Early Buried Bumper Syndrome

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Citation

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Abstract

Buried bumper syndrome (BBS) is a usually late complication of percutaneous endoscopic gastrostomy (PEG), and is a candidate for conservative management. We present the earliest case of BBS published to date (9 days). This rapid presentation may condition changes in the clinical picture and management of such patients. In the event of early BBS, conservative management can be time wasting, and surgery may be indicated.

INTRODUCTION

Buried bumper syndrome (BBS) is a complication of percutaneous endoscopic gastrostomy (PEG) in which the internal bumper loses its intraluminal position. Such intramural migration is secondary to ischemic necrosis due to excessive external traction. A review of the scant literature on the subject (only some 25 articles, most of which are case reports or case series) shows that BBS is generally considered a late complication, amenable to conservative (endoscopic or percutaneous) management.

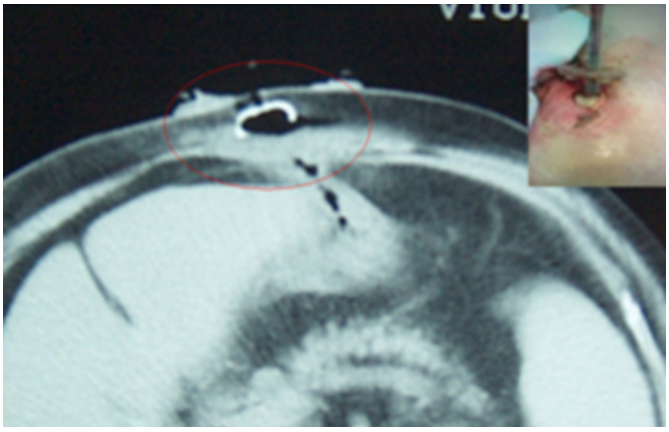
To our knowledge, the present study reports the earliest case of BBS published in the literature to date. An analysis of the case is made, and changes are proposed for the treatment of patients with early BBS.

CASE REPORT

A 53-year-old man with tonsil cancer presented non-functioning PEG, stoma abscess and gastric leakage only 9 days after insertion of the gastrostomy tube with the MIC PEG (Kimberly-Clark Worldwide, Inc, Roswell, Georgia USA) pull-technique. BBS was diagnosed by physical examination (Fig. 1, inset) and abdominal CT (Fig. 1).

Figure 1

Figure 1: BBS. Diagnosis by clinical examination (inset) and CAT confirmation. The red circle indicates the subcutaneous position of the bumper, showing that both the gastric and abdominal walls had been eroded.



A high volume output gastric fistula with short length and large tract caliber was still apparent after 13 days of intravenous omeprazole, nothing per os and total parenteral nutrition (Fig. 2, inset). Endoscopic application of a fibrin sealant or percutaneous management with a collagen plug was discarded. A Vacuum Assisted Closure (VAC) system was applied as the last conservative treatment option (Fig 2).

Figure 2

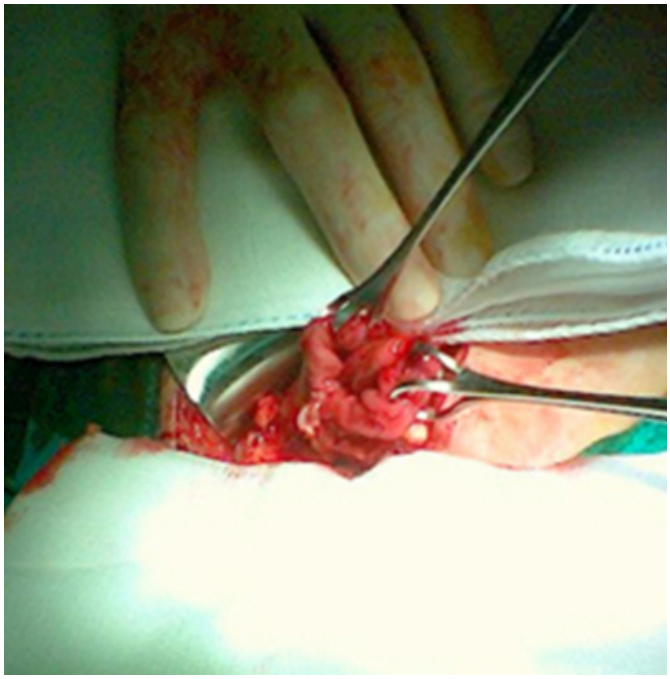
Figure 2: Gastric fistula after conservative management (inset). VAC consisting of foam dressing covered by an adherent transparent drape and an aspirating tube connected to the vacuum pump.

