

# A Rare but Fatal Complication of PEG: Buried Bumper Syndrome (BBS)

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## Abstract

Percutaneous endoscopic gastrostomy (PEG) are used for long-term enteral feeding. Buried bumper syndrome (BBS) is one of the rare but life-threatening complications of PEG placement. BBS is defined as migration of inner bumper (fixating internal part of PEG) along the stoma channel from the bumper partially covered by overgrowth mucosa to complete dislodgement of bumper outside the gastric wall. Here, we present a 72-year-old nursing home resident with complete BBS.

## Introduction

Buried Bumper Syndrome (BBS) is defined as migration of inner bumper (fixating internal part of PEG) along the stoma channel. The bumper may be partially covered by overgrowth mucosa or completely dislodged outside the gastric wall. Complete BBS without visible part of inner bumper can be a challenge for endoscopic management. Here, we present a 72-year-old nursing home resident with complete BBS.

A 72-year-old nursing home male resident was sent from nursing home for a dislodged PEG tube. Past medical history was pertinent for type 2 diabetic mellitus, hypertension, stroke with left sided hemiparesis and dementia. PEG was placed in setting of advanced dementia and dysphagia from CVA 6 months ago. Vitals were stable. Labs were within normal references. On local examination, stoma showed signs of infection. The external bumper was more than 1 cm from the stoma and internal bumper was juxtaposed to the skin under the stoma cavity. Flushing of the PEG tube with normal saline elicited painful withdrawal of hands. CT abdomen showed the internal bumper of the PEG tube was located between the abdominal wall and anterior wall of the stomach compatible with buried bumper syndrome (Figure-2). Inner bumper was removed. Under appropriate antibiotics, another PEG reposition was performed without complication (Figure-3). The patient tolerated tube feeds and was disposed to nursing home.

BBS can be presented with a symptomatic clinical triad-inability to insert food or liquids, loss of patency and peristomal leak. In our case, the patient was successfully managed with PEG tube reposition through guided wire via the original track without complications.

**Key words:** Buried Bumper Syndrome; PEG (Percutaneous Endoscopic Gastrostomy); Gastroenterology;

## Case Presentation

A 72-year-old nursing home male resident with past medical history of Type 2 diabetic mellitus, hypertension, stroke with left sided hemiparesis and dementia was sent from nursing home for a dislodged PEG tube. PEG was placed for advanced dementia and dysphagia due to stroke 6 months ago. Vitals were stable. Complete blood count, comprehensive metabolic panel and coagulation panel were within normal references. On local examination, stoma showed signs of infection. The external bumper was more than 1 cm from the stoma and internal bumper was juxtaposed to the skin under the stoma cavity. Flushing of the PEG tube with normal saline elicited painful withdrawal of hands. XR (Abdomen) showed moderate constipation with multiple prominent bowel loops (Figure-1). CT (abdomen) showed internal bump of the peg tube appears to be between the abdominal wall and anterior wall of the stomach compatible with buried bumper syndrome (Figure-2). There is large right renal cysts. Copious fecal matter suggestive of constipation. Degenerative changes of the visualized thoracolumbar spine with fusion at L 1-2 as well as old fracture of L2. Pre-operative bedside examination showed both the internal/external bumpers were intact. BBS was removed. Under appropriate pre-operative antibiotics, another PEG reposition was performed without complication (Figure-3). The patient tolerated tube feeds the next day and was disposed to Nursing home.



**Figure 1:** XR (Abdomen) showed moderate constipation with multiple prominent bowel loops



**Figure 2:** CT abdomen showed the internal bumper of the PEG tube was located between the abdominal wall and anterior wall of the stomach compatible with buried bumper syndrome.



**Figure 3:** New percutaneous endoscopic gastrostomy (PEG).

## Discussion

Percutaneous endoscopic gastrostomy (PEG) is performed for long term enteral feeding indicated for neurological and neurodegenerative disorders that result in impaired swallowing. With the up-trending requirement for PEG, the increasing numbers of buried bumper syndrome are reported in the literature. BBS is usually early complications of PEG (within 30 days of PEG placement) but can be found as late complications (months to years after the procedure). The incidence is reported in 0.3-2.4% of PEG. The risk factors for BBS include severe protein energy malnutrition, prolonged steroid uses, patients with underlying malignancy or patients undergoing chemoradiation therapy [1].

The complications of BBS include gastrointestinal bleeding, perforation, peritonitis, and sepsis with or without septic shock from intraabdominal wall abscess. BBS can be presented with a symptomatic clinical triad- inability to insert food or liquids, loss of patency and peristomal leak [1, 2]. Severity of BBS is categorized according to depth of invasion in endoscopy and imaging [3].

Incomplete BBS is defined as BBS with visible parts of inner bumper and does not usually create a serious problem. It can be managed with extraction with the foreign body grasping forceps in most cases. However, in case of deeply ingrown bumper, endoscopic push techniques (using Savary Bougie or biopsy forceps), papillotome-based techniques or pull-techniques (Foreign-body grasping forceps) [4, 5].

Complete BBS is defined when the inner bumper cannot be visible. In complete BBS, CT scan or endoscopic ultrasound can be used to visualize the anatomy of bumper such as depth of invasion and extra-gastric or intramural localization. Extra-gastric bumpers are usually managed surgically. For internal bumper localized in the gastric wall, endoscopic treatment such as endoscopic push or pull techniques or papillotome-based techniques are done by experienced interventionists [6].

Different approaches have been reported in the literatures for early BBS. It includes to leave or not to leave buried bumper. Some suggested repositioning of the buried bumper into the gastric lumen. Others recommend extraction of buried bumper and placement of a new PEG tube through the same or adjacent tract with the following techniques: (1) via the guidewire to the gastric lumen with endoscope, reposition can be done using a bougie or a hydrostatic balloon dilator; (2) using a gasper under the guidance of endoscope; (3) through radial incision made over the bumper using a wire guided papillotome after guidewire

recannulation of gastric wall [7,8,9];(4) via star like radial incisions of gastric wall using a needle -knife; (5) reposition with a thin gastroscope through PEG tube using rotational movements under direct vision [10];(6)external removal of bumper through radial incisions in anterior abdomen wall[11] and (7) under fluoroscopic assistance, reposition of the bumper with stiff guidewire or bougie. However, in complicated cases with sepsis, peritonitis or fistulas, laparotomy and surgical removal of buried bumper is a must.

## Conclusion

BBS can lead to complications such as gastrointestinal bleeding, perforation, peritonitis, sepsis and/or septic shock from intra-abdominal wall abscess. In our case, the patient was successfully managed with PEG tube reposition via guided wire through the original track without complications.

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