

**A synopsis of  
GASTROENTEROLOGY**

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一九八一年十二月十二日



# A synopsis of GASTROENTEROLOGY

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**BRISTOL  
JOHN WRIGHT & SONS LTD**

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*CIP Data*

Salter, Robin Hugh

A synopsis of gastroenterology. — (Synopsis series).

1. Digestive organs — Diseases

I. Title      II. Series

616.3              RC801

ISBN 0 7236 0536 X

Printed in Great Britain by Billing & Sons Ltd,  
Guildford, London and Worcester.

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## PREFACE

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In the preface to the first edition of *A Synopsis of Medicine*, published in 1920, Sir Henry Tidy wrote: 'It is hoped that this book may be of assistance to those who have to revise rapidly their knowledge of medicine in general or of some disease in particular; to the worried student whose final examinations are within sight and to the hurried practitioner from whose ken they have long passed'.

The 'Synopsis Series' evolved from *A Synopsis of Medicine*, the aim of this short text being faithful to Tidy's original intention, that is to provide a concise and reasonably comprehensive account of gastroenterology which will be helpful particularly to students (undergraduate and postgraduate) and busy practitioners. The emphasis is predominantly clinical and where appropriate each chapter concludes with a few suggestions for further reading.

Diseases of the liver and biliary system have been specifically excluded from this volume. The speciality of hepatology has expanded so enormously over the past few years that it was felt impossible to do the subject justice in the space available.

1979

R.H.S.



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## ESOPHAGUS – FUNCTION; DIAGNOSTIC TECHNIQUES

Oesophagus is essentially a muscular tube lined by squamous epithelium extending from pharynx to stomach. Cricopharyngeus acts as upper oesophageal sphincter but lower oesophageal sphincter is not anatomically identifiable. Motor nerve is considered to be the vagus.

### FUNCTION

Function of oesophagus is to convey food and drink from pharynx to stomach. Oesophageal stage follows pharyngeal stage of swallowing, both being involuntary. Peristaltic waves pass down oesophagus and relaxation of lower oesophageal sphincter allows oesophageal contents to pass into stomach.

Lower oesophageal sphincter is under nervous and hormonal control and main function is to prevent reflux of gastric contents into oesophagus.

### DIAGNOSTIC TECHNIQUES

**Barium Swallow.** Barium swallow is the investigation of choice for suspected oesophageal disorders. Important diagnostic information obtained by following passage of barium during screening as well as subsequent study of X-ray films. Tendency for barium to reflux back into the oesophagus can also be noted.

When available, cineradiology valuable with particular advantage that clinician and radiologist can later jointly review oesophageal function and motility.

**Oesophagoscopy.** Lumen of oesophagus can be visualized directly by oesophagoscopy with rigid or flexible fiberoptic instrument. Use of latter is safer (with, in particular, less risk of oesophageal perforation) and more comfortable for patient. Material can be collected as necessary by biopsy or brushing for histological or cytological examination.

**Manometry.** Intraluminal pressure can be recorded at various levels in the oesophagus by use of open-ended water-filled polyethylene tubes and appropriate pressure recording apparatus. Although increasingly used in clinical medicine, technique is not widely available but oesophageal motility studies are particularly valuable in early diagnosis of achalasia of cardia, in various motility disturbances of oesophagus and in assessing competence of lower oesophageal sphincter.

**Acid Perfusion.** Technique helpful in establishing whether patient's symptoms are of oesophageal origin. Tube is placed in mid-oesophagus

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with radiological control if necessary and after perfusion with saline, perfusate is changed to decinormal hydrochloric acid unbeknown to patient who is asked to indicate whether any discomfort is produced and if so whether it resembles his complaint. Particularly helpful in the differentiation of oesophageal from cardiac pain.

### FURTHER READING

- Greenberger N. J. and Winship D. H. (1976) *Gastrointestinal Disorders: A Pathophysiologic Approach*. Chicago, Year Book Medical Publishers.  
Van Der Reis L. (ed.) (1978) *The Esophagus. Frontiers of Gastrointestinal Research*. Vol. 3, Basel, Karger.



