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Case Report

Complication of Percutaneous Endoscopic Gastrostomy (PEG) Necessitating Partial Gastrectomy

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Abstract

Percutaneous endoscopic gastrostomy (PEG) is a commonly performed procedure in patients with upper aerodigestive tract malignancies as well as in a range of other swallowing disorders. This is generally regarded as a safe intervention to enable long-term enteral feeding. The procedure is simple and quick to complete. Procedure related mortality is reported at around 1% and incidence of life threatening complications is low. We describe the management of a life threatening complication following gastrostomy tube insertion. A 68 year old Caucasian male was diagnosed with an advanced stage right supraglottic squamous cell carcinoma with metastasis to right neck. The patient underwent debulking of tumour and post-operative radical radiotherapy. To facilitate feeding, the patient required percutaneous endoscopic gastrostomy (PEG) tube insertion (15 Fresenius) which was accomplished without any difficulty. Six months after the insertion of PEG, the patient was admitted to the general surgeons with an acute abdomen. Investigations revealed displacement of the PEG tube with a perforated stomach. The patient required a laparotomy and partial gastrectomy. We conclude that the patients need to be thoroughly counselled about the possible complications related to PEG tube insertion. A high index of suspicion is required to identify PEG related peritonitis early to avoid any delay in its management.

Keywords: Enteral nutrition; Percutaneous endoscopic gastrostomy (PEG); Complications

Introduction

The use of PEG tubes as a form of long term enteral feeding was first introduced in the 1980s [1]. Since then, several modifications from the original method have been used [2]. It is a simple and widely used method in clinical practice. The success rates of PEG insertion varies (95%-100%) [3].

Maintaining nutrition is important especially in head and neck cancer patients as optimal nutrition improves response to oncological or surgical treatment and aids recovery [4]. Head and neck cancer patients often have a history of smoking, poor nutrition and excessive alcohol consumption, which presents additional nutritional challenges [5].

The commonly used method for insertion of gastrostomy tube involves the "pull" method. Alternatives include a "push" (Sacks-Vine) and "introducer" (Russell) methods. The key features of all the methods include:

1. Gastric insufflation - bring stomach into apposition with abdominal wall
2. Percutaneous placement of cannula into the stomach
3. Passage of a suture or guide wire into the stomach
4. Placement of gastrostomy tube
5. Verification of the correct position [2]

The main purpose of a PEG tube is to provide a feeding access or enable gut decompression [6]. Patients requiring long term feeding include those suffering from neurological conditions such as Cerebrovascular Disease, Multiple Sclerosis, Cerebral Palsy and Parkinson's disease. Head injury and patients in intensive care are also considered as indications due to reduced levels of consciousness and cognition. Difficulties in swallowing or obstruction from Oropharyngeal cancer or Oesophageal cancer can be helped with PEG tube insertion [1]. Chronic obstruction or ileus due to advanced abdominal malignancies can be relieved by decompressing the intestinal tract with a PEG tube [7].

Pharyngeal or oesophageal obstruction, active coagulopathy and other contraindications to endoscopy, such as haemodynamic instability, all constitute contraindications. Although PEG tubes can be used to aid nutrition in oropharyngeal or oesophageal cancer, this is considered a relative contraindication due to the risk of seeding of the PEG tract with cancer cells. These patients should therefore be considered for percutaneous radiologic gastrostomy (PRG) rather than PEG [8].

Other relative contraindications include abdominal wall metastases, open abdominal wounds, ventral hernia and general abdominal wall abnormalities such as previous abdominal surgery. Hepatomegaly, splenomegaly and significant ascites are intra-abdominal contraindications to PEG insertion [2].

There is no official system for the classification of complications associated with PEG tubes [9]. Some authors classify complications as being major or minor. Complications requiring a return to

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theatre, a blood transfusion or resulting in death within 30 days post procedure were classified as major in one study [3]. Conversely another described a major complication as one resulting in mortality, a repeat procedure or second puncture at the time of gastrostomy [9]. Minor complications are classified as those requiring basic observations, local care at bedside or replacement of PEG tube [3]. Whilst others classified minor complications as those that are self-resolving or those requiring simple care for example dislodged tubes and peristomal leaks [9]. Furthermore, another study grouped complications according to those resulting from upper GI endoscopy, directly from PEG procedure and those associated with PEG use and wound care [2]. A procedure-related morbidity of 9.4% and mortality of 0.53% was found by a meta-analysis report for PEG tubes [8]. Most literature agree that major complications include peritonitis, septicaemia, aspiration pneumonia, haemorrhage, gastric perforation, gastrocolocutaneous fistula and any complications requiring a repeat procedure [3,8,9].

Case Presentation

A 68 year old Caucasian male was diagnosed with an advanced stage right supraglottic squamous cell carcinoma with metastasis to his right neck. The patient underwent debulking of the tumour and post-operative radical radiotherapy. To facilitate feeding, the patient required percutaneous endoscopic gastrostomy (PEG) tube insertion (15 Fresenius) which was accomplished without any difficulty.

Six months after the insertion of PEG, the patient was admitted to the general surgical ward with an acute abdomen. On a gastro-grafin follow-through contrast study, the PEG tube was found to have become displaced with frank intraperitoneal collection. At emergency laparotomy, free pus was found in the abdomen; the PEG had eroded through the stomach wall at a section of gastric wall necrosis. The stomach was partially mobilized and the PEG tube was removed. Wedge resection of greater curvature of the stomach was carried out. Venting gastrostomy (Kangaroo type) was placed in the upper right quadrant along with insertion of a feeding jejunostomy (Kangaroo type). The patient developed a post-operative chest infection but eventually made a good recovery and was discharged home 5 weeks after admission. Before discharge, the jejunostomy tube was removed and thereafter the gastrostomy tube was used for feeding. The PEG tube was changed 6 months later with no difficulty.

