

Surgical Treatment of Gastro-oesophageal Reflux and Hiatus Hernia

ESSAY

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GENERAL SURGERY

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Summary and conclusions

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Chapter I

Historical Aspects

The modern surgical treatment of oesophageal disease is the result of refinements of both anaesthetic and operative techniques as well as methods of assessing normal and abnormal anatomy and physiology.

The earliest oesophageal operations were limited to cervical procedures, primary for removal of foreign bodies.

Early "hiatal hernia" surgery also emphasized anatomy rather than physiology.

Harrington "1928" reported 51 cases of diaphragmatic herniation, 27 of which had been repaired. Included among these cases were traumatic hernias as well as hernias through the oesophageal hiatus.

Emphasis was placed upon correction of the anatomic defect and closure the diaphragmatic hiatus, and this approach influenced the surgical theory of hiatal hernias for more than two decades.

Although Allison "1951" first carried the term reflux oesophagitis and clearly established gastro-oesophageal reflux as a cause for many of the symptoms experienced by patients with hiatal hernias, he, too, emphasized anatomic correction of the hernia, rather than correction of the abnormal distal oesophageal sphincter mechanism in these patients. Thus, several "hiatus hernia" operations

were described over the next few years, culminating in the reports by Nissen in Switzerland in 1967 and Skinner and Belsey in England in 1967 of the use of funduplications to create an intra-abdominal oesophageal valve mechanism to control gastro-oesophageal reflux, these later operations introduced the era of true "anti-reflux" operations designed to restore a functional lower oesophageal sphincter mechanism.

In the past 40 to 50 years, a number of diagnostic studies have been refined to provide greater objectivity in the assessment of oesophageal function.

With the development of manometric techniques and the ability to document gastro-oesophageal reflux with the intra-oesophageal pH electrode, surgical therapy for oesophageal motor disorders has become more of a science based on objective data.

Cannon "1907" first reported use of intraoesophageal balloons to record oesophageal peristalsis.

Code and associates "1958", Vantrappen and associates "1958", Texter and Colleagues "1957", and Ingelfinger "1959", refined oesophageal manometric techniques and made substantial contributions to the understanding of normal and deranged oesophageal physiology.

Tuttle and Grossman "1958" developed the intraesophageal pH electrode for the direct intraluminal assessment of gastroesophageal reflux.

Tuttle and associates "1960" diagnosed "reflux" by slow withdrawal from the stomach of a pH electrode in 2 cm and noting whether or not intraesophageal pH was 4 or less at least 4 cm above the pressure inversion point. Modification of intraesophageal pH reflux testing followed.

Piccone and associates "1965" installed acid into the stomach, fixed the pH probe 5 to 10 cm above the oesophageal hiatus, and tried to evoke reflux by having their subjects perform valsalva manoeuvres, touch their toes and so forth.

Kantrowitz and associates "1969" performed provocative pH testing with pH probe fixed 5 cm above the lower oesophageal sphincter.

Skinner and Booth "1970" further modified this test to what is now termed the standard acid reflux test [SART] which places 300 ml of 0.1 N HCl into the stomach, fixes the pH electrode 5 cm above the lower oesophageal sphincter and documents the degree of pH drops below 4 with the patient supine, on the right side, on the left side, and in the trendelenberg position while standardized reflux maneuvers are performed.

An effort to circumvent the relatively "artificial" nature of the standard acid reflux test was the basis for prolonged lower oesophageal PH monitoring introduced by Spencer "1969" and Pottrick "1970".

Johnson and Deyeester "1974" first used "normal" controls in their evaluation of patients with abnormal gastroesophageal reflux with 24 hour distal oesophageal PH monitoring.

They subsequently classified their patients into upright, supine and combined [upright and supine] refluxers. Since then, 24 hour monitoring of distal oesophageal PH has become the standard for objectively diagnosing gastroesophageal reflux. The acid perfusion test developed by Bernstein and Buker "1958" was proposed as a simple test for differentiating patients with chest pain of cardiac origin from those with oesophagitis.

Long experience with this test has indicated that a "positive Bernstein test" indicates only that the patient has an acid-sensitive oesophagus, and not that there is oesophagitis or gastroesophageal reflux present.

Similarly, measurement of the potential difference of oesophageal mucosa was initially thought to be of value in the assessment of patients with reflux disease, this study however is

technically difficult to perform and evaluate and has thus gained widespread use.

Radionuclide scanning using ^{44}Tc -sulphur colloid to detect gastroesophageal reflux was first by Fisher and associates "1976" and although the test is clearly more sensitive than either standard radiology or short-term pH monitoring in diagnosing reflux, it is unlikely to replace 24 hour distal pH monitoring as the most valuable diagnostic method.

Esophageal manometry and intraesophageal pH reflux test have become basic in the post operative assessment of most patients with benign oesophageal disease and are now used extensively to assess objectively the operative results of procedure designed to treat abnormal gastroesophageal reflux and oesophageal motor function "Orriger 1992".