

Buried bumper syndrome – a rare complication of percutaneous endoscopic gastrostomy tube feeding

Wrośnięcie PEG (*buried bumper syndrome*) – rzadkie powikłanie przezskórnej gastrostomii endoskopowej

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Abstract

Percutaneous endoscopic gastrostomy is one of the most prevalent methods of alimentionation when oral feeding is not possible. The insertion procedure, maintenance and tending of gastrostomy are relatively safe. However, some complications occur. One of them is buried bumper syndrome. This is embedding of the internal bolster of the gastrostomy tube in the gastric mucosa. In this paper we present a case of a 3-year-old boy with buried bumper syndrome.

Streszczenie

Gastrostomia jest optymalną drogą podawania pokarmu pacjentom, którzy nie mogą być żywieni doustnie. Endoskopowe wyłonienie przetoki, a następnie jej utrzymanie jest stosunkowo bezpieczne, jednak może być obarczone wystąpieniem powikłań. Jednym z nich jest wrośnięcie wewnętrznego talerzyka zgłębnika gastrostomijnego w ścianę żołądka. W niniejszym artykule przedstawiono opis tego powikłania u 3-letniego chłopca.

Introduction

Feeding via the digestive tract is the most physiological form of nutrition. If the patient is not able to eat, nutrition may be achieved through different tubes. These include naso-gastric, naso-jejunal, gastrostomy and jejunostomy tubes. For patients who require long tube feeding, the most convenient and the safest way is food administration through a tube directly to the stomach [1].

There are three methods of inserting a gastric tube: classic surgical, laparoscopic and endoscopic. Presently, percutaneous endoscopic gastrostomy (PEG) is the most prevalent one. Since first described in 1980 by Gauderer, it has become very popular [2]. In children PEG is performed in general anaesthesia. The procedure takes place either in the endoscopic or operating room, sometimes in the Intensive Care Unit. The most common indications include sucking, chewing and swallowing disturbances in children with neurological disorders such as cerebral palsy, hypoxic-ischaemic encephalopathy, and spinal muscular atrophy [3].

The insertion of a PEG tube may involve some complications – early and late ones. The former include oesophageal or stomach perforation, pneumoperitoneum and peritonitis. The latter, occurring more often, are skin infections, granulation or leakage near the insertion point. Another, very rare complication is embedding of the internal bolster in the gastric mucosa [4].

Case report

A 3-year-old boy, with deletion of chromosome 13, was admitted to the clinic because of gastrostomy dysfunction. The PEG tube (Ch 14, Flocare®, Nutricia) was inserted a year before because of swallowing disorder and progressing malnutrition. Until this hospitalization the boy's state had not been monitored and his parents had not complained of any troubles with the tube. After admission to our clinic the endoscopic examination revealed complete overgrowth of the internal bumper by gastric mucosa. Because of an anaesthetic complication, i.e. respiratory insufficiency, PEG removal was post-



Fig. 1. Endoscopic exam presenting complete overgrowth of internal bumper by gastric mucosa. Weak stream of externally administered physiological saline is seen between the folds of gastric mucosa

Ryc. 1. Badanie endoskopowe uwidaczniające wrośnięcie wewnętrznego talerzyka gastrostomijnego w ścianę żołądka. Między fałdami błony śluzowej widoczny strumień soli fizjologicznej podawanej od zewnątrz przez zgłębnik



Fig. 2. Gastrostomy tube seen after star-like incision

Ryc. 2. Zgłębnik gastrostomijny uwolniony przez gwiaździste nacięcia

poned. When the child's condition was stable, after pneumonia treatment, the boy was discharged from hospital and scheduled for PEG replacement in 2 weeks time. Despite the recommendation, the parents did not bring the boy to the follow-up visit, but he was admitted to the clinic after 5 months with another tube dysfunction. Physical examination revealed puce leakage around the external site. Once again endoscopic examination revealed the internal bumper completely overgrown. Only a weak stream of physiological saline – externally administered – was draining through (Figure 1). The rail was used to expose the internal bolster of the tube. To remove the tube, a star-like incision was made (Figure 2). It facilitated cutting off the end of the tube and its removal. Next, another tube with a balloon at the end was inserted (Figure 3) and complete healing of the stomach mucus membrane was achieved.

