



CHIRURGIE THORACIQUE / THORACIC SURGERY

OUTCOME OF FEEDING ENTEROSTOMY FOR NUTRITIONAL REHABILITATION IN DYSPHAGIA

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Summary

Background: feeding enterostomy is used to build up patients with dysphagia by definitive surgery. **Objective:** to evaluate the achievement of nutritional goals in dysphagia patients and to suggest management protocols. **Methodology:** A retrospective study of feeding enterostomies for dysphagia over 4 years. The preoperative, post-operative weights and progression to definitive esophageal replacement were analyzed. **Results:** There were 34 patients, records were available for 29 patients, ages ranged from 1.5 to 90 years, mean age was 29.7 years, and male to female ratio was 3:7. The causes of dysphagia were corrosive esophageal stricture-12, esophageal cancer-13, pharyngeal tumor-3 and mediastinal mass 1. The duration of symptoms ranged from 3 weeks to 106 weeks (mean 26.4 weeks). Preoperative weight ranged from 6.2 – 68 kg (mean 24.1kg), postoperative weight was between 7 – 65 kg (mean 25.7kg); follow up period ranged from 0.5 to 12 months (mean 3.2 months), weight gain was negative for those who had their last weight check by 6 weeks post op (p value 0.057). 15 patients (52%) proceeded to have definitive esophageal replacement surgery. **Conclusion:** Feeding enterostomy was successful in nutritional rehabilitation of dysphagia patients and 6 weeks may be required to appreciate positive weight gain. There is a need for standard protocols for better management and follow-up of these patients.

Key-words : Feeding enterostomy, Dysphagia, Outcome, Rehabilitation.

Résumé

Contexte: la gastrostomie d'alimentation est utilisé pour la rééquilibration nutritionnelle des patients atteints de dysphagie en attente de la chirurgie définitive. **Objectif:** évaluer l'atteinte des objectifs nutritionnels chez ces patients atteints de dysphagie et de proposer des protocoles de prise en charge. **Méthodologie:** étude rétrospective concernant tous les patients atteint de dysphagie ayant bénéficié d'une entérostomie d'alimentation sur une période de 4 ans.

Résultats: vingt-neuf patients ont fait l'objet de notre étude. L'âge moyen était de 29,7ans (1.5-90), M : F- 3:7. Les causes de la dysphagie étaient ; sténose caustique de l'œsophage (n=12), cancer de l'œsophage (n=13), tumeur du pharynx (n=3) et masse médiastinale (n= 1). Le poids moyen en préopératoire était 24,1kg (6,2 - 68) et de 25,7kg (7 - 65) en post-opératoire. Avec un recul moyen de 3,2mois (0,5 -12) le gain pondéral était négatif pour ceux qui ont eu leur dernière pesée a 6 semaines postopératoire (p=0,057). Le remplacement définitif de l'œsophage avait été réalisé dans 52% (n=15) des cas. **Conclusion:** L'entérostomie d'alimentation permet la réhabilitation nutritionnelle des patients atteints de dysphagie. Un délai de six est nécessaire pour apprécier le gain pondéral. L'établissement de protocoles standards améliorerait la prise en charge et le suivi de ces patients.

Mots clés : enterostomie d'alimentation, dysphagie, résultat, réhabilitation.

Introduction

Feeding enterostomy is a stoma created between the gastrointestinal tract and the skin for the purpose of providing enteral nutrition. It is useful for long term nutritional support. Patients with dysphagia awaiting definitive surgery are usually well served by feeding enterostomy, especially when there has been significant weight loss. Achieving the goal of nutritional rehabilitation in dysphagia patients may depend on the disease process, feeding protocol and the occurrence of complications. Preoperative feeding enterostomy has featured scantily in surgical literature.

The aim of this to investigate the achievement of the nutritional rehabilitation goals in patients with dysphagia, and to identify the presence or otherwise of a standard feeding and follow-up protocol in the management of these patients

Material and Methods

A retrospective study was conducted over a 4-year period between 2012 and 2015. The medical records of all patients who had feeding enterostomy during the study period were collected and reviewed. The patients' demographics, preoperative and postoperative assessments, weight changes and progress towards eventual esophageal replacement surgery were reviewed and analysed.

Results

Thirty-four patients had feeding enterostomy during the study period, but records were available for 29 patients. Their ages ranged between 1.5 – 90 years (mean 29.7 years), with male to female ratio of 3: 7. Duration of symptoms was between 3-106 weeks (mean 26.4 weeks). Etiology of dysphagia, is mentioned on Table I.

Table I: Etiology of Dysphagia

Diagnosis	n (%)
Esophageal cancer	13 (45%)
Caustic esophageal stricture	12 (42%)
Pharyngeal tumor	3 (10%)
Mediastinal mass	1 (3%)
Total	29

The average waiting time between admission and feeding enterostomy surgery was 3.8 days (0.5 - 12 days). The Stamm's technique for construction of the feeding enterostomy was used in all patients, with gastrostomies performed in 26 (90%) patients, and jejunostomies in 3 (10%) patients. Complications included feeding tube dislodgement, tube blockage and peristomal skin erosions. Weight loss was noted in patients who had their last weight check within 6 weeks post feeding enterostomy compared to those who were follow-up for longer than 6 weeks ($p = 0.057$). Among the patients who had positive weight gain, 83% had dysphagia due to benign causes and 25% due to malignant causes (p value = 0.191). Mean changes in measured parameters in feeding enterostomy are expressed on Table II.

