

Percutaneous gastrojejunostomy (PEG-J) for Levodopa/Carbidopa Intestinal Gel administration in Parkinson disease: our institutional experience

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Aim. Aim of this study was to evaluate technical aspects, results and complication rate after percutaneous gastrojejunostomy (PEG-J) in patients with Parkinson's disease, that needed to be treated with Levodopa/Carbidopa Intestinal Gel, via jejunal continuous infusion.

Methods. We report our two year institutional experience with 12 patients, using the "Pull-string Ponsky-Gauderer type gastrostomy" technique.

Results. We had no intraoperative complications while all the patients showed sudden symptoms relief.

Conclusion. Procedure resulted to be safe with a very acceptable long-term complication rate, requiring jejunal tube removal in only one case.

KEY WORDS: Parkinson disease - Endoscopy - Gastric bypass.

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experience with PEG-J in Parkinson's disease patients, in order to assess patients benefits, procedure safety and complications rate.

Materials and methods

Twelve patients have been enrolled from November 2009 to November 2011; 11 were male. Mean age was 69 (range 55-80). Each patient had an established diagnosis of Parkinson's disease and was already on oral treatment with Levodopa tabs. Patients were first treated with Levodopa Gel for a fourteen-day period, administered via a naso-duodenal tube, in order to test therapy efficacy. One patient was considered not eligible for the procedure, as the preoperative endoscopy showed a hemorrhagic erosive gastritis; he was anyway treated 4 months later, after gastritis remission, using pump inhibitors.

All the procedures were performed in theatre together with the anesthesia team and the "Pull-string Ponsky-Gauderer type gastrostomy" was the preferred surgical technique.

Endoscopic procedure

First, a very accurate endoscopic examination of the upper GI tract is required in order to exclude gastric mucosal disease or other lesions. Then, the stomach is insufflated in order to make his wall adherent to the abdominal wall. Next step is the choice of the PEG site: a finger pressure on the abdominal wall will be able to determine a fingerprint in the stomach cavity and together with a transillumination technique will help the find the correct site. A 14- G needle is inserted through one-cm incision made at the correct site and gastric lumen is reached under scope control; a guide wire is then inserted through a cannula, which is grabbed with an endoscopic grasper and then taken outside together

Parkinson's disease is one of the most common neurological disorder, caused by CNS cells degeneration: these particular cells are located in the "substantia nigra" and normally produce dopamine.

In early stage disease, symptoms can disappear or may be relieved by Levodopa tabs administration. Nevertheless, at later stage disease, conventional therapy might be inappropriate to get a decent symptoms control, due to severe neuronal degeneration;¹⁻³ more, a delayed stomach empty makes Levodopa absorption significantly impaired.

Being said, aim of this novel administration method is to achieve a steady Levodopa availability. Levodopa gel is administered directly into the jejunum, using a tube (PEG) located in the stomach and a smaller tube (PEJ) that reaches the jejunum; the device is then connected to a pump.

Complications may occur during and after PEG procedure, particularly in elderly patients with poor health status.

More, procedure-related complications exist: abdominal wall abscess; pneumoperitoneum, perforation, gastric bleeding, death.

Data from literature show a morbidity rate after PEG which varies between 4% and 25%, while mortality is around 1%.⁴⁻⁷

Aim of the present study is to present our institutional

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with the scope extraction. With the "Pull technique", the silicon enteral tube is bound to the guide wire edge coming out from the mouth; a subsequent traction through the other edge (coming out from the abdominal wall) will help the correct placement of the device. A new scope will allow to check the procedure. Next step will allow to place the jejunal catheter, that will be inserted in the stomach through the PEG and then, using an endoscopic grasper, it will be pushed through the pylorus to the third duodenal part.

Three different types of jejunal catheter have been used to perform the procedures: two of them were equipped with grabbing points, while one of them was a simple catheter. The presence of grabbing points made the procedures much easier.

Results

The procedure was successful in all the patients, with no intraoperative complications. All the patients had the possibility to start the therapy immediately and they showed a sudden clinical improvement.

We've got two long term complications. One patient developed a severe stoma inflammation, that was treated conservatively. Another patient needed the catheter to be removed because of a severe duodenal pressure ulcer. This lesion was caused by a rigid catheter. Finally two PEG needed to be changed one year later, as the scope examination showed them to be impaired.

Discussion

PEG procedure was first proposed in 1980 by some pediatric surgeons to allow enteral nutrition.⁴⁻⁸ Lots of technical modifications have been proposed during the years in order to make the procedure easier, to the point that the need of surgical gastrostomy is now seldom required.^{9, 10} PEG procedure shows a low complication rate, but some contraindications still exist: gastrectomy, esophageal stricture, coagulopathies, ventricular-peritoneal shunt, peritonitis, gastric malignancies, ascites, gastric varices, peritoneal dialysis, severe obesity, hepatomegaly and splenomegaly.¹¹⁻¹³

A novel indication to the PEG has been proposed in recent years: it would allow continuous administration of Levodopa/Carbidopa Intestinal Gel in patients with severe Parkinson's disease.^{14, 15} Obviously a longer catheter is required in order to reach the jejunum (PEG-J).

The present study is a single institution, prospective study, in which we analyze a cohort of twelve patients in order to investigate the feasibility of PEG-J in Parkinson's disease, focusing on technical details, short and long term complications and, obviously, on patients symptoms relief.

Conclusions

Percutaneous gastrojejunostomy for Levodopa/Carbidopa Intestinal Gel administration in Parkinson's disease is a safe and effective procedure to treat advanced Parkinson's disease, with a very low and acceptable morbidity rate.

Riassunto

Gastrodigiunostomia percutanea (PEG-J) per trattamento con Levodopa/Carbidopa gel intestinale nei pazienti con morbo di Parkinson: la nostra esperienza

Obiettivo. Scopo di questo studio è stato quello di valutare gli aspetti tecnici, i risultati ed il tasso di complicazioni dopo gastrodigiunostomia percutanea (PEG-J) nei pazienti con malattia di Parkinson, che necessitavano di un trattamento medico con Levodopa-Carbidopa Gel intestinale, con infusione continua direttamente in digiuno.

Metodi. Riportiamo la nostra casistica di due anni istituzionali, con 12 pazienti, utilizzando la tecnica Pull, per la creazione della gastrostomia.

Risultati. Non abbiamo avuto nessuna complicanza intraoperatoria e tutti i pazienti hanno ottenuto notevoli miglioramenti della sintomatologia.

Conclusioni. La procedura risulta essere sicura, con un tasso di complicitanze a lungo termine, accettabile, in un solo caso si è resa necessaria la rimozione.

PAROLE CHIAVE: Morbo di Parkinson - Endoscopia - Bypass gastrico.

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