## HIATUS HERNIA

Hiatus hernia is a condition where part of the stomach herniates through oesophageal hiatus of diaphragm. Three main types (Fig. 1):

1. **SLIDING.** Gastro-oesophageal junction and portion of stomach situated in chest.
2. **PARA-OESOPHAGAL (rolling).** Gastro-oesophageal junction remains in normal position below diaphragm but part of stomach passes up through oesophageal hiatus.
3. **COMBINED.** Gastro-oesophageal junction above diaphragm as in sliding type, but, in addition, part of stomach rides up alongside lower oesophagus.

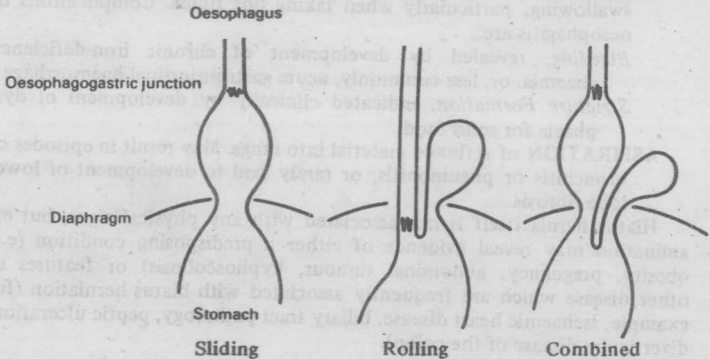


Fig. 1. Three main types of hiatus hernia.

**Mechanisms which prevent Gastro-oesophageal Reflux.** Relative role of each of the following controversial.

**PINCH-COCK ACTION OF DIAPHRAGM**

**NECESSITY FOR LOWER OESOPHAGEAL SEGMENT TO BE SITUATED INTRA-ABDOMINALLY**

**NEED FOR AN ACUTE ANGLE OF ENTRY OF DISTAL OESOPHAGUS INTO STOMACH**

**COMPETENT LOWER OESOPHAGEAL SPHINCTER**

Current evidence favours the effectiveness of the lower oesophageal sphincter as being most important factor in preventing reflux of gastric contents into lower oesophagus.



## SLIDING HIATUS HERNIA

Commonest variety. Often associated with obesity or intra-abdominal space occupying lesion such as gravid uterus, ovarian tumour, ovarian cyst etc.

**Clinical Features.** Importance of sliding hiatus hernia is that it may be associated with gastro-oesophageal reflux, major symptoms of which are:

**HEARTBURN.** A burning sensation starting in the xiphisternal region, radiating up behind sternum and occasionally into throat. May closely mimic cardiac pain with occasional radiation into jaws and down arms.

**REGURGITATION.** Patients may experience regurgitation of bitter gastric contents into mouth, usually acid, but may be bile.

Postural aggravation common with symptoms being worse on stooping or during recumbency.

Recurrent gastro-oesophageal reflux may result in:

**OESOPHAGITIS.** Suggested clinically by the complaint of pain on swallowing, particularly when taking hot fluids. Complications of oesophagitis are:

*Bleeding*, revealed by development of chronic iron-deficiency anaemia, or, less commonly, acute gastrointestinal haemorrhage.

*Stricture Formation*, indicated clinically by development of dysphagia for solid food.

**ASPIRATION** of refluxed material into lungs. May result in episodes of bronchitis or pneumonitis, or rarely lead to development of lower lobe fibrosis.

Hiatus hernia itself is not associated with any physical signs, but examination may reveal evidence of either a predisposing condition (e.g. obesity, pregnancy, abdominal tumour, kyphoscoliosis) or features of other disease which are frequently associated with hiatus herniation (for example, ischaemic heart disease, biliary tract pathology, peptic ulceration, diverticular disease of the colon).

## Diagnosis

**RADIOLOGY.** Occasionally hiatus hernia is apparent on chest film which may also show evidence of recurring basal chest infections. However, mainstay of diagnosis is *barium meal* which should preferably be performed using double-contrast technique. Information provided by barium meal should include answers to following questions:

Is there an hiatus hernia?