Table II: Mean changes in measured parameters in feeding enterostomy

	Pre-feeding enterostomy	Post-feeding enterostomy
Weight - kg	24.1 (6.2-68)	25.7 (7-65)
Hematocrit	-%33.6 (26-42)	34 (27-42)
Serum urea- mmol / L8	(1.4 to 19.1)	6.3 (3.4 -1)

Definitive esophageal replacement surgery was achieved in 15 patients (52%), consisting of 11 corrosive esophageal strictures and 4 esophageal carcinomas. Esophageal replacement was done with colonic interposition in 12 (80%) patients and gastric interposition in 3 (20%) patients. Of the remaining 14 patients who did not have definitive esophageal replacement surgery, 4 (14%) had palliative radiotherapy and 10 (34%) were lost to follow up. The average duration between feeding enterostomy and definitive esophageal replacement surgery was 5.8 months (3-13 months). Complications of esophageal replacement surgery were 4 anastomotic leaks (3 cervical and 1 abdominal), 1 peritoneal adhesions. No standardized feeding and follow-up protocol was observed. Serum albumin was not measured for any patient.

Discussion

Dysphagia needing surgical consultation is frequently caused by both neoplastic and other non-neoplastic conditions like corrosive, foreign body or traumatic strictures. Corrosive esophageal strictures are common in the low socioeconomic class¹. In children it is usually accidental², but suicidal or psychotic in adults³. Patients typically present late.

The frequency of feeding enterostomy surgery depends on the indications for which it is undertaken in any centre. In hospitals where gastrostomies are done for cerebrovascular accidents, cerebral palsy, degenerative diseases and chromosomal diseases⁴; we will expect a higher number of such procedures. In our centre, essentially all enterostomies are done for structural obstructive esophageal diseases like tumors and corrosive strictures. Most patients with neurological conditions opt for nasogastric tube feeding, with its attendant risk of aspiration. Parenteral nutrition is costly, has significant risk of complications and is usually unsuitable in these patients who may need nutritional support for several months⁵.

Our patients had different levels of hemodynamic and metabolic derangements at presentation, which necessitated resuscitation to ensure safety for feeding enterostomy surgery. This period of resuscitation explains the wide range of the waiting time between presentation and eventual feeding enterostomy. Other factors that affected waiting time were delay in giving consent for surgery and operating space availability.

Feeding enterostomy is now preferably being performed laparoscopically⁶⁻⁷, and in some cases by image guidance⁸. The absence of such skills in our centre meant all our patients were operated on by the open approach. Laparoscopic enterostomy may need more time between presentation and surgery; Jenkinson reported¹⁰ weeks waiting time⁹ compared to a mean waiting time of 3.8 days in our study. We use the Stamm's technique as it allows the placement of large bore feeding tubes, through which high fibre feeds can be used. Financial limitations make patients to resort to blenderised feeds in preference to elemental feeds. A witzel technique in contrast would have required fine bore tubes which would have been easily

blocked by the high fibre feeds. Matino JJ et al demonstrated better outcomes with the Stamm's technique compared to the Witzel technique¹⁰. Percutaneous endoscopic enterostomy was contraindicated in our patients because of total pharyngeal or esophageal obstruction¹¹. A gastrostomy allows easier management and tolerance of varied types of feed with less complications¹², hence its preferred use in our centre.

Pre- and post- feeding enterostomy weight, hematocrit and biochemical parameters were recorded at different periods for each patient, not following any standard protocol. This reflects the difficulty encountered with the management of these patients in resource challenged centres and the absence of standard protocols. However there were slight improvements.

The weight loss found in those who only had their weights checked in the first six weeks post feeding enterostomy may be difficult to explain. These patients may have gotten inadequate caloric and protein input. Caloric and protein requirements should be achieved early post feeding enterostomy, usually by the third day¹³. Rapid and careful progression of caloric and protein requirements may mitigate this observation.

A standard protocol post feeding enterostomy should include anthropometric and biochemical measurements at regular intervals, standard feeding regimen and a dietician should be involved in the management of these patients¹⁴⁻¹⁵.

Fifty-two percent of our patients achieved definitive esophageal replacement surgery and a further 14% went for chemoradiotherapy; showing that 66% of our patients achieved successful nutritional rehabilitation. The remaining 34% that were lost to follow up, further reflecting the challenges posed by socioeconomic factors in the management of such patients in centres like ours.

Conclusion

Feeding enterostomy was successful in nutritional rehabilitation of dysphagia patients. A 6-week duration may be required to appreciate positive weight gain depending on protocol. There is a need for standard protocols for better management and follow-up of these patients especially in our locality.

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