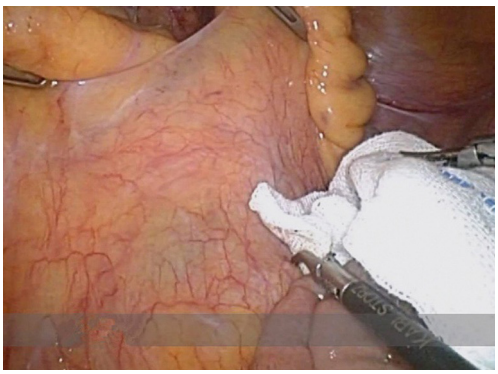

Figure 3 Use gauze to fend off the small intestine.

Figure 2 Gauze compression.

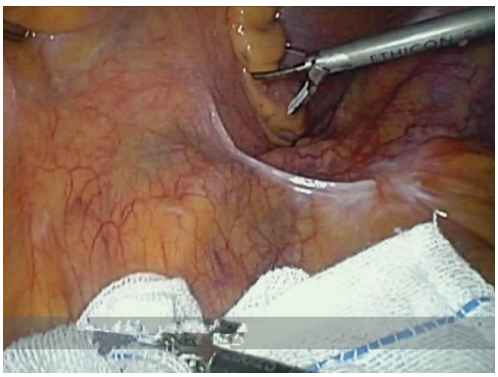

Figure 4 Operative field without interference.

using harmonic scalpel and electrome blindly, such as normal intestinal wall, ureter, presacral tissue, spleen, etc. (*Figures 1*,*2*). If conditions allows, it is more effective to use hemostatic gauze.

Blockage

Exposure is important in laparoscopic gastrointestinal surgery. But there are times we unable to make the small intestine away from our operative field by position changes. We use a gauze to fend off the small intestine as the terminal ileum always interfere in the operative field when we dissected the left Toldt's space (*Figures 3*,*4*). At the same time, as the gauze is just around the operative field, it is ready at hand when we encounter a small bleeding.

Cushion

The laparoscopic instruments are sharp and hard, it is easy to damage the normal tissue during the surgery, especially by the time we meet the pancreas, liver and other organizations (*Figures 5*-*7*). We can use gauze to increase the contact area and reduce the damage to the organization, increase the exposed area and expand the space of operation at the same time.

Indication

Different from traditional open abdomen operation, laparoscopic gastrointestinal surgery separates space first and then removes the upper tissue. Due to the limitations of laparoscopic vision, we could only judge the anatomical level through observation. There is a certain difficulty in the confluence of two levels and it is easy to damage the lower normal tissue. We usually placed gauzes to indicate the level of the clearance. For instance, we put a gauze in the dissected Toldt's space during the sigmoidectomy to avoid injury of ureter (*Figures 8*,*9*). Gauzes covered on pancreatic head and duodenum during the dissection of hepatocolic ligament (*Figures 10*,*11*).

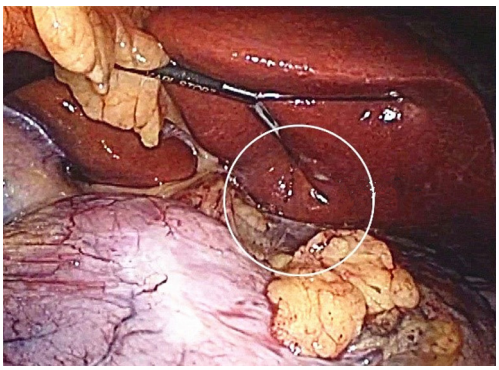

Figure 5 Liver injury.

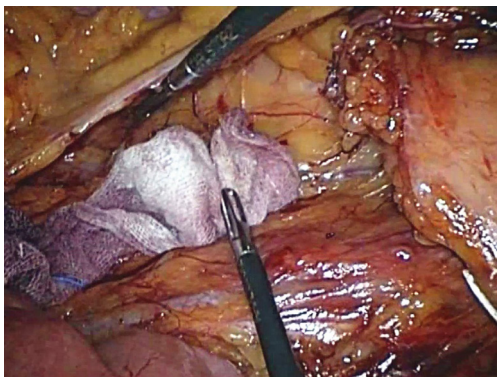

Figure 8 Put gauze into the left Toldt's space.

