Endoscopic Palliation of Obstructive Oesophageal Malignancy

Essay
Submitted for Partial Fulfillment
of Master Degree in
General Surgery

By
Omar Abd El-Aziz Mohamed
M.B. B. CH.

Supervised By
Prof. **Ibrahim Abd El-Naby**
Professor of Surgery & Endoscopy
Faculty of Medicine
Ain Shams University

Assistant Supervisor
Dr. **Mahmoud Wael Salah El-Din**
Lecturer of General Surgery
Faculty of Medicine
Zagazig University

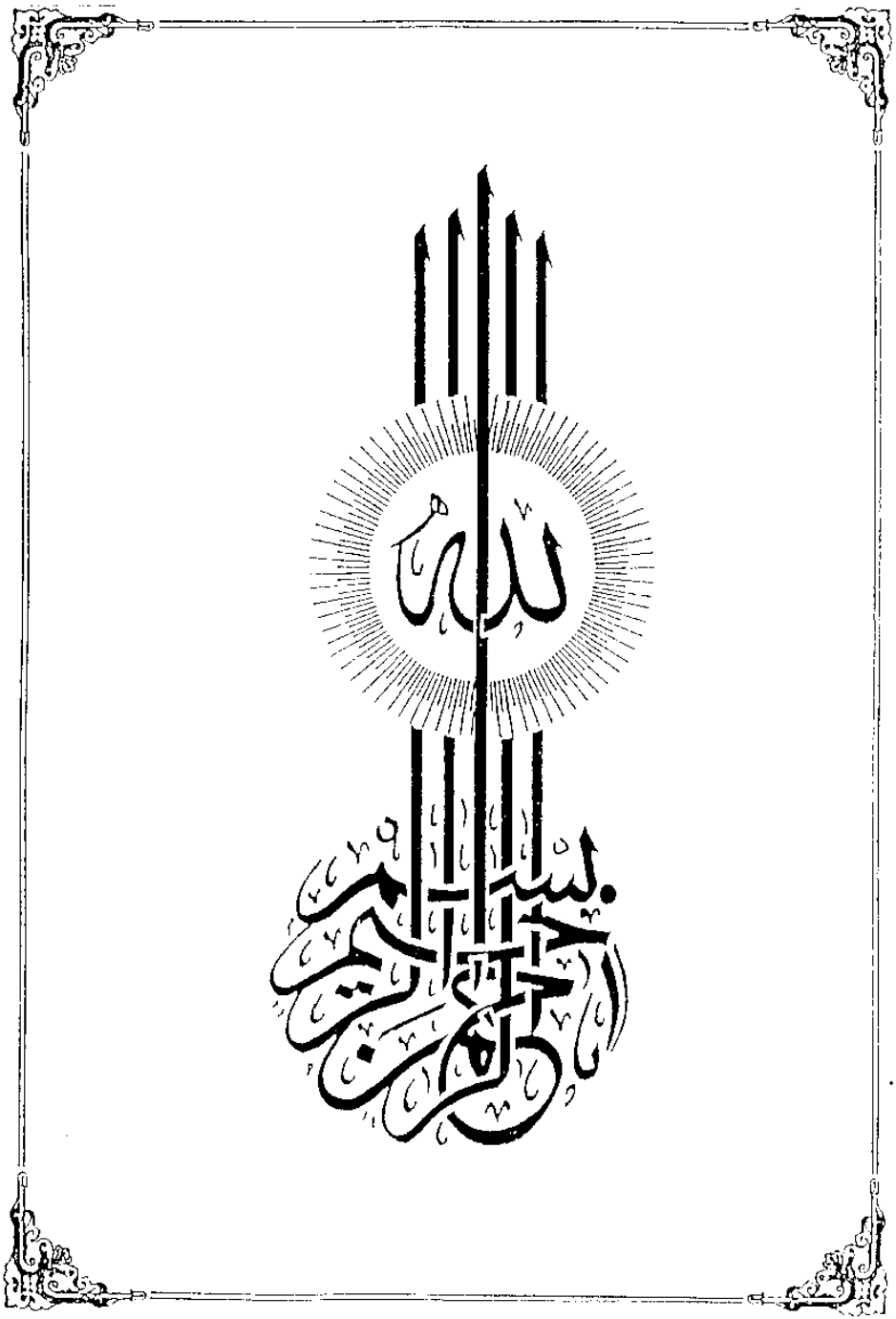
Faculty of Medicine
Ain Shams University
1995

Acknowledgment

First and formost thanks to "GOD" for his help to fulfil this work.