What type of hiatus hernia present?

Any radiological evidence of gastro-oesophageal reflux? (although symptoms of heartburn and regurgitation are more reliable

indices of gastro-oesophageal reflux than whether or not this is visualized during barium examination).

Any evidence of an oesophageal stricture?

Any evidence of associated upper gastrointestinal tract pathology?

**ENDOSCOPY.** Oesophagoscopy can be performed either using rigid oesophagoscope or flexible fiberoptic instrument which allows visualization of oesophageal lumen combined with gastroduodenoscopy. Answers to following questions should be obtained from endoscopic examination:

Is there an hiatus hernia? (although this is not always easy to assess endoscopically).

Any evidence of gastro-oesophageal reflux? If so, is fluid clear or bile-stained?

Any endoscopic evidence of oesophagitis? (although there may be histological evidence of oesophagitis when oesophagoscopy impression is of normal oesophageal mucosa).

Is there an associated stricture? If so, is this peptic or neoplastic?

Any evidence of associated disease in upper gastrointestinal tract? (for example, gastric ulceration, gastric malignancy, duodenal ulceration).

Particular advantage of endoscopy is that it allows collection of material when necessary by biopsy or brushing for histological or cytological examination. This technique particularly important if patient complains of dysphagia associated with hiatus hernia and barium swallow reveals a stricture for often not possible radiologically to differentiate benign from malignant oesophageal narrowing.

**MANOMETRIC STUDIES.** See Chapter 1. Not generally available.

**OTHER TECHNIQUES.** Intra-oesophageal pH recording and capacity of oesophagus to clear decinormal hydrochloric acid helpful in selected cases but use confined to special centres.

**Differential Diagnosis.** Hiatus hernia may either be symptomless or may occur in the presence of other disorders which may be of greater clinical relevance. Three major diagnostic problems in practice:

**RETROSTERNAL CHEST PAIN.** Can be difficult to distinguish cardiac from oesophageal pain. Symptom analysis important with particular attention to type, site and radiation of pain together with identification of precipitating and relieving factors. Electrocardiogram useful but normal tracing does not exclude ischaemic heart disease. Attempted reproduction of oesophageal pain by acid perfusion useful in this situation (see Chapter 1).

**DYSPEPTIC SYMPTOMS.** Hiatus hernia may coexist with other intra-abdominal disorders (Fig. 2) such as gastroduodenal ulceration,

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gallstones and diverticular disease of the colon. When patient's symptoms are not typical of gastro-oesophageal reflux, alternative explanation should be considered and radiology of biliary tract and barium enema may be necessary to complete assessment.

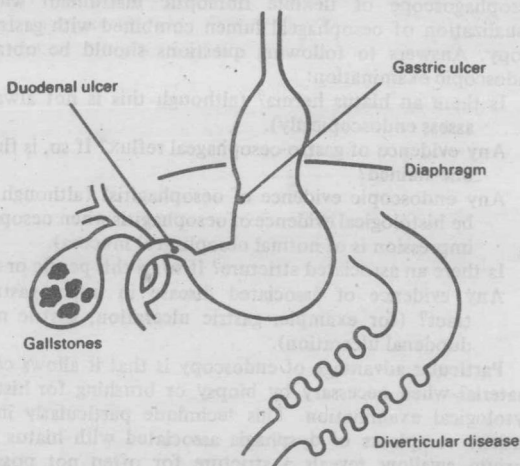


Fig. 2. Causes of gastrointestinal symptoms which commonly coexist with hiatus hernia.

**HYPOCHROMIC ANAEMIA.** Hiatus hernia may occasionally be cause of acute gastrointestinal bleeding. However, usual problem is to decide if hiatus hernia is responsible for development of iron-deficient anaemia consequent on persistent occult blood loss from gastrointestinal tract. Alternative possibilities should always be considered in this situation, for example, gastric or duodenal ulceration, gastric carcinoma and proximal carcinoma of the colon. Latter is a notoriously silent lesion and barium enema should not be delayed if hiatus hernia is not a convincing explanation for patient's condition.

