SURGICAL TREATMENT OF RESECTABLE CANCER OESOPHAGUS

ESSAY
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A C K N O W L E D G E M E N T

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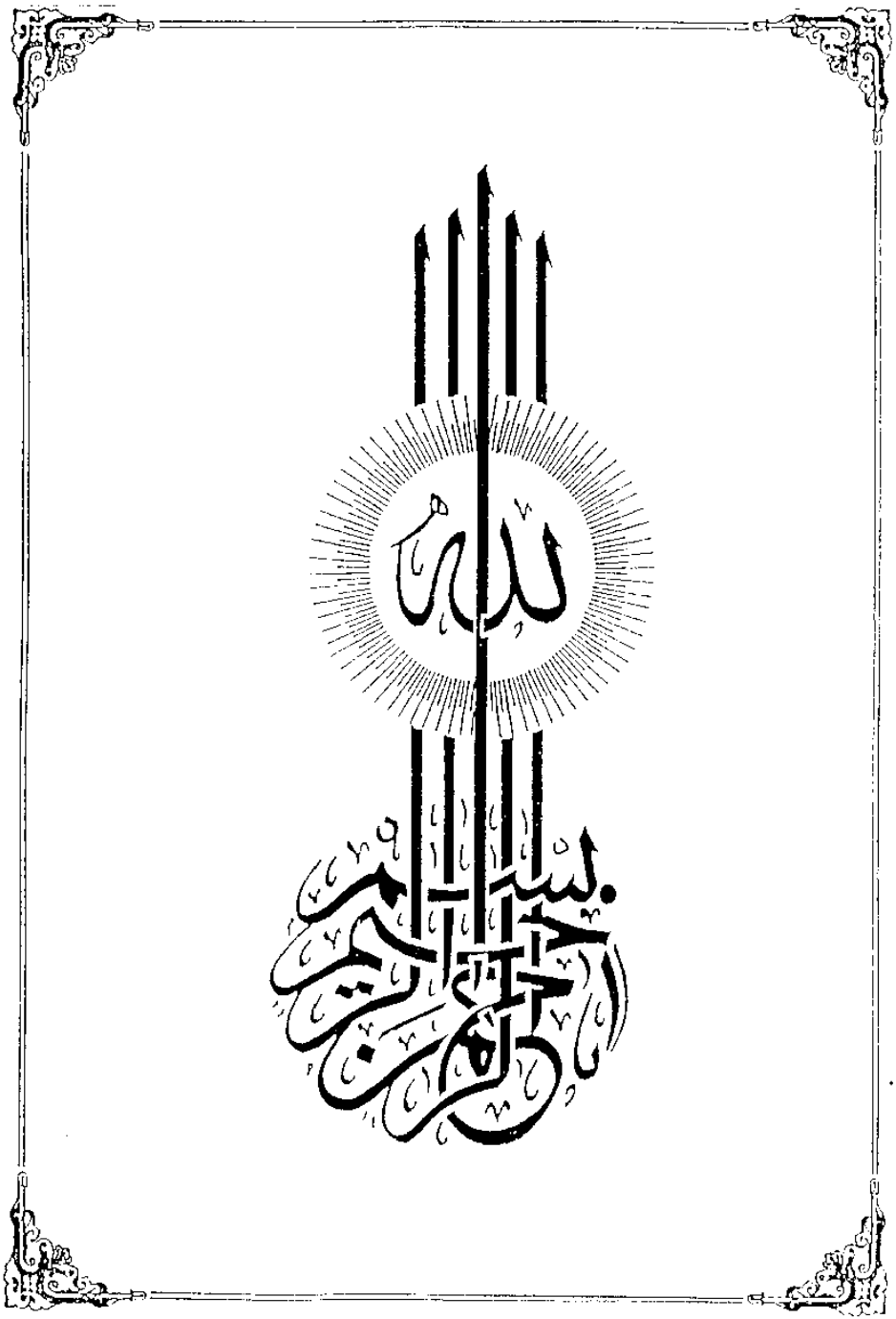

C O N T E N T S

— INTRODUCTION

INTRODUCTION

Carcinoma of the oesophagus is not a common visceral malignancy but is one of the most challenging from the stand point of therapy. Most of surgeons face many diffeculties in dealing with carcinoma of the oesophagus. Among these are(1)the frequent failure to make the clinical diagnosis when the disease is still anatomically localized to the oesophagus,(2)the difficulty in clinically staging the extent of the disease,(3)establishing criteria for either curative or palliative surgical therapy,(4)the high morbidity and mortality of surgical resection,(5) confermation of the value of nutritional support, radiation therapy, and chemotherapy,(6)the objective measurment of dysphagia and(7)the indication of non surgical methods of palliation. The recent advances in the methods of investigations and management of cancer oesophagus improve the prognosis of the disease. In this essay we try to expose some of these diffeculties with some ways to solve them and we discuss different lines of surgical treatment.