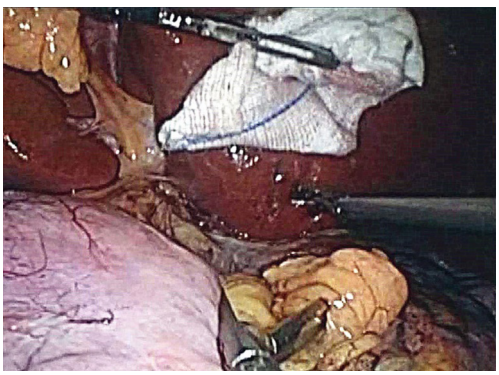

Figure 6 Liver injury reduced after using gauze.

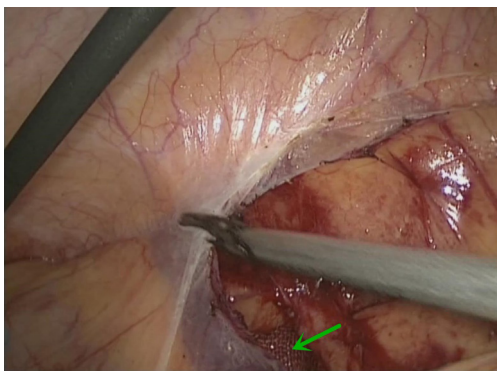

Figure 9 Separate the left paracolic sulci.

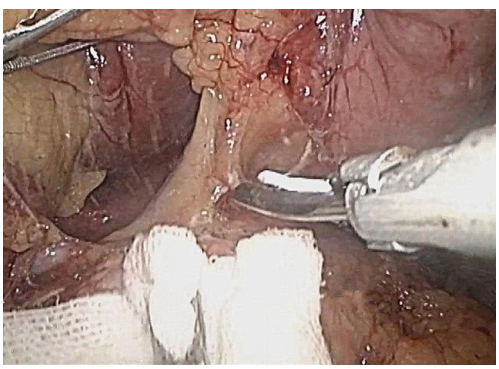

Figure 7 Protect the pancreas.

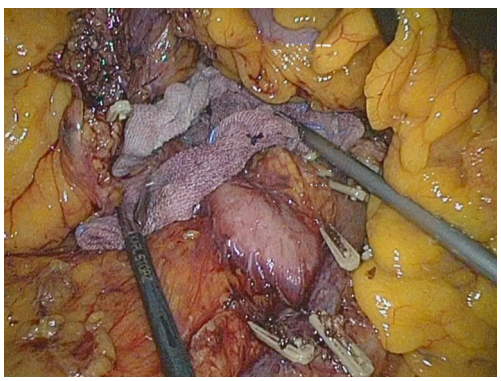

Figure 10 The right hemicolectomy, gauzes instruct the right Toldt's space.

Prevention

Subsidiary-injury is the biggest issue that confronts the beginners. Besides the influence of human factor, we could use some little tips to protect surrounding tissues from being injured. Method which was often used is utilizing gauze to fend off surrounding tissues. For example, in addition to indicating the Toldt's clearance, gauzes we put at the juncture of the left Toldt's clearance and the left ureter during the operation sigmoid could also protect the left ureter from being injured when we separate the left

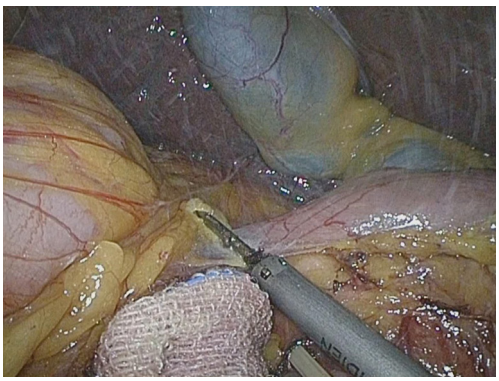

Figure 11 The right hemicolectomy, see the gauzes placed in the right Toldt's space.

