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Introduction

- This case series describes a technique for placement of laparoscopic gastrostomy tubes in patients with ascites.
- The procedure was performed in 5 patients who had ascites ranging from mild to severe.
- In this report, we aim to present laparoscopic gastrostomy tube (LGT) placement method developed in accordance with the classical Stamm method.
- The complications of the modified procedure will also be identified and characterized.

Materials & Methods

- ❖ Charts were reviewed of all the patients undergoing LGT placement by modified procedure. The gastrostomy site on the anterior wall of the stomach was identified. A 2-layer purse string suture with 2 strings was placed at 3:00 and 9:00 position, with 2-0 silk sutures on SH needles which were bent to J-shape than its regular shape to facilitate process with a 5mm port, where the gastrostomy tube was intended to be placed.
- ❖ A gastrostomy was made using anatomy in the antrum of the stomach. A laparoscopic Maryland's grasper was advanced through the right upper quadrant 5mm port and brought out through the left upper quadrant 5mm port and the port was removed. 18 French Moss gastrostomy tube was then grasped and gently advanced through the abdominal wall.
- ❖ The tip of the tube was then placed in the stomach guided towards the pylorus and beyond. The bed was inflated with 20 ml of water and then the tube was gently pulled back to facilitate traction on the stomach. No leak was noted on infusing the tube.
- ❖ The two layers of purse string sutures were then tied snug around the gastrostomy tube, tacked to the anterior abdominal wall with the same suture. The tube was gently pulled out so that there is a firm approximation between the stomach wall and the anterior abdominal wall and the sutures were tied snug.

Discussion

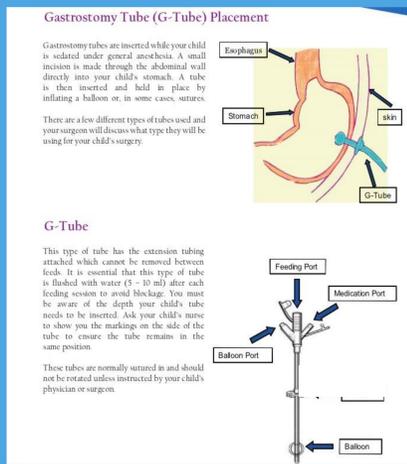
- Five patients underwent laparoscopic gastrostomy.
- There were no conversions to open gastrostomy.
- Three ports (5mmx3) were used in the patients.
- The mean follow-up was 13 months (range 2 - 24).
- No major complications were observed during surgery.
- One patient had tube dislodgement after 25 weeks.
- No wound infections, no cellulitis, and no stitch abscesses were seen.
- None of the patients had initial intraperitoneal placement, intraperitoneal location upon tube replacement, extraluminal migration, tube-related pressure necrosis, or procedure-related death.

Conclusion

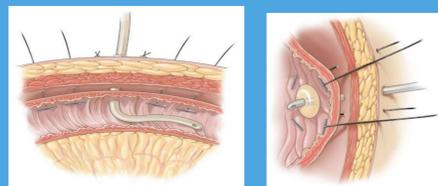
- ❖ This method is a feasible approach for gastrostomy tube placement without any endoscopic assistance by the purse-string suture technique along with fixation of the stomach to the abdominal wall without extending the port incision in adult patients with ascites.
- ❖ This modified technique eliminates pressure necrosis from external staying-sutures, provides improved adherence of stomach to abdominal wall, thereby preventing extraluminal migration and intraperitoneal tube replacement including avoiding additional visits for suture removal.
- ❖ It also allows for the accurate, quick, and safe insertion of the feeding tube under direct visualization and avoids open techniques in patients where PEG (Percutaneous Endoscopic Gastrostomy) tubes are not feasible.

References

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2. Ata A Rahnama-Azar, Amir A Rahnamaiazar, Rozhin Naghshzadian, Amparo Kurtz, Daniel T Farkas. *Percutaneous endoscopic gastrostomy: Indications, technique, complications and management* World J Gastroenterol. 2014 Jun 28; 20(24): 7739-7751.
3. Filip Sandberg, Margrét Brands Viktorsdóttir, Martin Saló, Pernilla Stenström, Einar Arnbjörnsson. Comparison of major complications in children after laparoscopy-assisted gastrostomy and percutaneous endoscopic gastrostomy placement: a meta-analysis. *Pediatr Surg Int.* 2018; 34(12): 1321-1327



Simple illustration of G-tube. Image Courtesy: Rady Children Hospital, San Diego.

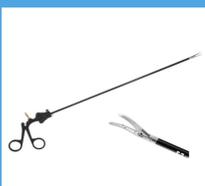


Suture snugging after inserting the tube. Image Courtesy: Utrecht University Repository

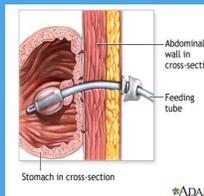
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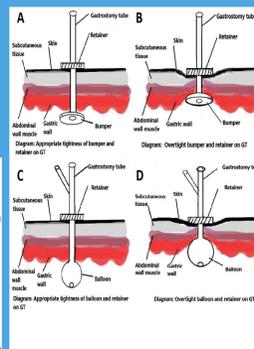
Moss Gastrostomy Tube and its positioning after placement in stomach and small bowel, along with description of different parts of the gastrostomy tube. Image courtesy: mosstubes.com



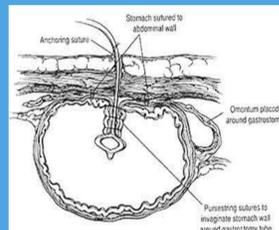
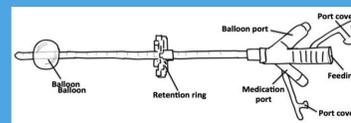
Laparoscopic Maryland grasper. Image courtesy: medline.com



Balloon type gastrostomy tube with balloon on the inner side and retainer on the outer side. Images Courtesy: Adam.com & Gastric Ulcer from the Pressure of a Gastrostomy Tube: A Rare Cause of Upper Gastrointestinal Bleeding. *Cureus.* 2018



Images describing how the purse string is applied. Images Courtesy: laparoscopicexperts.com



Regular Stamm's gastrostomy technique. Image courtesy: memorangapp.com



Images describing laparoscopic placement of purse string suture on anterior abdominal wall using 2-0 silk sutures, creation of the gastrostomy in the center, and then passing the tube through the skin incision into the gastrostomy site and tightly snugging the purse string sutures around to stay a put.