Discussion

Buried bumper syndrome is an extremely rare complication of PEG. Prevalence varies in different clinics in

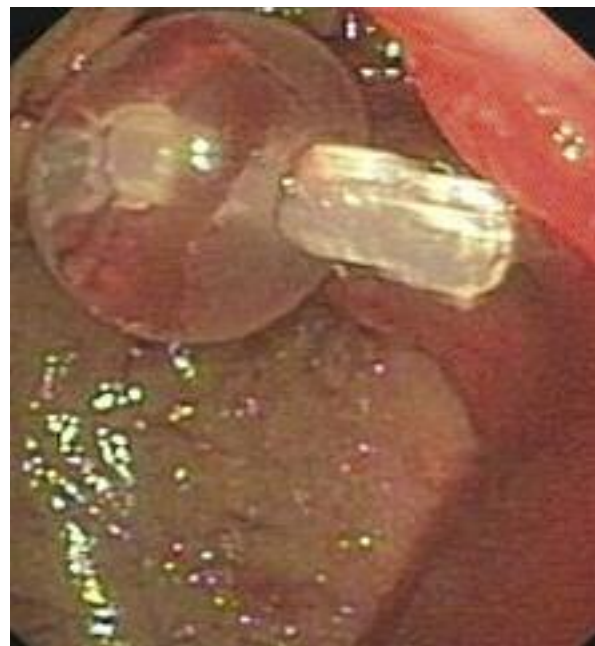


Fig. 3. Insertion of new tube with balloon after removal of ingrown bumper

Ryc. 3. Wprowadzony zgłębnik gastrostomijny zakończony balonem

the range 2–6.1% of patients fed via PEG, with some reporting less than 2% [5, 6]. The case described above was diagnosed one year after insertion. However, English

researchers report this complication as soon as 10 days after the procedure, but also a few years later [5, 6].

The considered reasons for burying of the internal bumper or even part of the tube are round shape of the bolster, malnutrition, thickening of the abdominal wall (due to body mass gain) and excessive tension on the tube [6]. These factors lead to mucus membrane ischaemia, necrosis and then abnormal regeneration with overgrowth of the plate [6].

Faulty function of the tube, in the boy mentioned above, manifested with resistance during formula administration and purulent drainage around the stoma site. These are similar to those described by other authors, who also observed leaking gastric juices, redness and skin edema, abdominal pain, and tube immobilization [5-7]. Other symptoms are melaena and abdominal distension [8].

There is no recommended course of action for buried bumper syndrome. There are a few techniques described for tube removal: surgical, endoscopic and laparoscopic ones [6, 7, 9, 10]. In patients with high risk during general anaesthesia, the pulling method is recommended [6]. In our patient endoscopic removal of the gastrostomy tube was done.

Considering the risk for tube overgrowth in the gastric wall, it is of utmost importance to prevent this complication. It may be achieved firstly by leaving an approximately 5 mm space between the skin and the external bolster. This prevents excessive tension of the internal bolster to the gastric wall and so prevents gastric ischaemia [1, 9]. It is also recommended to rotate the tube daily, unblock it and reinsert it into the stomach by pulling back [1]. Gençosmanoğlu *et al.* suggest that the best way to prevent the internal bolster from ingrowing is to replace the PEG tube with a balloon ending [9].

There is only one published paper describing mortal consequences of buried bumper syndrome, because of peritonitis [8].

Percutaneous endoscopic gastrostomy is currently a widely accepted method of feeding tube insertion. Although quite safe and applied in children, this procedure might be seriously complicated. Having that in mind, it is highly important to attend to the feeding stoma carefully and educate both patients and their parents in this subject

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