

ASPECTS OF TREATMENT*

Palliative pulsion intubation in oesophageal carcinoma

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Summary

Peroral pulsion intubation for the palliation of dysphagia due to oesophageal carcinoma was performed on 652 patients. The mortality was 16%, failure rate 3%, and hospital stay 3 days. Advanced disease and the presence of oesophagorespiratory fistula is not a contraindication to intubation.

Introduction

Palliation of dysphagia is the major consideration in the management of oesophageal carcinoma. Oesophageal intubation by pulsion¹ or traction² will relieve dysphagia and offers the additional benefits of simple execution and rapid effectiveness. Traction techniques require laparotomy and gastrotomy, which increase morbidity and prolong hospital stay³. These disadvantages are not a feature of peroral insertion of oesophageal tubes.

During the past 3 years approximately 1500 patients with oesophageal carcinoma have been admitted to a specialised unit in our hospital established to deal with this major logistic and therapeutic problem. We report our experience of oesophageal intubation using a pulsion technique which can be performed on even the most debilitated patient.

Selection of patients for intubation

Intubation is performed for lesions affecting the oesophagus from the level of the thoracic inlet to the tracheal bifurcation (20–32 cm from the incisor teeth). Tumours of the upper thoracic oesophagus less than 5 cm in length without evidence of distal dissemination in patients still capable of swallowing solids or semisolids are referred for curative radiotherapy⁴. All oesophageal tumours below the tracheal bifurcation are considered for resection. Palliative intubation is indicated for:

- (1) A malignant stricture longer than 5 cm.
- (2) Tumours causing complete dysphagia; if the tumour is considered curable intubation is followed by radiotherapy.
- (3) Demonstrable tracheo- or broncho-oesophageal fistula.
- (4) Bronchoscopic evidence of tumour invasion of the respiratory tree without fistula formation.

Technique of intubation

The Procter–Livingstone tube† (Fig. 1) is used. This is an armoured soft latex rubber tube with an internal diameter of 12 mm and an

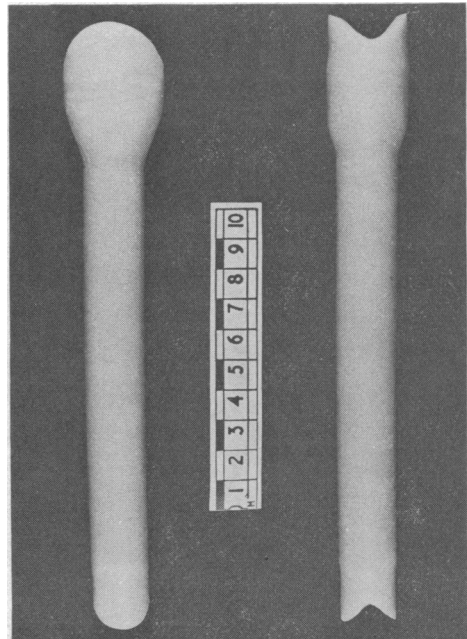


FIG. 1 Anteroposterior and lateral views of the 15-cm Procter–Livingstone tube showing the expanded proximal end and the proximal and distal flanges.

†Latex Products, P.O. Box 5626, Johannesburg, 2000.

*Fellows and Members interested in submitting papers for consideration with a view to publication in this series should first write to the Editor.

outer diameter of 18 mm. The proximal end is expanded to enable it to fit snugly above the tumour and to prevent food passing between the tube and the oesophageal wall. To facilitate insertion and also to prevent pressure necrosis of the oesophageal wall both the proximal and distal ends are shaped into two flanges and are not armoured. The tube is available in three lengths: 10 cm, 15 cm, and 19 cm.

The patient is given a light general anaesthetic and bronchoscopy is first performed. A large Negus oesophagoscope is passed as far as the malignant stricture, which is dilated to 38 French gauge using graded dilators. Thereafter a 20 French gauge bougie is passed through the dilated tumour and the oesophagoscope removed, leaving the bougie in situ. A well-lubricated Procter-Livingstone tube is passed over the bougie and inserted through the stricture, the oesophagoscope being used as a 'pusher', until the expanded proximal end of the tube rests on the upper shoulder of the tumour. The bougie and then the oesophagoscope are removed after verification that the tube is in its correct position. A postoperative oesophagogram will confirm the position and patency of the tube (Fig. 2).

In the presence of a tight malignant stricture when no lumen can be visualised the oesophagoscope and the bougie should be directed towards the normal anatomical position of the cardia. This facilitates passage of the

bougie through the stricture. Forceful dilatation of the malignant stricture does not in our opinion contribute to mortality or morbidity as the tube effectively tamponades any mural defect which may result. However, should the oesophagus be ruptured distal to the stricture, either by intubation or bouginage, potentially fatal mediastinitis ensues because the tamponading effect is no longer present and significant leakage occurs. We would stress that perforation of the oesophagus distal to the tumour or even of the stomach can be avoided if the bougie only traverses the length of the malignant stricture during dilatation.

Successful palliation of dysphagia was measured by a single criterion—namely, the ability of the patient to leave hospital swallowing satisfactorily albeit with some minor dietary modification.

