

Modified technique for percutaneous endoscopic gastrojejunostomy placement

Técnica modificada para realização da gastro-jejunostomia endoscópica percutânea

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ABSTRACT

The placement of percutaneous endoscopic gastrojejunostomy (PEG-J) provides diet delivery beyond the angle of Treitz, and it is associated with decrease of complications related to gastroparesis, such as aspiration pneumonia. There are many different techniques to perform a PEG-J described in the literature, with variable degrees of technical success. In this article, we suggest modifications to the technique of PEG-J placement in order to reduce time of procedure and minimize the risk of technical failure.

Keywords: *Gastrostomy. Jejunostomy. Gastroparesis. Endoscopy, Gastrointestinal.*

INTRODUCTION

The placement of percutaneous endoscopic gastrostomy (PEG) allows for a safe and long lasting enteral nutrition for patients with dysphagia or insufficient oral intake¹. However, complications related to gastric nutrition, such as aspiration pneumonia and severe leakage around the stoma, may jeopardize the use of PEG. Jejunal nutrition may overcome these complications, since it provides diet after the pylorus². Usually, jejunal feeding is obtained by a jejunal extension through an existing PEG tube, a procedure called percutaneous gastric gastrojejunostomy (PEG-J).

PEG-J is usually indicated for patients with severe gastroparesis, with gastrostomy but with se-

vere gastro-esophageal reflux, and recurrent aspiration pneumonia³. Several PEG-J techniques have been described in literature, with many technical variations and different impacts on success rates. In this paper, we suggest modifications of the technique initially described by Sibille *et al.*⁴ to minimize the risk of one of its main complications: the migration of the jejunal extent back to the stomach.

TECHNICAL REPORT

The modification of the technique that we propose must be performed by the endoscopic surgeon with the aid of another physician or medical assistant. After performing the percutaneous endoscopic gastrostomy as proposed by Gauderer, Ponsky and Izant⁵ with a 24Fr tube, the gastroscope must be reinserted into the stomach and positioned below gastro-esophageal junction (Figure 1). The stomach must remain inflated while the assistant pushes the internal bulkhead of the gastrostomy tube towards the pylorus. Eventually it may be necessary to use the tip of the endoscope to guide the correct direction of the bulkhead, and, if this maneuver fails, it can be used a foreign body forceps to carry the internal tube bulkhead towards the pylorus, as described by Sibille *et al.*⁴. Once the internal bulkhead is po-

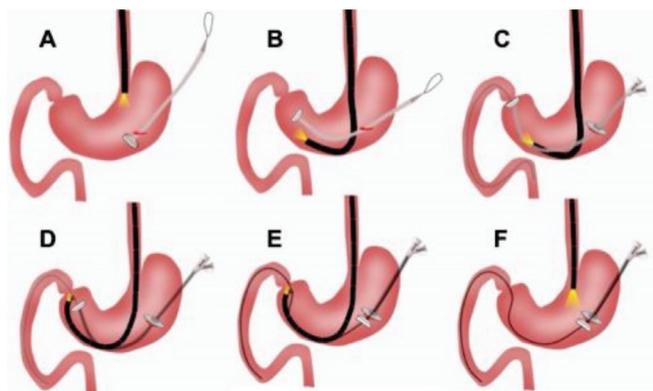


Figure 1. Modified technique of PEG-J.

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sitioned in the pre-pylorus region, the gastrostomy tube lumen must be lubricated with gel. Next, the assistant gently pushes the jejunal extension through the gastrostomy tube lumen towards the pylorus in direction to the small intestine (jejunal extension will pass the pylorus without the need of a guide wire). At this point, the assistant pulls a little back the gastrostomy tube allowing the endoscopic surgeon to seize the jejunal extension with a foreign body forceps. This maneuver will maintain the jejunal extension in position until the end of the procedure. Under endoscopic vision, the assistant again pulls the gastrostomy tube back towards the gastric wall until feels resistance, indicating that the internal bulkhead is in contact again with the gastric wall. Finally, the proximal end of the jejunal extension must be connected to the gastrostomy tube and the forceps and gastroscope are removed.

DISCUSSION

Usually patients in critical conditions and geriatric patients need enteral preferably to parenteral nutrition. However, gastric emptying is usually lowered due to gastroparesis, particularly in patients with diabetes or with severe comorbidities^{4,6}. In order to provide a correct flow of enteral diet to the small intestine, and lower regurgitation or aspiration, diet must be delivered beyond the Treitz angle. Thus,

PEG-J is still the better option for these patients³. Also, PEG-J allows for gastric suction to reduce regurgitation. However, the placement of a PEG-J is usually technically challenging.

In this article, we presented a modified technique for placement of PEG-J avoiding the main difficulty of the procedure: formation of a handle at the jejunal extension inside the stomach. In fact, the guide wire alone will not prevent the possibility of formation of a handle while the jejunal extension is pushed. Also, endoscopic vision after positioning of the jejunal extension at the small intestine precludes the use of fluoroscopy. Still, it was not used the technique described by DeLegge *et al.*⁷ of initial passage of a guide wire, since in some patients this approach hardened the jejunal extension, preventing the passage of the jejunal extension from the bulb to the second portion of the duodenum.

CONCLUSION

The key step of our modified technique is the positioning of the gastrostomy tube close to the pylorus while the jejunal extension is advanced through the duodenum. This simple maneuver, under visual control, avoided the formation of a handle inside the stomach of the jejunal extension, that usually complicates the procedure, prolonging the time of surgery.

RESUMO

A realização da gastro-jejunostomia endoscópica percutânea (PEG-J) proporciona nutrição além do ângulo de Treitz, e está associada à diminuição das complicações relacionadas à gastroparesia, como a pneumonia por aspiração. Existem diversas técnicas para realização da PEG-J descritas na literatura, com graus variáveis de sucesso técnico. Neste artigo propomos modificações na técnica de realização da PEG-J, a fim de reduzir o tempo do procedimento e minimizar o risco de insucesso.

Descritores: Gastrostomia. Jejunostomia. Gastroparesia. Endoscopia Gastrointestinal.

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