REFLUX ESOPHAGITIS

ESSAY

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بسم الله الرحمن الرحيم

«قالوا سبحانك لاعلم لنا

إلا ماعلمتنا إنك أنت العليم الحكيم»

صدق الله العظيم

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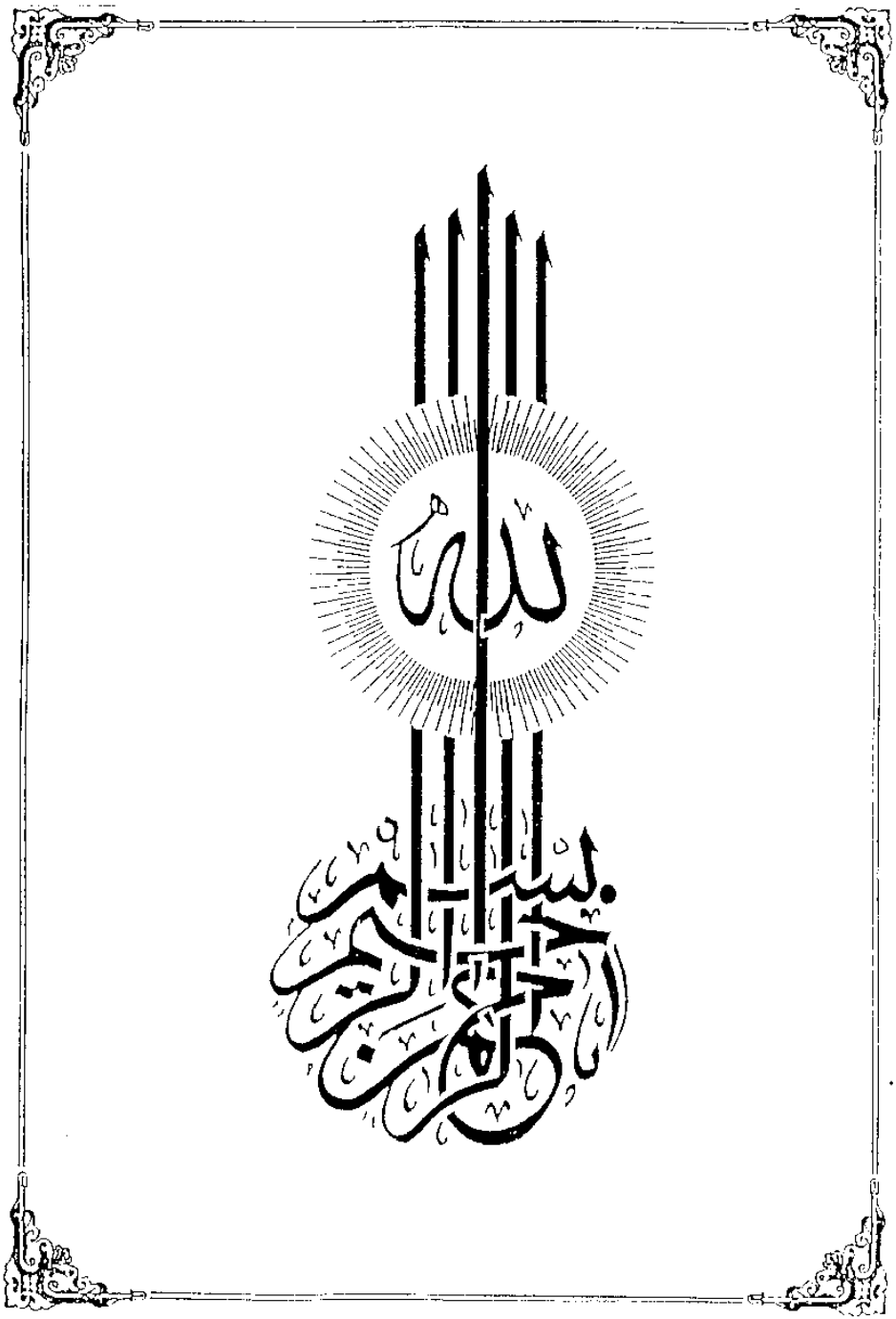

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INTRODUCTION

Gastro-esophageal reflux (G.E.R.) refers to the retrograde entrance of gastric and duodenal contents into the distal esophagus. Esophageal PH measurment revealed that G.E.R. occurring during daytime is physiological leading to occasional heart burn.