**Management.** Management of uncomplicated sliding hiatus hernia essentially conservative and various measures which may be helpful include:

**WEIGHT REDUCTION.** Many patients with sliding hiatus hernia are obese and weight reduction alone often contributes to symptom relief.

**POSTURAL ADVICE.** Avoidance of stooping and bending when possible. Sleep with head of bed elevated.

**AVOIDANCE OF TIGHT ABDOMINAL SUPPORTS**

**CIGARETTE SMOKING.** Apart from being discouraged on general health grounds, cigarette smoking produces a fall in lower oesophageal sphincter pressure and may aggravate gastro-oesophageal reflux.

#### **DRUG THERAPY**

**Antacids.** Useful for symptomatic relief of heartburn and can be taken as and when necessary. Tablet form which can be dissolved in mouth usually most convenient. More sophisticated preparations which carry theoretical advantages and which some patients find more effective in practice include: Antacid/anaesthetic mixtures (e.g. Mucaïne), antacids combined with silicone (e.g. Asilone, Andursil, Polycrol), and antacid/alginic acid compounds (e.g. Gaviscon, Gastrocote). An alginate antacid compound combined with carbenoxolone sodium (Pyrogastrone) also appears useful both to obtain symptomatic relief and to achieve healing of reflux oesophagitis.

**Metoclopramide** appears to increase lower oesophageal sphincter pressure and thus reduce gastro-oesophageal reflux.

**Cimetidine.**  $H_2$  receptor antagonist which inhibits gastric acid production and thus may be indirectly beneficial in patients with troublesome gastro-oesophageal reflux. However, long-term usefulness of this preparation has yet to be decided.

**Iron.** Iron supplement indicated in patients where hiatus hernia is complicated by hypochromic anaemia.

**Surgical Treatment.** Operative intervention usually indicated for one of two reasons:

*Failure of medical treatment* to control reflux symptoms.

*Because of development of complications* – peptic stricture, bleeding and, less often, pulmonary aspiration.

When possible, hernia is reduced and hiatus repaired by abdominal or transthoracic approach. Former allows the exclusion of other intra-abdominal disorders, but a better technical result more often achieved by the transthoracic route.

Oesophageal stricture may be dealt with by dilatation or resection and intestinal replacement occasionally necessary. Procedures to reduce gastric acid production such as vagotomy or gastric resection may be helpful when dealing with peptic strictures.

When surgery performed for hiatus hernia symptoms *not* associated with complications, imperative to exclude associated disorders which may contribute to patient's complaints, otherwise operation is not likely to be a success.

## PARA-OESOPHAGEAL HIATUS HERNIA

Less common than sliding type. May be quite gross and yet often asymptomatic. Not usually associated with gastro-oesophageal reflux and symptoms either simply due to the presence of the hernia itself, for example breathlessness, or due to complications such as bleeding, ulceration, gastric volvulus or obstruction, strangulation, perforation etc. Medical management has little to offer and surgical repair usually advised when hernia troublesome if general condition of patient permits.

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- Atkinson M. (ed.) (1976) Disorders of oesophageal motility. *Clin. Gastroenterol.* Vol. 5, No. 1. London, Saunders.
- Moosa A. R. and Skinner D. B. (1976) Gastro-oesophageal reflux and hiatal hernia. *Ann. R. Coll. Surg. Engl.* 58, 126-132.
- Sladen G. E., Riddell R. H. and Willoughby J. M. T. (1975) Oesophagoscopy, biopsy and acid perfusion test in diagnosis of 'reflux oesophagitis'. *Br. Med. J.* 1, 71-76.

## TUMOURS OF THE OESOPHAGUS

Usually malignant with commonest being carcinoma.

### CARCINOMA

Common. Predominantly a condition of the elderly – rare under 50 years of age. Men affected more commonly than women. Exception is post-cricoid carcinoma (usually a late sequel of Plummer-Vinson syndrome) which is commoner in women in some countries.