--- ANATOMY OF THE OESOPHAGUS

ANATOMY OF THE OESOPHAGUS

The adult oesophagus is a muscular tube 23-25cm in length. It begins at the lower margin of the pharynx with the cricopharyngeus muscle at the level of the 6th cervical vertebra, and ends in the cardia at the level of the 11th thoracic vertebra. the lumen of the oesophagus is marked by three radiologic and endoscopic constrictions. The first constriction is due to cricopharyngeus muscle (15cm from the incisor teeth). The second is due to the left lateral indentaion of theaortic arch and an anterior indentation from the left main stem bronchus (about 25cm from the incisor teeth). The thierd constriction occurs when the oesophagus pierces the diphragm (40cm from the incisor teeth).

In the neck the oesophagus lies between the trachea and the antiror longitudinal ligament of the vertebrae. On the right, it is in contact with cervical pleura at the root of the neck, and the thyroid gland at a higher level. On the left, the subclavian artery and the thoracic duct separate it from the pleura,but superiorly its relation are the same as on the right side.As it descends it inclines to the left ;thus it is more closely related to thyroid gland on that side and is more readily accessible to the surgen (Cunningham,1973).

The oesophagus enters the thorax between the trachea and the vertebral column, slightly to the left of the median plain. As it leaves the superior mediastinum it lies to the left main bronchus and left pulmonary artery. Inferior to this it is immediately posterior first to the pericardium, which seperates it from the left atrium, and then the posterior part of the diaphragm. At the seventh thoracic vertebral body it inclines still further to the left. Here it is seperated from the vertebral columen by the descending thoracic aorta which pass to the median plain before entering the abdomen at the level of the twelvth thoracic vertebra, postiror to the diaphragm. The structures which are posterior to the oesophagus are those lying directly on the vertebral columen, i.e., the longus colli, the azygos vein, the thoracic duct, the upper six or seven right posterior intercostal arteries, and the descending thoracic aorta. The right side of the oesophagus is close to the right pleura, except when the arch of the vena azygos intervenes, and where the inferior part of the oesophagus deviates to the left and indents the left pleura and lung. The left sied of the oesophagus is close to the left pleura above the arch of the aorta, but the thoracic duct and the upper part of the left subclavian artery interven. The arch and the descending part of the aorta lie on the left of the oesophagus to the level of the seventh thoracic vertebra. The left recurrent laryngeal nerve is anterior to the oesophagus in the superior mediastinum, while the oesophageal plexus surrounds it in the posterior mediastinum. (Cunningham, 1973).

The blood supply of the oesophagus in the proxemal portion is from the inferior thyroid artery; in its middle portion, from direct branches of the aorta and branches from intercostal and bronchial vessels; and in its distal portion, from the left gastric and inferior phrenic arteries(Fig.1). Similarly, the venous return is through thyroid vein, the azygous and hemiazygous venous system and the short gastric and coronary veins (Fig.2) (De Master and Lafontaine, 1985).

