

## CASE REPORT

# Buried bumper syndrome causing rectus abdominis necrosis in a man with tetraplegia

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**Study design:** Case report.

**Objectives:** To enhance the early recognition of buried bumper syndrome in patients with tetraplegia requiring percutaneous endoscopic gastrostomy (PEG).

**Setting:** Inpatient unit, Massachusetts, USA.

**Methods:** A 44 year-old man with C2 American Spinal Injury Association grade A tetraplegia with a relatively recent PEG insertion secondary to poor nutritional intake.

**Results:** Several months after PEG placement, patient became febrile, hypotensive and complained of abdominal pain. Plain films showed a dilated bowel suggestive of ileus. Abdominal and pelvic computed tomography with and without contrast revealed PEG tube dislodgement, and a 21 cm × 2.8 cm left anterior abdominal wall collection consisting of air and contrast. Upon surgical intervention, the left rectus abdominis sheath and muscle were found to be necrotic.

**Conclusion:** Buried bumper syndrome is a serious complication related to PEG tubes. For many people with tetraplegia, PEG is a life-saving procedure with minimal risks. However, emergencies do occur, making prompt recognition imperative to prevent a fatal sequela.

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**Keywords:** buried bumper syndrome; percutaneous endoscopic gastrostomy; complications; tetraplegia

## Introduction

Percutaneous endoscopic gastrostomy (PEG) is considered a reasonably safe and appropriate modality for long-term enteral supplementation.<sup>1,2</sup> In our experience, this minimally invasive procedure can be life-saving for persons with tetraplegia who are unable to maintain adequate oral intake. However, PEG is not risk free, and providers must be aware of emergent complications associated with its placement. Although uncommon, buried bumper syndrome (BBS) is a PEG complication that can result in death.<sup>1</sup> Therefore, we present a man with tetraplegia and BBS. To our knowledge, this is the first case report of BBS in a tetraplegic person.

### Case report

The patient is a 44-year-old man with a 23-year history of C2 American Spinal Injury Association grade A ventilator-

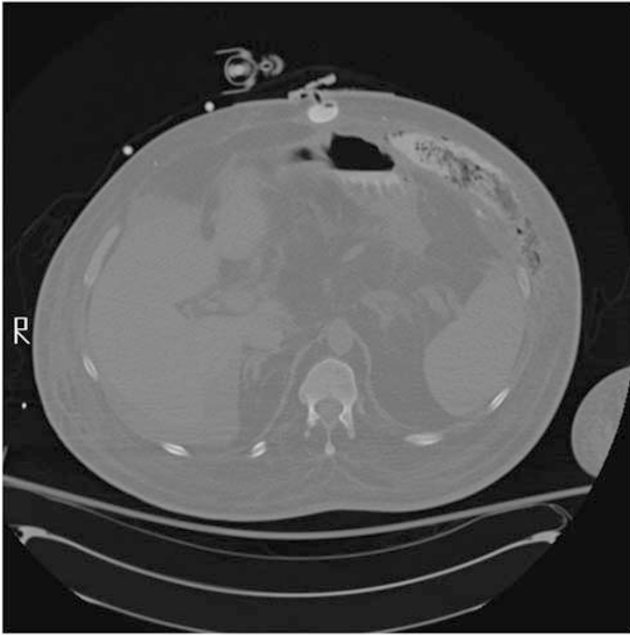
dependent tetraplegia who resides in a long-term care facility. He was injured from a motor vehicle accident in 1985 at the age of 21 years. Data for this case report was collected in 2008 in compliance with the International Spinal Cord Injury Data Set<sup>3</sup> suggestions for standardizing reports. Past medical history was significant for diabetes mellitus, a permanent tracheostomy tube, recurrent pneumonia and a nasogastric tube. The patient was admitted to a spinal cord injury unit secondary to a long complicated medical course requiring PEG placement for nutritional support.

Approximately 3 months after PEG insertion, the patient became febrile and hypotensive requiring transfer to an intensive care unit. Two days later, he reported abdominal pain that was generalized and non-tender to palpation. Plain films were obtained and showed a dilated bowel suggestive of ileus so the patient was placed on parenteral nutrition. Abdominal and pelvic computed tomography with and without contrast showed PEG tube dislodgement with a 21 cm × 2.8 cm left anterior abdominal wall collection consisting of air and contrast (Figure 1). An interventional radiologist was consulted to aspirate the abdominal

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**Figure 1** Computed tomography image of the percutaneous endoscopic gastrostomy tube outside of the stomach with a 21 cm × 2.8 cm left anterior abdominal wall collection consisting of air and contrast.

collection and broad-spectrum intravenous antibiotics were started. The following day, a general surgeon performed incision, drainage and debridement of a necrotic left rectus abdominis sheath and muscle.

## Discussion

BBS is a rare, but serious, PEG complication that can result in fatal outcomes if not quickly treated.<sup>1</sup> With this condition, the internal bumper of the PEG loses its intraluminal location and migrates through the original PEG tract.<sup>4</sup> BBS results from excessive external traction causing erosion into the gastric wall. The internal bumper then buries into the

submucosa of the stomach and ultimately results in an area of ischemic necrosis.<sup>4</sup> Typically, BBS is a late complication (>3 months after PEG placement), although it may occur within 1 month of PEG insertion and can recur.<sup>4,5</sup> BBS may present with difficulty in feeding, leakage of nutrients around the PEG, abdominal pain, bloating or remain asymptomatic. Endoscopy can be used to show the bumper buried under the submucosa, confirming a BBS diagnosis.<sup>4,5</sup> The tube can be removed safely in many patients by external traction and replaced with a pull-type tube or a balloon-type device.<sup>5</sup>

We hypothesize that poor mobility, decreased sensation and the need for assistance with transfers in patients with tetraplegia may lead to inadvertent tugs on the PEG, increasing the risk of BBS. Although it is unusual for a person with complete tetraplegia to sense abdominal pain, the complaint of pain in our patient helped trigger the course of action leading to the diagnosis. For many individuals with tetraplegia, PEG is a life-saving procedure. Over the past decade, PEG insertion has increased 10-fold because it offers greater comfort with minimal complications.<sup>2</sup> Nevertheless, problems can emerge, making it necessary to be knowledgeable of potentially fatal outcomes.

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