Eighty per cent occur in middle and lower thirds of oesophagus; 20 per cent occur in upper third and postcricoid region. Growths of upper and middle thirds usually squamous-cell type but growths of lower third may be either squamous-cell or adenocarcinoma. Latter may represent spread from upper stomach or arise from ectopic foci of gastric mucosa located in oesophagus.

**Aetiology.** Unknown. Chronic irritation may be relevant and heavy smoking and alcohol consumption appear to be predisposing factors. Carcinoma of oesophagus frequently associated with other primary cancers and may also occur associated with any of the following conditions – lye stricture of the oesophagus, achalasia, coeliac disease and tylosis (rare hereditary disease in which there is hyperkeratosis of hands and feet).

### Clinical Features

**DYSPHAGIA FOR SOLID FOOD.** Commonest presenting symptom which gradually increases in severity. Patient may be frightened to eat in addition to having true anorexia. Level at which patient feels food sticks is not a reliable indicator as to site of lesion. End stage causes great distress with patient unable to swallow even own saliva.

**REGURGITATION.** Frequent. May also be true vomiting. Weight loss prominent but retrosternal pain usually a late feature. Respiratory complications may result from inhalation and other symptoms may result from local or metastatic spread. Physical examination may be negative apart from weight loss which can be profound. Anaemia common. May be signs of metastatic spread in advanced cases.

**Diagnosis.** Dysphagia always a symptom to be taken seriously and demands thorough assessment. Main investigations are:

**BARIUM SWALLOW.** Characteristically shows irregular narrowing of oesophageal lumen. Oesophagus may be dilated above the lesion but dilatation less marked than in achalasia. As mentioned above, however, these two conditions may coexist. Barium swallow a reliable indicator of whether or not there is an organic stricture but

radiological appearances do not always allow differentiation between benign and malignant lesion.

**ENDOSCOPY.** Essential and complementary to radiology. Safer and more comfortable for patient if performed with flexible fiberoptic instrument than rigid oesophagoscope. Specimens can be taken by brushing or forceps for cytological or histological examination respectively.

**Management.** After improving patient's nutritional state, surgical exploration should be considered in hope that growth is resectable. Radiotherapy can be used as alternative treatment or as a supplement to radical surgery and appears particularly beneficial in squamous-cell lesions.

Often curative resection not possible because of metastases or poor general condition, and oesophageal intubation with Mousseau-Barbin or Celestin tube necessary to relieve distressing dysphagia. Intubation may be done at laparotomy or via a rigid oesophagoscope. Celestin tube can also be placed using a fiberoptic instrument.

## SARCOMA

Rare. Various histological types such as leiomyosarcoma, fibrosarcoma, rhabdomyosarcoma, lymphosarcoma or may be undifferentiated. Symptoms resemble those of carcinoma. Diagnosis by barium swallow, endoscopy and biopsy. Differentiated forms treated by surgical excision. Radiotherapy occasionally useful.

## BENIGN TUMOURS

Rare. Histological types include adenoma, fibroma, leiomyoma, lipoma, myxoma, etc. May be *symptomless*, cause *dysphagia* or result in *bleeding*, presenting either as haematemesis and melaena or chronic iron-deficiency anaemia. Diagnosis by barium swallow, endoscopy and biopsy. Treatment is surgical excision.

## FURTHER READING

Sherlock P. and Zamcheck N. (ed.) (1976) *Cancer of the G.I. tract. Clin. Gastroenterol.* Vol. 5, No. 3. London, Saunders.



## ACHALASIA OF THE CARDIA: CHAGAS' DISEASE

### ACHALASIA OF THE CARDIA

Rare. Equal sex incidence. Majority present in early middle age.

**Aetiology.** Associated with absence or reduction in the number of ganglion cells of myenteric plexus. Cause of ganglion cell loss unknown.

