ARAŞTIRMA MAKALESİ / *RESEARCH ARTICLE*

Percutaneous Endoscopic Gastrostomy: A Retrospective Analysis in a Secondary Care Hospital

Perkütan Endoskopik Gastrostomi: İkinci Basamak Hastanede Retrospektif Analiz

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ABSTRACT

Aim: *It was aimed to reveal data on indications of percutaneous endoscopic gastrostomy (PEG) insertion in a secondary care hospital, postoperative complications, and follow-up.*

Material and Method: *The data of 34 patients with PEG insertion indication between 2018 and 2020 were evaluated retrospectively. The age, sex, primary diagnosis, comorbidity status, postoperative complications, whether tracheostomy was performed, and first gastrostomy or change status of the patients, who were given a PEG indication, considering they could not take food orally and would require to be fed enterally for a long time, were evaluated.*

Results: *74.2% of the cases were hospitalized in the intensive care unit, and the most common indications of PEG were neurological diseases with a rate of 67.7%, malignancy with a rate of 22.6%, and other causes such as trauma and electrical burns with a rate of 9.7%. There were no significant complications of the PEG procedure, and minor complications developed in two patients. No mortality was observed in the PEG procedure.*

Conclusion: *In cases where enteral feeding will take longer than 4–6 weeks, PEG is a preferred method for providing enteral nutritional support to prevent malnutrition. With low morbidity and mortality, the PEG method is a safe and practical feeding method and can be safely applied in a secondary care hospital.*

Key words: *gastrostomy; percutaneous endoscopic gastrostomy; enteral nutrition; feeding tube; endoscopy*

ÖZET

Amaç: *2. Basamak hastanedeki perkütan endoskopik gastrostomi (PEG) takılma endikasyonlarını, işlem sonrası komplikasyon ve takipleri ile ilgili verileri ortaya koymaktır.*

Materyal ve Metot: *2018–2020 tarihleri arasında PEG takılma endikasyonu konulan 34 hastanın verileri retrospektif olarak değerlendirildi. Uzun süre oral alamayan ve enteral beslenemeyeceği düşünülerek PEG endikasyonu konulan hastaların yaşları, cinsiyetleri, primer tanıları, komorbidite durumu, işlem sonrası komplikasyonları, trakeostomi açılıp açılmadığı, ilk gastrostomi ya da değişim durumları değerlendirildi.*

Bulgular: *Vakaların %74,2'si yoğun bakımda yatmakta olup, PEG endikasyonu olarak en sık %67,7 ile nörolojik hastalıklar, %22,6 ile malignite ve %9,7 ile travma ve elekrik yanığı gibi diğer nedenler şeklindeydi. PEG işlemine ait major komplikasyon olmayıp, iki hastada minor komplikasyon gelişti. PEG işlemine ait mortalite gözlenmedi.*

Sonuç: *Enteral beslemenin 4–6 haftadan uzun süreceği durumlarda, malnütrisyonun önlenmesi için enteral beslenme desteğinin sağlanmasında PEG tercih edilen bir yöntemdir. Düşük morbidite ve mortalitesiyle PEG yöntemi güvenli ve pratik bir beslenme yöntemi olup, 2. basamak hastanede güvenle uygulanabilir.*

Anahtar kelimeler: *gastrostomi; perkütan endoskopik gastrostomi; enteral beslenme; beslenme tüpü; endoskopi*

Introduction

Malnutrition is a condition that causes delays in recovery and increases morbidity and mortality by increasing susceptibility to infections, causing repeated hospitalizations and prolonged hospital stays. Enteral nutritional support is provided to prevent malnutrition in patients who cannot be fed naturally but do not have a functional disorder in the gastrointestinal tract[1,2]. In cases where enteral feeding will take longer than 4–6 weeks, percutaneous endoscopic gastrostomy (PEG) is a preferred method[3–5]. PEG is usually performed in patients with chronic underlying diseases. The most common indications of PEG are cerebrovascular diseases, various chronic neurological diseases such as Parkinson's disease, dementia, motor neuron diseases, head and neck traumas, and specific malignancies[6]. Although PEG has complications such as tube dislocation, PEG site infection, aspiration pneumonia, gastric perforation, and colocutaneous fistula, it is the most

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commonly used method to provide enteral nutrition in patients with swallowing difficulties[4,7].

The study aimed to reveal data on indications of percutaneous endoscopic gastrostomy insertion in a secondary care hospital, postoperative complications, and follow-up.

Material and Method

In our study, the data of 34 patients with PEG insertion indication between May 2018 and December 2020 in the endoscopy unit of the General Surgery and Gastroenterology clinic of Kars Harakani State Hospital were evaluated retrospectively. The age, sex, primary diagnosis, comorbidity status, postoperative complications, whether tracheostomy was performed, and first gastrostomy or change status of the patients, who were given a PEG indication, considering they could not take food orally and would need to be fed enterally for a long time, were evaluated. Nasogastric feeding was discontinued 12 hours before the procedure in patients who would undergo PEG, and prophylactic antibiotics were administered to all patients. In addition, the patients were evaluated before the procedure for pathologies that hinder the gastroscopy procedure, contraindications such as diffuse ascites in the abdomen, bleeding disorders, and gastrointestinal obstruction. The procedure was performed under sedation using an 18 or 20-fr gastrostomy tube. Immediately after the procedure, 20–30 cc of water was given through the tube to test for leakage, and 24 hours after the procedure, the amount was gradually increased, and the patients were fed through the gastrostomy tube.