The patient has been kept under clinical review for the last 3 years and there has been no evidence of loco-regional disease recurrence. However, due to chronic aspiration the patient remains PEG dependant.

Discussion and Conclusion

Despite their popular use in clinical practice, PEG tubes are not without complications, as highlighted by this case study. It is vital that the indications, contraindications, procedural steps and associated complications are well known to ensure patient safety. Recognition of early symptoms of complications during long term maintenance allows for rapid intervention [2].

PEG is one of three main techniques used for Gastrostomy. Others include surgery and percutaneous radiological gastrostomy (RIG) [10]. Evidence from the literature suggests that the risk of peritonitis and mortality is lower for PEG insertion compared to RIG [10,11]. Grant et al. found that major complications following PEG were lower compared to RIG (3.3% and 15.6% respectively) [9]. A nasogastric (NG) tube is an alternative way of providing enteral nutrition. However, studies have found that the use of PEG in head and neck cancer patients was superior at minimising weight loss, reducing the number of admissions to the hospital for complications from treatment, decreasing interruptions of radiation, lowering treatment failures and mortality rates, in comparison to enteral feeding with a NG tube [12]. PEG tubes are the preferred method in providing long term enteral nutrition in this patient group [3].

Patients can present with an acute abdomen, as in this case, from underlying peritonitis or pneumoperitoneum due to PEG tube displacement. This complication should always be excluded in patients that develop such symptoms soon after PEG mobilisation and after first enteral feeding [3]. Taheri et al. described the importance of identifying the complication of intraperitoneal placement with resulting peritonitis, particularly if problems occur following reinsertion [13]. This case highlights a very serious and rare complication requiring partial gastrectomy post PEG insertion. As far as we are aware this is the first reported case of this type in the literature.

There are areas to be addressed and room for further research in minimising complications and improving outcomes after PEG insertion. Suggestions include implementing a scoring system for use prior to PEG insertion to aid in choosing patient for the procedure, thus improving future outcomes [14]. A strict surgical technique is recommended in order to decrease the complications, especially in patients presenting with significant co-morbidities [3] and close monitoring during long-term use is advised. We conclude that the PEG tubes remain important in the management of patients with feeding difficulties, especially in Head and Neck cancer patients. They continue to be widely used among such patients, enabling effective enteral nutrition. Major complications such as the one mentioned in this case are rare but serious. Awareness of such complications is important to facilitate early detection of PEG related peritonitis and to avoid delay in its management.

References

1. Gauderer MW, Ponsky JL, Izant RJ Jr. Gastrostomy without laparotomy: a percutaneous endoscopic technique. J Pediatr Surg. 1980; 15: 872-875.
2. Schrag SP, Sharma R, Jaik NP, Seamon MJ, Lukaszczyk JJ, Martin ND, et al. Complications related to percutaneous endoscopic gastrostomy (PEG) tubes. A comprehensive clinical review. J Gastrointestin Liver Dis. 2007; 16: 407-418.
3. Zuercher BF, Grosjean P, Monnier P. Percutaneous endoscopic gastrostomy in head and neck cancer patients: indications, techniques, complications and results. Eur Arch Otorhinolaryngol. 2011; 268: 623-629.
4. Sobol SM, Conoyer JM, Sessions DG. Enteral and parenteral nutrition in patients with head and neck cancer. Ann Otol Rhinol Laryngol. 1979; 88: 495-501.
5. Feldman JG, Hazan M. A case-control investigation of alcohol, tobacco, and diet in head and neck cancer. Prev Med. 1975; 4: 444-463.
6. McClave SA, Ritchie CS. The role of endoscopically placed feeding or decompression tubes. Gastroenterol Clin North Am. 2006; 35: 83-100.
7. Ramage JI Jr, Baron TH. Percutaneous endoscopic cecostomy: a case series. Gastrointest Endosc. 2003; 57: 752-755.

8. Lyon SM, Pascoe DM. Percutaneous gastrostomy and gastrojejunostomy. Semin Intervent Radiol. 2004; 21: 181-189.

9. Grant DG, Bradley PT, Pothier DD, Bailey D, Caldera S, Baldwin DL, et al. Complications following gastrostomy tube insertion in patients with head and neck cancer: a prospective multi-institution study, systematic review and meta-analysis. Clin Otolaryngol. 2009; 34: 103-112.

10. Barkmeier JM, Trerotola SO, Wiebke EA, Sherman S, Harris VJ, Snidow JJ, et al. Percutaneous radiologic, surgical endoscopic and percutaneous endoscopic gastrostomy/gastrojejunostomy: comparative study and cost analysis. Cardiovasc Intervent Radiol. 1998; 21: 324-328.

11. Burkitt P, Carter LM, Smith AB, Kanatas A. Outcomes of percutaneous endoscopic gastrostomy and radiologically inserted gastrostomy in patients with head and neck cancer: a systematic review. Br J Oral Maxillofac Surg. 2011; 49: 516-520.

12. Lee JH, Machtay M, Unger LD, Weinstein GS, Weber RS, Chalian AA, et al. Prophylactic gastrostomy tubes in patients undergoing intensive irradiation for cancer of the head and neck. Arch Otolaryngol Head Neck Surg. 1998; 124: 871-875.

13. Taheri MR, Singh H, Duerksen DR. Peritonitis after gastrostomy tube replacement: a case series and review of literature. JPEN J Parenter Enteral Nutr. 2011; 35: 56-60.

14. Kurien M, McAlindon ME, Westaby D, Sanders DS. Percutaneous endoscopic gastrostomy (PEG) feeding. BMJ. 2010; 340: c2414.

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