I would like to express my deepest gratitute to Prof. ***Ibrahim Abd El-Naby*** Professor of Surgery and Endoscopy, Faculty of Medicine, Ain Shams University, for his generous guidance, fatherly encouragment and suport throughout this work.

I am extremely grateful to Dr. ***Mahmoud Wael Salah El-Din*** Lecturer of General Surgery, Faculty of Medicine, Zagazig University, for his kind supervision, precious advice and sencere help, during the whole work.



Contents

INTRODUCTION

Introduction

The earliest symptom of carcinoma of the oesophagus is frequently progressive dysphagia. When the diagnosis is made, more than 60% of patients have tumours that are not amenable to surgical resection. Prognosis is poor, with 1 and 5 year survivals of 18% and 5%, respectively. Although curative resection is occasionally possible, palliation is the primary therapeutic goal for most patients.

Palliative surgery carries a very high morbidity and mortality rate. Numerous non surgical palliative treatment exist, including radiation therapy (external and intra-cavitary), chemotherapy, prosthetic oesophageal intubation, and endoscopic tumour ablation.

Oesophageal tumours can be ablated with electrocautery, Nd: YAG laser, injection of sclerosing agents, and photodynamic therapy. ***(William et al., 1994).***

Several endoscopic techniques have been utilized to provide primary or additional palliation. Oesophageal dilatation using mercury-filled rubber, plastic or metal bougies passed over a guide wire improves swallowing. Bouginage is limited by the short duration of palliation and frequently inadequate degree of improvement. Treatment of malignant dysphagia with intra-oesophageal prosthesis initially required laparotomy

or thoracotomy with significant morbidity. Subsequently, techniques have been developed allowing oral placement of prostheses by endoscopic techniques with much lower morbidity and satisfactory palliation. More recently, success has been achieved with the neodymium: YAG laser in endoscopic treatment of obstructive oesophageal cancer. ***(James et al., 1988).***

The infrared, heat-producing laser is endoscopically directed at the malignancy to coagulate and vaporize the obstructing tissue. Although treatment has not been demonstrated to prolong life, it substantially improves the ability to swallow and quality of life. ***(Mellow et al., 1985).***

A debilitating complication in 5% to 15% of patients with oesophageal malignancy is oesophago-respiratory fistula. Oral intake is limited in these patients by paroxymal coughing, often leading to profound malnutrition and death from recurrent pulmonary infections and sepsis. Surgery is frequently difficult and has a high mortality rate. Oesophageal intubation using plain or modified plastic endoprostheses has been the treatment of choice in managing oesophago-respiratory fistula ***(William et al., 1994).***

The main stays of endoscopic palliation of malignant oesophageal obstruction have been Nd: YAG laser ablation and the placement of plastic endoprostheses ***(William et al., 1994).***

The poor results obtained in the treatment of oesophageal cancer appear to be the result of the advanced stage of the tumour at the time of clinical presentation. Curative treatment is seldom achieved, and in resected patients the 5 years survival rate is very low. Palliation therapy of these patients is commonly necessary to relieve dysphagia, to allow feeding and swallowing of their own secretions, prevent aspiration or tracheo-oesophageal fistula, and to enable these patients to lead more comfortable lives ***(Aste et al., 1985).***

Aim of the Work

This work aims to study the different methods of endoscopic palliation of obstructive oesophageal malignancy in patients not amenable for surgery.

ENDOSCOPIC ANATOMY OF THE OESOPHAGUS

Endoscopic Anatomy of the Oesophagus

The oesophagus is adistensible hollow tube that extends from the cricopharyngeus at its proximal end to the lower oesophageal sphicter at its distal end. The length of the oesophagus is related directly to the hight of the individual and averages 25cm. in the adult ***(Ferguson et al., 1991).***

The circopharyngeal sphincter is the gateway into the oesophagus. It is located approximately 15cm. from the incisor teeth (or front upper gum margin) when measured with a rigid oesophago-scope or 20cm. from the incisor teeth when measured with a fibroptic instrument.

There is a difference in distance from the incisor-teeth because in its path from the lips to the cricopharyngeal sphincter, a rigid oesophago-scope follows a straight line, whereas a fibroptic instrument describes an arc that conforms to the curve of the hard palate and posterior portion of the pharynx. ***(Dagradi, 1983).***

The three physiologic constrictions - the upper and lower oesophageal sphincters and the constriction at the level of the aortic arch are important for the technique of oesophago-scopy and for localizing lesions. Spasm or increased tone of the upper oesophageal sphincter may cause resistance to the introduction of the endoscope. The partial compression by the aortic arch results in a predilection for corrosive

injuries and impaction of foreign bodies. The lower oesophageal sphincter is frequently abnormal due to functional or structural changes. ***(Demling, 1982).***