The cause of this physiologic (G.E.R.) is transient relaxation of the cardia necessary for a normal person in order to :

(1) Be able to belch.

(2) Relieve his gastric distension from swallowed air .

(3) To be able to vomit

(Mughal and Bancewicz,1991)

G.E.R. is considered to be physiological in infants till age of 6 weeks ,when the lower esophageal sphincter and other anti-reflux barriers mature **(Boix - Ochoa,1986).**

HISTORY

G.E.R. syndrome was first described by Winkelstein in 1935. In 1950 Barrett described reflux esophagitis and what was called Barrett's oesophagus as complication of G.E.R.disease.In 1953 Allison described G.E.R as a separate entity, outlining its pathogenesis and complication. Also to him the credit should go

for suggesting an anatomical repair as a solution for this problem.

The 1960's were characterised by appearance of various surgical procedures by :-

Nissen (1961) who suggested a 360^{O} i.e. complete fundoplication approach .In 1967, Hill invented the posterior gastropexy approach and Belsey in 1969 suggested 270^{O} i.e. partial fundoplication.

However the past two decades have witnessed the greatest evolution of the subject through the various modern investigations that ushered in a new era of G.E.R. diagnosis and managment .

Esophageal manometry, first invented by Ingelfinger and Code in 1953, is now used preoperatively and also devised for intraoperative use in order to asses the degree of competency of the wrap **(Jolley et al.,1989).**

Esophageal PH metry have been computerized by Demeester et al.,since 1976 to measure esophageal PH over the 24 hours. Esophagoscopy and biopsy, esophageal clearance and acidity test, as well as esophageal scintigraphy all are subjects of recent research and publications in order to raise the diagnostic accuracy of G.E.R. to 100%.

G.E.R.is a common problem to the extent that a recent study showed that 60% of population suffer or have suffered from dyspepsia of whom 70% have G.E.R.

(Mughal and Bancewicz,1991)

For Otorhinolaryngologist and head and neck surgeon ,the areas affected include, the larynx (especially posteriorly), deglutition and certain pulmonary conditions. Variety of laryngeal symptoms are mystifying. It includes bothersome cough , choking spells, throat cleaning, vague hoarseness and so on. Various researchers have recently suggested that these symptoms are often due to reflux of stomach contents.

(Bain, Harrington and Thomas,1983)

This essay highlights what is known about effects of reflux on esophagus, larynx and lungs .

Aim of the work :-

The aim of the work is to review the literature concerned with the subject of gastroesophageal reflux.

Our Discussion will include the following items:

The pathophysiolgy of G.E.R.,symptoms and signs of G.E.R., modern methods of diagnosis of G.E.R., relation of G.E.R.to other otorhinolaryngologic and head and neck problems, complications of G.E.R.and lastly the recent advances in managment of G.E.R .

ANATOMY

Functional anatomy of upper esophageal sphincter:

It is also called pharyngoesophageal segment and (cricopharyngeal sphincter).

It is a musculoskeletal valve composed of the lower fibers of inferior constrictor and upper fibers of esophageal constrictor and the cricoid cartilage to which these muscles attach .

At rest cricoid lamina touches the posterior pharyngeal wall at level of cricopharyngeal region. This positioning of cricoid against posterior pharyngeal wall maintains closure of upper esophageal sphincter. As the larynx elevates and moves anteriorly during the swallowing, extrinsic stretch is placed upon cricopharyngeus muscle and its adjacent fibers.

The anterior and posterior movement not only stretches the muscular components of valve thus contributing to its opening, but also separates the cricoid lamina from posterior pharyngeal wall, thus accounting for large proprotion of the cross sectional opening of cricopharyngeal region.

Relaxation of cricopharyngeus muscle occurs before cricopharyngeal opening and is not responsible for the major proportion of the opening of the sphincter. Relaxation of cricopharyngeus increases the compliance of muscular portion of the sphincter, thereby facilitating the stretch of the muscle .

(Kahrilas, Dodds and Dent,1987)

The wall of pharynx is thin. It contains 3 curved sheets of muscles : the superior, middle and inferior constrictors. They overlap posteriorly being telescoped into each other like three stacked cups.

