Mini Review

Self-locking Sliding Knots in Laparoscopic Bariatric Sutures

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Introduction

Suture line reinforcement of the staple-lines can be made with different materials. In our institution, we have a vast experience of patients operated with duodenal switch and laparoscopic sleeve-forming gastrectomy (Baltasar, 2015). We use a 12 mm intragastric probe as a guide and de vascularize the whole greater gastric curvature passing 1.5 cm distal pylorus.

We initiate the gastrectomy right at the pylorus with sequential staplers up to the esophago-gastric junction. Suture-line reinforcement is used routinely to prevent hemorrhages and leaks in the staple line with a propylene suture that includes omentum, the posterior gastric wall and then the anterior along the entire first half-length of the gastric staple line. The objective of using the already divided omentum together with the suture line is to avoid rotation of the gastric tube.

Making knots in the upper part of the gastric tube is not an especially easy task on the morbid obese. The scrub nurse (Figure 1 and 2) creates easily a sliding knot at the end of the 3/0 polypropylene suture, with a double extracorporeal loop, to avoid the need for an intra-corporeal knot.

Figure 1. The suture is introduced by Port 1
The surgeon holds, with a needle-holder the thread of the suture with his left hand very close to the needle and introduces it into the abdomen by means of a trocar of 10 (Figure 3). Once in the abdomen, the needle is switched from the left to the right hand. Then he holds the needle in the center and begins the suture of both gastric walls. The sliding and self-locking knot occurs by pulling the thread and complete the first knot. The procedure is quick and easy, without having to make any knots in the abdomen.

This staple-line suture is continued until the middle of the line and ends with the application of the Aberdeen knot, also sliding and self-locking, by passing the needle holder twice around the suture.

The second part of the suture-line is similar, and begins in the middle of the staple-line, and ends at the pylorus. The purpose of using this sliding self-locking knot at the beginning of the suture line is to avoid intra-corporeal knotting. Aberdeen knotting at the end of both sutures is also very simple and has the same sliding effect.
Staple suture line reinforcement can be made with different materials. A continuous inverting suture of the entire suture-line, including the omentum, is the best.

We use a 12 mm intragastric tube as a guide, and de vascularize all the major curvature vessels, passing from the esophageal – gastric junction to distal to the pylorus at the duodenal junction.

We start the gastrectomy from the pylorus with sequential staplers up to the esophago-gastric junction and routinely try to prevent bleeding and leakage at the staple line with suture reinforcement that includes omentum and the posterior and anterior gastric walls along the entire length of the gastric staple line. The goal of using the already divided omentum along with the suture line is to prevent rotation of the gastric tube.

Making knots in this upper part of the gastric tube is not a particularly easy task in the morbidly obese. The instrumental nurse creates a sliding knot at the end of the 3/0 polypropylene suture, with a double extracorporeal loops, thus avoiding the need for an intracorporeal knot.

The surgeon clamps and holds the thread very close to the needle with his left hand and introduces it into the abdomen by a 10 mm trocar. Once in the abdomen, he holds the needle with the needle holder in his right hand and starts the suture of both gastric walls. By pulling on the already knotted thread, the first knot is completed and makes the procedure quick and easy, without having to knot in the abdomen.

The suture of the staple line is continued halfway to ends with the application of the Aberdeen knot at the end of the half-sutured line. A second similar maneuver starts in the middle of the staple line and ends in the pylorus.

The aim of using this sliding self-locking knot at the beginning of the suture line is to avoid intracorporeal knotting. Aberdeen type knots are also very simple and has the same sliding effect. In this way, no further intra-corporeal knots are necessary.
Discussion

To date, there are no data available in the literature that strongly demonstrate differences in terms of leakage rates between reinforcing materials in the GVL (Baltasar, 2015; Deitel et al., 2008; Gagner et al., 2009; Deitel et al., 2011; Rosenthal and Panel, 2011; Daes, 2013). But with this technique we have not had a single leak in the last 478 suture lines. And we have continued to routinely use the self-locking knot to initiate all the sutures of the laparoscopic digestive and finish it with the Aberdeen knot. Daes (Daes, 2013) was the first to describe this knotting in 2013 and we add (Serra et al., 2007; Baltasar et al., 2015) the plastia of the omentum to the rest of the line of staples to avoid torsion of the gastric tube. Other authors have continued to use it (Albanopoulos et al., 2013; Stott et al., 2007).

References