The VAC proved effective (disappearance of pain and improvement of skin burns) for only two days.

After failure of conservative management, laparotomy was indicated (informed consent being obtained). A 4-cm diameter fistula was found. The gastric and abdominal wall orifices were sutured (Fig 3).

Figure 3

Figure 3: Actual dimensions of the gastric wall erosion discovered at laparotomy.



DISCUSSION

BBS was first described almost two decades ago. According to the literature, its incidence reaches up to 6.1% of all PEGs ([1]), though a figure of 1.73-2% ([2,3]) seems more realistic.

BBS is produced by ischemic necrosis secondary to pressure in the form of excessive traction. The characteristics of the MIC tube used in our case (small inner bumper, sharp tapered flange and hard plastic composition) favor the disorder ([4]). The identification of gastric, parietal and even cutaneous perforation (Fig. 1, inset) in only 9 days, suggests that ischemic necrosis is not the only mechanism to have participated in our case. In this context it may be speculated whether development of gastric ulcer secondary to contact between the gastrostomy tube elements and the gastric mucosa ([5]) may have been a cofactor in our patient. The histological study of the margins of the gastric fistula revealed the presence of granulation tissue and focal epithelial dysplasia. On the other hand, the patient was treated with proton pump inhibitors throughout the perioperative period, though this is not synonimous of protection ([5]).

A priori, erosion of the internal bumper would take some time. Consequently, many authors view BBS as a late complication ([6,7]). On comparing the times to presentation of BBS, we can distinguish between early (under 30 days) and

chronic presentations (months or years). In this context, we have evaluated whether rapid evolution (preventing the development of covering mucosa) influences the clinical manifestations, diagnosis and treatment of BBS.

The syndrome is to be expected particularly in PEGs that have been implanted for a long time, as in the case of neurological patients. However, a review of the case reports and case series ([3]) indicates that BBS manifests equally in both neurological and oncological patients.

Patients with BBS consult for malfunctioning of their PEG. In the case of early BBS, it is moreover also possible to observe dermatitis ([8]), subcutaneous abscess, gastric fístula (as in our patient), or upper digestive bleeding ([4]).

The diagnosis of BBS has been endoscopic in all the cases reported in the literature. Apart from our own case, only one other author has used CAT to confirm the condition ([9]). Endoscopic ultrasound is useful for differentiating between an intramural (endoscopic or percutaneopus management) and extramural location of the internal bumper (surgical treatment)([3]). In early BBS the diagnosis may be only clinical (Fig. 1, inset). BBS can be prevented by pushing, pulling and rotating the PEG tube in the early postinsertion period and avoiding the placement of gauze pads beneath the external bumper ([3],[4],[10]). Later, it can be prevented by fixing the external flange within a distance of about 0.5 cm to the skin ([3]). None of these measures were applied in our case.

The treatment of the cases of BBS documented in the literature has been mainly endoscopic or percutaneous. The endoscopic methods range from the use of a dilator balloon ([11]) to needle-knife manipulation with a snare and grasper ([3]) or Savary dilators ([12]) or re-insertion of another PEG in the same ([13]) or in some other location ([8], [10]). The percutaneous techniques in turn comprise placing a button or replacement gastrostomy with the help of a guidewire, depending on whether the original tract is completely closed or not.

As can be seen in our case and in that reported by Anagnostopoulos et al., early BBS gives rise to an extramural location of the internal bumper. Therefore, its treatment should be surgical ([3]). Moreover, these cases are characterized by a risk of peritonitis due to leakage of the gastric contents ([4]) – thus reinforcing the indication of surgery. The laparoscopic management of BBS ([7]) was not applicable in our case due to the large fistular and parietal orifice, which prevented creation of a pneumoperitoneum.

Our case also reflects the scant or zero usefulness of conservative management in early BBS. An absolute diet with total parenteral nutrition and omeprazole did not improve the gastric fistula. Occlusion with fibrin glue ([14]) was impossible because of the diameter of the fistula. We used the VAC system, encouraged by the results of South American groups ([15],[16]). Possibly its lack of utility in our case was due to the fact that these authors dealt with enteric (not gastric) fistulas.

In conclusion, early BBS could be produced by ischemic necrosis associated with the peptic lesion. Compared with chronic BBS, these early presentations imply more serious clinical manifestations, and the diagnosis may not require endoscopy. Given the poor response to conservative management, in these cases the threshold for surgical indication should be lowered.

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