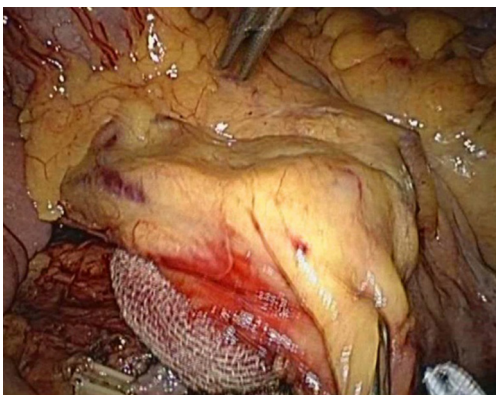

Figure 12 Cover on the head of pancreas.

Figure 13 "Peanut".

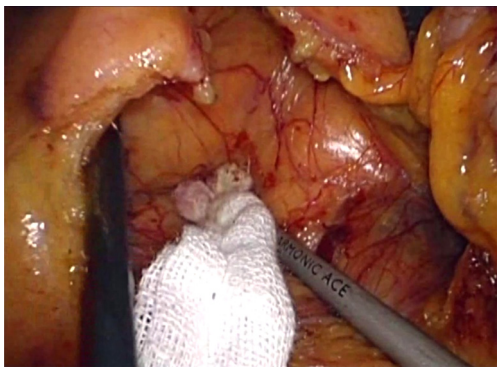

Figure 14 Expanding Toldt's space.

paracolic sulci (*Figure 12*). In the same way, the small gauzes could not only support the Toldt's clearance, but also keep the duodenum and the head of pancreas unharmed during the right hemicolectomy.

Blunt dissection

The laparoscopic instrument "Peanut" (*Figure 13*) used to perform blunt dissection in surgical space. In our institute, for a lot of reasons, "Peanut" is unavailable. We use the ultracision clamping a gauze to accomplish blunt dissection. Gauze has a large contact area which is an advantage comparing to the "Peanut" in expanding Toldt's space (*Figure 14*). Furthermore, you can manage the hemorrhage immediately by using the ultracision during the blunt dissection.

Insulation

After the surgery, normal saline (NS) is usually utilized to irrigate the operating field. When we use a suction, it usually plugged, in this moment, a small gauze placed on the area for suction is significant. This application would not only protect the surrounding tissue but also make the use of siphoning of the gauze (*Figure 15*).

Gauze is a good helper, but it can be a tragedy if it is not used properly.

Remnant of gauze is the nightmare to patience and surgeons! To avoid that, my suggestion is: (I) when using gauzes, they should be placed at a place without the intestine and omentum interference, such as hepatorenal recess, presacral space, spleen fossa and the place easy for searching; (II) if it is allowed, it would be optimal to follow the "one by one" principle, which means to remove the gauze after using it. It will reduce the chance of mistakes.

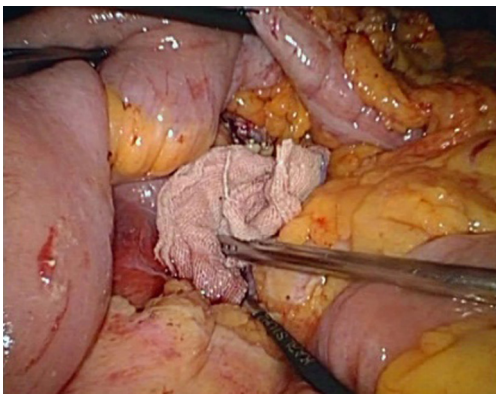

Figure 15 Gauze can enhance the aspirator efficiency.

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at http://dx.doi.org/10.21037/ales.2017.03.15). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was waived.

doi: 10.21037/ales.2017.03.15
Cite this article as: Wu D, Hu W, Li Y. Small gauze, big skills—the application of gauze in laparoscopic gastrointestinal surgery. Ann Laparosc Endosc Surg 2017;2:66.