**Pathophysiology.** Achalasia characterized by aperistalsis, elevated resting lower oesophageal sphincter pressure, impaired relaxation of lower oesophageal sphincter and oesophageal dilatation. In advanced stage oesophagus

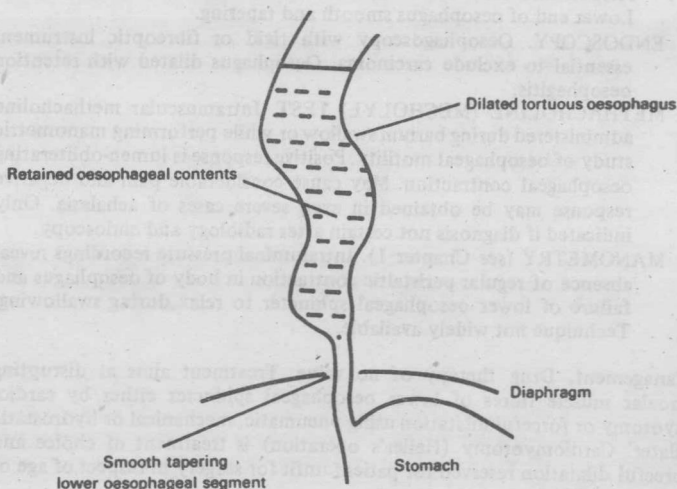


Fig. 3. Radiological features of advanced achalasia.

is tortuous, dilated and full of swallowed food and saliva (Fig. 3) resulting in retention oesophagitis. Achalasia is associated with an increased incidence of oesophageal carcinoma (Chapter 3). Oesophageal emptying dependent essentially on gravity effect and intermittent increase in intraoesophageal pressure caused by uncoordinated contractions.

Oesophagus behaves as a denervated organ in being hypersensitive to acetylcholine-like substances such as methacholine (Mecholyl).

**Clinical Features.** Dysphagia main symptom and may be equally bad for liquids as solids. Initially intermittent but eventually continuous and severe.

May be associated retrosternal discomfort or even severe chest pain.

Regurgitation can occur with risk of pulmonary complications (cough, breathlessness, chest infections, basal fibrosis), particularly when patient lying flat in bed.

Physical examination unhelpful. May be weight loss and occasionally evidence of pulmonary complications.

### Diagnosis

**RADIOLOGY.** Barium swallow appearances characteristic in advanced cases (Fig. 3). Oesophagus dilated and tortuous, containing food residue and noticeable absence of coordinated peristaltic waves. Lower end of oesophagus smooth and tapering.

**ENDOSCOPY.** Oesophagoscopy with rigid or fiberoptic instrument essential to exclude carcinoma. Oesophagus dilated with retention oesophagitis.

**METHACHOLINE (MECHOLYL) TEST.** Intramuscular methacholine administered during barium swallow or while performing manometric study of oesophageal motility. Positive response is lumen-obliterating oesophageal contraction. May cause considerable pain and negative response may be obtained in even severe cases of achalasia. Only indicated if diagnosis not certain after radiology and endoscopy.

**MANOMETRY** (see Chapter 1). Intraluminal pressure recordings reveal absence of regular peristaltic contraction in body of oesophagus and failure of lower oesophageal sphincter to relax during swallowing. Technique not widely available.

**Management.** Drug therapy of no value. Treatment aims at disrupting circular muscle fibres of lower oesophageal sphincter either by cardiomyotomy or forceful dilatation using pneumatic, mechanical or hydrostatic dilator. Cardiomyotomy (Heller's operation) is treatment of choice and forceful dilatation reserved for patient unfit for surgery in respect of age or general condition.

### CHAGAS' DISEASE

Endemic disease caused by infection with *Trypanosoma cruzi*. Occurs chiefly in S. America and Brazil in particular. Affects many organs — gastrointestinal tract (oesophagus and colon), heart and salivary and sweat glands. Infection results in destruction of myenteric plexuses and result in oesophagus is identical to that found in achalasia.

Main symptoms are dysphagia, regurgitation and, to a lesser extent, retrosternal pain. Diagnosis as for achalasia. No effective drug therapy and