The inferior constrictor muscle arises from oblique line on lamina of thyroid cartilage and from side of arch of cricoid cartilage.

The thyropharyngeus part of the inferior constrictor muscle arises from oblique line of the thyroid cartilage and incontinuity below this from fibrous arch that spans the cricothyroid muscle.

The cricopharyngeus muscle, rounded and thicker than the flat sheets of the other constrictors, extends uninterruptedly from one side of cricoid arch to the other around the pharynx. There is no raphe here. The muscle acts as a sphincter at the lower extent of pharynx and is continuous with the circular muscle coat of the esophagus. It is always closed except for momentary relaxation during deglutition. Closure of cricopharyngeus prevents air being sucked into the upper esophagus when intrathoracic pressure falls; air is sucked only into the permanently open trachea **(Last,1984).**

Dehiscence of killian :

The superior and middle constrictors interdigitate in the mid line raphe down to the level of the vocal folds. Overlapped by thyropharyngeus, the three lie together from the pharyngeal

ligament down to this level. Below this the posterior wall is formed only by the single sheet of thyropharyngeus, this is the Dehiscence of Killian **(last ,1984).**

The Esophagus :

The esophagus extends from the cricoid cartilage to the cardiac orifice of the stomach at level of tenth thoracic vertebra. It is 10 inches (25cm) long **(Last,1984).**

High within the thorax , it lies in the mid line behind the trachea deviating slightly to the left after the tracheal bifurcation.

As it enters the abdominal cavity through the esophageal hiatus, it makes an abrupt turn to the left and enters the stomach The esophageal hiatus is slightly left to the mid line in the muscular portion of the diaphragm **(April,1984).**

The lumen of esophagus is small and irregular except during deglutition. It averages 1 cm in diameter orally and 2-3 cm aborally. The shape of lumen is irregular due to tension within the inner (circular) layer of the muscularis externa causing formation of longitudinal folds .The esophagus is the most muscular segment of the alimentary tract. Its upper quarter is composed mainly of irregularly arranged striated muscles but soon separate into inner circular and outer longitudinal layers.

(April,1984)

The vascular and nerve supply of esophagus is distributed as follow:-

The upper esophagus from the cricoid cartilage down to the level of the aortic arch is supplied by inferior thyroid arteries. The middle portion is supplied by esophageal branches of aorta and the lower portion by the esophageal branches of the left gastric artery **(Last,1984).**

Lymphatic drainage of the esophagus is mainly to the posteroinferior group of deep cervical lymph nodes near origin of inferior thyroid artery, and to tracheo-bronchial lymph nodes and mediastinal lymph trunks and to pre-aortic nodes of the coeliac group **(Last,1984).**

The left and right vagus nerves form the esophageal plexus which reunites into the vagal trunks .

Due to rotation of the stomach,the left and right vagus nerves change their relative positions to become anterior and posterior vagal trunks respectively (**April,1984).**

Functional anatomy of gastro- esophageal junction:

Gastro- esophageal reflux is normally prevented by antireflux barriers.

A series of combative forces converge at the gastroesophageal junction to generate this pressure barrier.

Anatomical antireflux barriers :

1- The presence of intra-abdominal segment of the esophagus :

This segment lies at the level of 11 th. -12 th. thoracic vertebra, but may be little higher in short subjects and lower in tall asthenic ones. The abdominal esophagus varies in length from 1.5-3 cm according to stomach contents and esophageal muscle tone (**Hollander and Meyer,1985).**

This segment is the most important because it functions as "flutter valve" once lower esophagus is swept by the final peristaltic wave at the end of a normal swallow. Any rise of intra-abdominal pressure will be transmitted to serosal aspects of abdominal segment of esophagus collapsing it, and thus G.E.R. is hindered at times when gastric pressure rises.

(wernley et al.,1980)

Thoracic suction leads also to collapse of the lower esophagus due to negative intra thoracic pressure, therefore strengthening the valve closure **(Bardaji and Boix Ochoa,1986).**

The presence of sufficient length of subdiaphragmatic esophagus is undoubtly crucial in G.E.R. prevention.

Any surgical technique ignoring the shortened abdominal length of esophagus will fail to control reflux.

(Boix- Ochoa,1986)

Demeester et al.,1979 showed that the optimal length of this segment is 2 - 2.5 cm in order to be constantly collapsed and