Results

Intubation was attempted on 652 patients, 43% of all those admitted for carcinoma of the oesophagus. Intubation was not possible in 18 cases (2.6%) because the malignant stricture could not be adequately dilated.

One hundred and four patients died, a mortality of 16% which remained constant over the 3-year period under review. The mean age of the patients was 54.8 years (range 30–80) and the male:female ratio 4:1.

Intubation was associated with complications in 63 patients (9%). Proximal migration

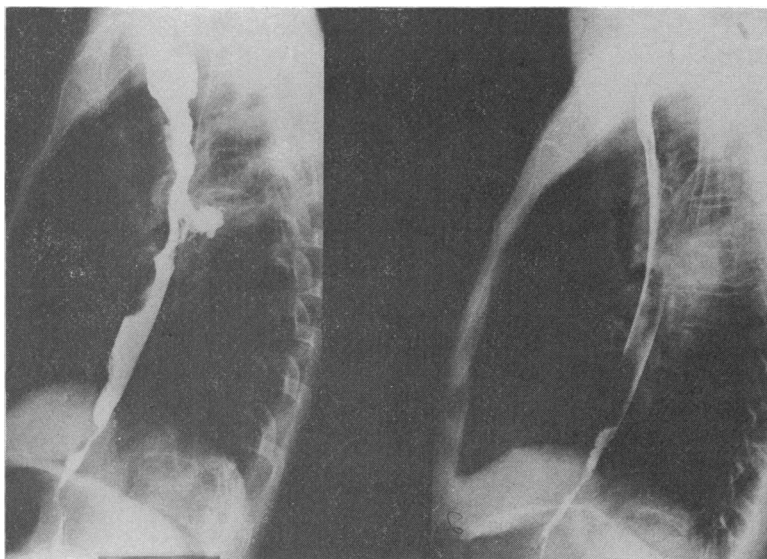


FIG. 2 *Lateral oesophagograms of an extensive carcinoma invading the mediastinum before and after intubation.*

of the tube occurred in 42 patients, but reinsertion was successful in all cases with no deaths. Distal migration of the tube occurred in 7 patients; successful resiting was possible in 5 cases, but 2 patients died following the repeat intubation. In 9 patients in whom a 10-cm tube was used it did not completely traverse the stricture; reintubation with a 15-cm tube resulted in 7 survivors and 2 deaths. Five patients developed intense dyspnoea following intubation because of tracheal compression due to tumour bulk and oesophageal displacement by the tube; the tubes were removed, but all 5 patients died.

Evidence of oesophagorespiratory fistulae was present in 132 patients—20% of those intubated and 9% of the total admissions for oesophageal carcinoma. The mortality in this extremely ill group of patients was 25%.

Discussion

Palliative intubation for oesophageal carcinoma has been practised for many years, based on the pulsion method of Souttar¹ or the traction method popularised by Mousseau *et al*⁵ and Celestin².

Peroral pulsion intubation is a quick and simple technique with few complications, enabling the patient to be discharged from hospital within 3 days of the procedure. Eight per cent of our patients admitted with carcinoma of the oesophagus died before any form of treatment could be instituted, a reflection of the advanced nature of the disease and associated gross debility. Taking this into consideration, a mortality of 16% is acceptable and compares favourably with those of other series^{6,7}. Poor nutritional status, evidence of respiratory tree involvement either by fistula or invasion, and

oesophageal axis disturbance, which indicates extraoesophageal tumour spread⁸, significantly increased mortality. Girardet *et al*⁹, reviewing intubation in carcinoma of the oesophagus, found an overall mortality of 13.9%, the mortality for traction techniques being 2–6 times as great as that for pulsion techniques.

In our series failure to intubate was rare (3%), and in patients in whom intubation was not technically successful on the first occasion reintubation usually produced a satisfactory result. Those factors which increase mortality and militate against successful intubation are due to advanced disease and should not exclude the patient from consideration for palliative treatment. Even in severely ill patients with oesophagorespiratory fistulae intubation has effectively relieved dysphagia and distressing respiratory symptoms. We regard pulsion intubation as the preferable technique for the palliation of malignant dysphagia.

References

- 1 Souttar, H W (1924) *British Medical Journal*, 1, 782.
- 2 Celestin, L R (1959) *Annals of the Royal College of Surgeons of England*, 25, 165.
- 3 Angorn, I B, Hegarty, M M, and Baker, L W (1977) *Journal of the Royal College of Surgeons of Edinburgh*, 22, 325.
- 4 Pearson, J G (1969) *American Journal of Roentgenology*, 105, 500.
- 5 Mousseau, M, Le Forestier, J, Barbin, J, and Hardy, M (1956) *Archives des maladies de l'appareil digestif et des maladies de la nutrition*, 42, 208.
- 6 Ammann, J F, and Collis, J L (1971) *Journal of Thoracic and Cardiovascular Surgery*, 61, 863.
- 7 Palmer, E D (1973) *American Journal of Gastroenterology*, 59, 487.
- 8 Akiyama, H, Takashi, K, and Yugi, I (1972) *Annals of Surgery*, 173, 30.
- 9 Girardet, R E, Ransdell, H T, and Wheat, M W (1974) *Annals of Thoracic Surgery*, 18, 417.