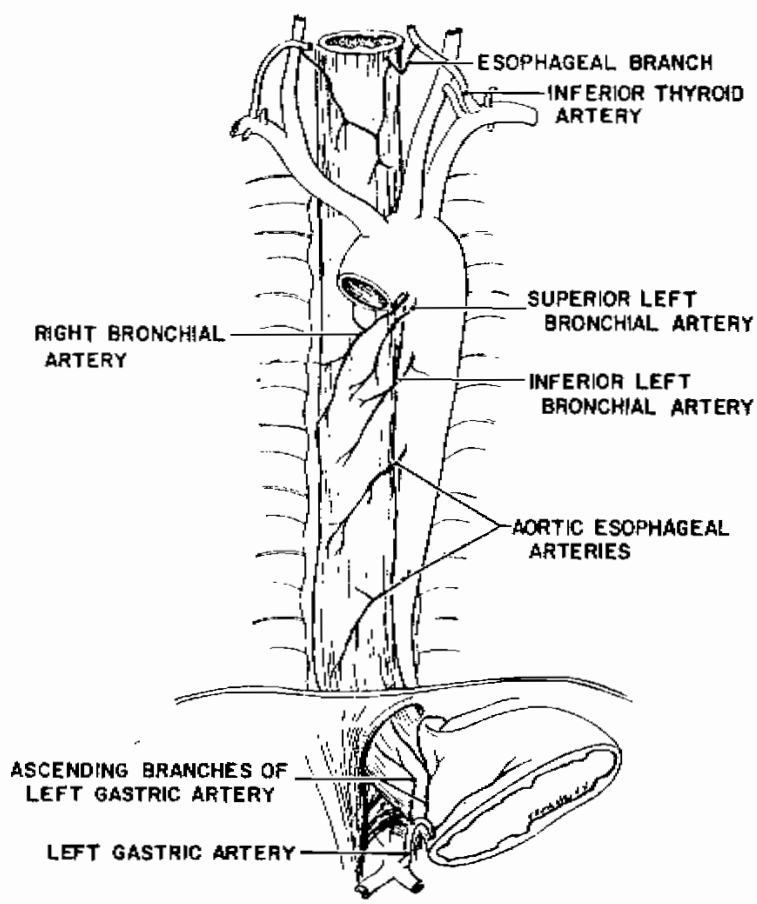

Fig.1-Arterial blood supply of the oesophagus.

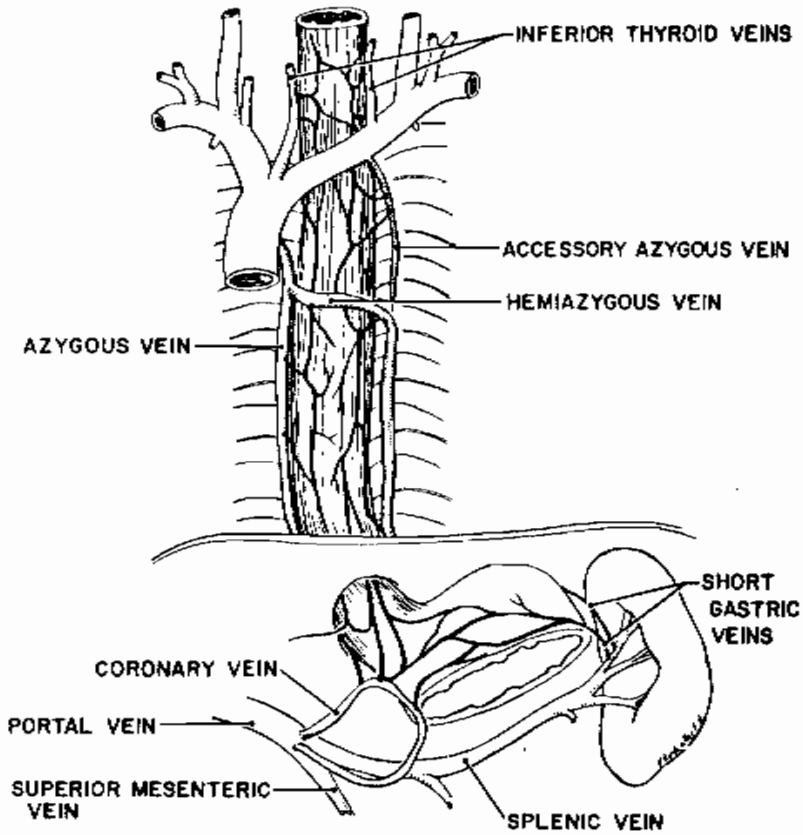

Fig. 2. Venous drinage of the oesophagus.

The submucosa of the oesophagus contains more lymphatic vessels than capillaries, and they are closely packed and interconnected that they constitute almost a single plexus. Lymph flow in the submucosal plexus runs mainly in a longitudinal direction. In the upper two third of the oesophagus, the lymphatic flow tends to move in cephalad direction, and in the lower third, in a caudad direction. In the thoracic portion of the oesophagus the submucosal lymphatic extends over a great distans in a longitudinal direction before penetrating

the muscular layer to enter lymph vessel in the adventitia. As a consequence,a primary tumor in this portion of the oesophagus can extend within the submucosal plxus for aconsiderable length superiorly or inferiorly, and free tumor ceel can follow the plexus for a considerable distance befor they pass through the muscularis and into the regional lymph nodes.In contrast,the cervical oesophagus has a more direct and segmental lymph drainge to the regional nodes. As a result,lesions in this portion of the oesophagus have less submucosal extension,a more regionalised lymphatic spread,and rarely metastasize to intra thoracic mediastinal lymph nodes. (DeMeester and Lafotaine,1985).