Approval for the study was obtained from the Kafkas University Ethics Committee of the Faculty of Medicine (dated 24.12.2020, numbered 285).

Statistical Analysis

SPSS version 21 for Windows software package was used for statistical analysis. Frequencies and percentages as descriptive criteria were used.

Table 1. *Reasons for failure in PEG application*

Cause of failure	n
Laryngeal cancer that does not allow passage from the esophagus	2
Lung cancer invading the esophagus	1

Results

The result was unsuccessful in 3 of 34 patients with PEG insertion indication. Two of these patients had laryngeal cancer that did not allow the passage of the endoscope, and one patient had lung cancer that completely invaded the esophagus (Table 1). Two of these three patients underwent gastrostomy by laparotomy. The PEG procedure was successfully applied to the remaining 31 patients.

Seventeen (54.8%) of the cases were male, 14 (45.2%) were female, and the mean age was 62.7 (21–90). Twenty-three (74.2%) cases were hospitalized in the intensive care unit, and 8 (25.8%) were hospitalized in the palliative care unit. Tracheostomy was present in 3 (9.7%) of the patients.

PEG was inserted for the first time in 26 cases, and the gastrostomy tube was replaced with a new one in 5 cases.

PEG insertion indications are shown in Table 2. Neurological diseases were the most common indication in 21 (67.7%) patients, with cerebrovascular events taking the first place with 48.4%. Other neurological diseases were dementia, ALS (Amyotrophic Lateral Sclerosis), cerebral palsy, neuro-Behcet's disease, and Parkinson's disease. In addition, there were indications for malignancy in 7 (22.6%) patients and other causes such as trauma and electrical burns in 3 (9.7%) patients.

Table 2. *Distribution of cases by etiology*

Distribution of cases by etiology	n (%)
Malignancy	
Head and neck cancer	3 (9.7)
Lung cancer	2 (6.5)
Esophageal cancer	1 (3.2)
Glioma	1 (3.2)
Neurological diseases	
Cerebrovascular events	15 (48.4)
ALS	1 (3.2)
Cerebral palsy	1 (3.2)
Dementia	2 (6.5)
Neuro-Behçet's disease	1 (3.2)
Parkinson's disease	1 (3.2)
Other	
Trauma	2 (6.5)
Electrical burn	1 (3.2)

Although there were no significant complications, minor complications developed in two (6.4%) patients, including infection at the catheter site, they were treated with conservative follow-up and antibiotic therapy. No mortality related to the PEG procedure was observed in the patients.

Discussion

In our study, the success rate in patients with PEG was 91.2%. In patients with the unsuccessful result, the cause was tumors that obstruct the lumen. In two studies in the literature, success rates were reported as 99% and 97%, respectively[8,9]. In these studies, the cause of failure was also tumors obstructing the lumen, and it was emphasized in one study that dilatation may be successful in cases with tumors obstructing the lumen[10]. However, they reported a mortality rate of 0.9% after dilatation. In our study, the fact that the masses were at a very high level prevented the application of dilatation. In the study of Özgüç et al., gastrostomy was surgically inserted in cases where the PEG procedure was unsuccessful[9]. Our study performed gastrostomy surgically on two patients with an unsuccessful procedure.

In our study, the majority of the cases (74.2%) were patients hospitalized in the intensive care unit. In the studies in the literature, the procedures mainly were applied to the patients in the intensive care unit with a rate of 70% and 86.2%, respectively[9,11].

There are controversial results in the literature on the use of prophylactic antibiotics. However, contrary to many studies, a meta-analysis study also argues that antibiotic prophylaxis is not needed, reporting that single-dose prophylactic antibiotic use prevents wound infection[12–14]. In our study, each patient's prophylactic antibiotics were routinely administered before the procedure.

Although studies show that PEG feeding can be initiated 1 hour after the procedure or within the first 12 hours, in our study, PEG feeding was started 24 hours after the procedure[14–16].

One indication of PEG is dysphagia, and the most common cause of dysphagia is neurological diseases[17]. However, the indications have expanded nowadays, and the PEG procedure is also applied in conditions that may cause malnutrition, such as metabolic, cardiac, and trauma[18]. In addition, PEG indication is also present in cancer patients, predominantly head and neck cancers[19]. In our study, following the literature, neurological diseases were the most common PEG indication with a rate of 67.7%, and malignancies took second place with 22.6%.

The rate of minor complications after PEG insertion has been reported as 8–30% and the rate of significant complications as 1–4% [20]. There were no significant complications in our study, and our rate of minor complications was 6.4%.

In our study, no mortality related to the PEG procedure was observed, and mortality from the PEG procedure was close to zero in all studies in the literature. Furthermore, almost all of the reported causes of mortality are associated with a primary disease [21–23].

In conclusion, the PEG procedure has low morbidity and mortality, and our study's indications and complication rates are compatible with the literature. Furthermore, PEG is a simple, safe, and practical feeding method and can be safely applied in a secondary care hospital.

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