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Non-achalasic motor disorders of the oesophagus

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Motor abnormalities of the oesophagus are characterised by a chronic impairment of the neuromuscular structures that co-ordinate oesophageal function. The best-defined entity is achalasia, which is discussed in a separate chapter. Other motor disorders with clinical relevance include diffuse oesophageal spasm, oesophageal dysmotility associated with scleroderma, and ineffective oesophageal motility. These non-achalasic motor disorders have variable prevalence but they could be associated with invalidating symptoms such as dysphagia, chest pain and gastro-oesophageal reflux disease. New oesophageal diagnostic techniques, including high-resolution manometry, high-frequency intraluminal ultrasound and intraluminal impedance, allow (1) better definition of peristalsis and sphincter function, (2) assessment of changes in oesophageal wall thickness, and (3) evaluation of pressure gradients within the oesophagus and across the sphincters that can produce normal or abnormal patterns of bolus transport. This chapter discusses recent advances in physiology, pathophysiology, diagnosis and treatment of non-achalasic oesophageal motor disorders.

Key words: dysphagia; chest pain; heartburn; oesophageal motility disorders; diffuse oesophageal spasm; connective tissue diseases.

Oesophageal motility involves co-ordinated contractions in the oesophageal body, and relaxation of the upper and lower oesophageal sphincters (LOS). Following a swallow, the two sphincters relax and open, and a peristaltic contraction sweeps behind the bolus through the entire length of the oesophagus, following which there is closure

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of the two sphincters. Normal functioning of the two sphincters and oesophageal peristalsis requires fine neuromuscular co-ordination. Motor disorders of the oesophagus are characterised by failure of such co-ordination, with abnormal oesophageal peristalsis and/or sphincter relaxation inducing stasis or excessive entry of material into the oesophagus. Such abnormalities may be clinically manifested as dysphagia, chest pain and symptoms due to excessive gastro-oesophageal reflux.

The best-defined primary oesophageal motor disorder is achalasia, which usually culminates with severe symptoms and has a negative impact on quality of life. Achalasia is discussed in Chapter 3. Other motor disorders of the oesophagus that are potentially associated with severe symptoms include diffuse oesophageal spasm (DOS), oesophageal dysmotility associated with scleroderma, and severe ineffective oesophageal motility. This chapter discusses recent advances in physiology, pathophysiology, diagnosis and treatment of these non-achalasic oesophageal motor disorders.

CLASSIFICATION

Several classifications of oesophageal motor disorders are available, either based on standard manometric findings (Table 1)¹ or a combination of manometric findings and pathophysiological interpretation (Table 2).² Recent advances in oesophageal diagnostic techniques allow (1) better definition of peristalsis and sphincter function, (2) assessment of changes in oesophageal wall thickness, and (3) evaluation of pressure gradients within the oesophagus and across the sphincters that can produce normal or abnormal patterns of bolus transport. These advances will certainly provide a new anatomical and functional classification of oesophageal motor disorders.

NEW TECHNIQUES TO ASSESS OESOPHAGEAL MOTOR FUNCTION

Classical techniques such as barium swallow radiography and standard oesophageal manometry are used routinely in clinical practice to evaluate patients with suspected oesophageal dysmotility. Although many patients can be diagnosed accurately with these techniques, non-obstructive dysphagia or chest pain cannot be attributed to clear radiological or manometric abnormalities in many other patients. High-resolution manometry (HRM) is a stationary method that uses an increased number of pressure sensors (up to 36) and provides a very detailed map of oesophageal and LOS pressure changes. It allows

Table 1. Classification of oesophageal motility abnormalities.¹

Inadequate LOS relaxation
Classic achalasia
Atypical disorders of LOS relaxation
Unco-ordinated contraction
Diffuse oesophageal spasm
Hypercontraction
Nutcracker oesophagus
Isolated hypertensive LOS
Hypocontraction
Ineffective oesophageal motility

LOS, lower oesophageal sphincter.

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