The effererent lymphatics from the cervical oesophagus drain into the supraclavicular,superior paraoesophageal,and internal jugular lymph nodes.Those from the upper thoracic portion empty mainly to the paratracheal and supraclavicular lymph nodes;those from the lower thoracic oesophagus drain into the subcarinal, inferior paraoesophageal and cardia nodes. The celiac and left gastric nodes receive lymph from both the abdominal and lower thoracic segments of the oesophagus (Fig.3).(DeMeester and Lafontaine).

The sympathetic innervation of the oesophagus is derived from cervical and thoracic sympathetic chains and the celiac plexus in the abdomen.The parasympathetic supply is through vagus nerves,via direct branches to the lower two third of the oesophagus and through the

recurrent laryngeal branches to the proxemal third. (DeMeester and Lafontaine,1985).

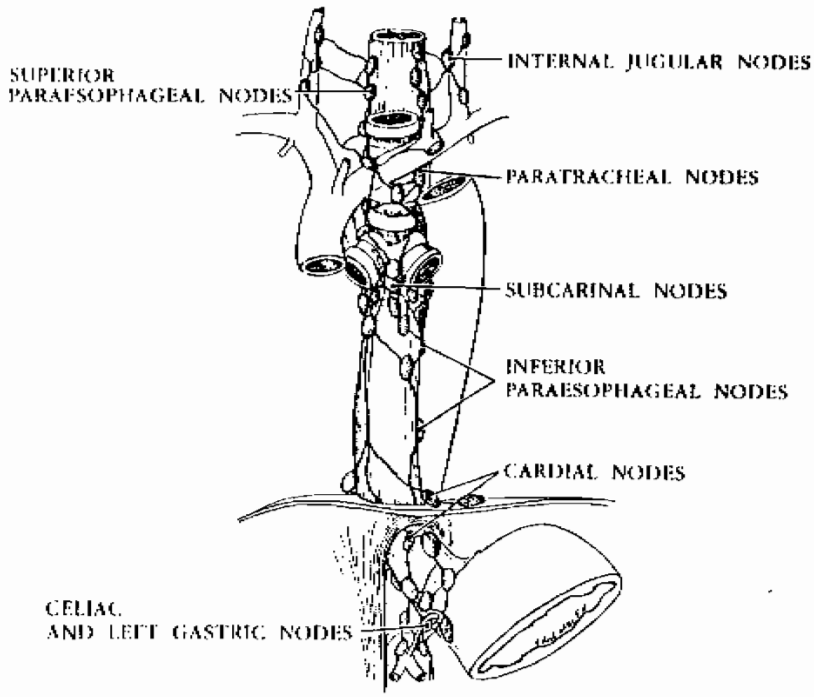

Fig. 3.Lymphatic drainge of the oesophagus.

Structure of the oesophagus:-

The lining of the oesophagus is the mucous type of stratified squamous epithelium. It lies on a thick layer of areolar tissue in which the longitudinal bundles of muscularis mucosae,and it is thrown into folds by contraction of the outer muscular layers. The muscle layers (outer longitudinal&inner circular) are mainly longitudinal in the superior part where they are composed entirly of striated muscle fibres, but contain progressively more circular fibres inthe middle third, where striated and smooth muscle fibres are mixed, and in the lower

third the fibres are exclusively of smooth muscle and predominantly circular in direction. There is no special development of circular muscle fibres to form a sphencter inthe wall of the oesophagus either at the diaphragmatic aperture or at the entery into the stomach.

The mucous membrane contains very few glands, though a few deep mucous glands lie in the submucosa close to the diaphragm, and there may be ilands of gastric type mucous membrane in the inferior part of the oesophagus.

The oesophagus is surrounded by loos areolar tissue which allows it to expand freely during the swallowing of a bolus.(Cunningham,1973).

— PHYSIOLOGY OF THE OESOPHAGUS