The oesophagus is a tubular structure that overlies the vertebral column, occupies the superior and posterior portions of the mediatstinum behind the trachea and the heart and follow a relatively straight course. The lower portion of the oesophagus deviates to the left and anteriorly, crossing infront of the abdominal aorta, and joins the stomach at the oesophageal hiatus of the diaphragm, approximately 40cm. from the incisor teeth ***(Dagradi, 1983).***

The oesophageal wall consists of mucosa, submucosa, muscularis mucosa and adventitia:

The mucosa:

Is a thick, stratified, squamous epithelium that appears endoscopically, yellow-pink, smooth and glistening. Tiny, superficially located, bright red venules form a delicate reticular pattern beneath the mucous membrane in the tunica propria. The venules become more prominent in the distal 3 to 5cm of the oesophagus, where they assume a penicilli form appearance. These vessels arranged in close parallel fashion and caursing longitudinally, inter communicate by means of branches that cross-anastomose ***(Dagradi, 1983).***

The oesophageal mucosa terminates within the oesophageal hiatus of the diaphragm, where it joins the gastric mucosa. The point of junction is sharply delineated by an abrupt difference in colour: The oesophageal mucosa is yellow-pink, where as the gastric mucosa is orange-red. Although the margination is sharp, the border describes an irrigular circumferential outline; the irrigularity is caused by slight interdigitation of the two mucosae called the oraserrata. ***(Dagradi, 1983).***

The oesophageal lumen is usually free of debris, and normally has longitudinal mucosal folds which are pliable and flattened with distension. These folds can be easily distinguished from oesophageal varices which appear beaded and may have a bluish colour. Four or five longitudinal folds usually form a symmetrical, rosette-like structure at the oesophagogastric junction. This junction is normally closed but can be easily opened with gentle air insufflation ***(Silverstein et al., 1987).***

The submucosa:

Consists of areolar tissue that connects the mucosa loosely to the muscular coat. This characteristic makes possible the infolding of the mucosa that occurs in the resting, or contracted state of the oesophagus. This layer contains many racemose glands that secrete mucus, which coats the mucosa. There also are veins, arteries, lymphatic vessels and nerves in the submucosa ***(Dagradi, 1983).***

The submucosal vasculature of the oesophagus can be seen at endoscopy as fine, small, delicate blood vessels. These vessels only visible on the oesophageal side of the ora serrata. ***(Silverstein et al., 1987).***

The muscularis mucosa:

It consists of inner circular and outer longitudinal layers. Unlike other segments of the gastrointestinal tract, the outer layer muscularis is as thick as, or even thicker and more massive than, the circular layer in the oesophagus. The thickness of the outer layer in this segment explains the oesophageal shortening that occurs in patients with oesophageal hiatus sliding hernia ***(Dagradi, 1983).***

In the proximal one-third of the oesophagus, the muscular coat is composed of striated muscle, where as in the distal two-thirds, it is made up of smooth muscle fibers. Prominent peristaltic contraction waves are best observed at this level (the tip of the endoscope positioned 20-25cm from the incisor teeth). These waves develop spontaneously or may be elicited during endscopy if the patient is asked to perform a dry swallowing motion ***(Dagradi, 1983).***

Narrowing of the oesophageal lumen:

A variety of normal and abnormal conditions will cause narrowing of the lumen. These include intrinsic structures such as rings, webs, tumours,

or strictures, and extrinsic structures. Such as normal and abnormal blood vessels adjacent to the oesophagus and mediastinal tumours ***(Silverstein et al., 1987).***

The importance of extrinsic compression on the oesophagus is best understood when one remembers that the oesophagus is positioned in a central location within the thorax: immediately posterior to the heart; between the lungs; and adjacent to the vertebral columen, the inferior vena cava, and the aorta. Normal and abnormal structures may impinge on the oesophagus and can be seen during oesophagoscopy. The normal structures include the aorta, approximately 25 to 30cm from the teeth, and the left mainstem bronchus, slightly below the aorta. Both of these structures cause a smooth indentation of the oesophageal wall. The abnormal structures include osteophytes from the cervical spine, an enlarged thyroid gland, an enlarged aorta, an enlarged left atrium, bronchogenic tumours, lymph nodes, and abnormal vascular structures. In addition, an anomalous take off of the right subclavian artery from the descending aorta may cross behind the oesophagus and compressit anteriorly against the trachea, causing difficulty in swallowing. This condation is referred to as dysphagia lusoria. In each case, the oesophageal mucosa is indented but other wise appears normal ***(Silverstein et al., 1987).***

PATHOLOGY OF OESOPHAGEAL MALIGNANCY