GASTRO-OESOPHAGEAL REFLUX DISEASE **MEDICAL APPENDIX**

DEFINITION

1. In gastro-oesophageal reflux disease, there is repeated retrograde passage of stomach contents into the oesophagus. As a consequence there is chemical irritation of the oesophageal mucosal lining due to gastric acid and enzymes.

2. Minor reflux occurs in most individuals although it is infrequent and does not usually cause major harm because of the neutralising and flushing effect of saliva, and the natural movement of the oesophagus which returns the material back into the stomach.

3. When acid reflux is frequent and persistent however, it is likely to cause significant symptoms or complications since the oesophageal lining of squamous epithelial mucosa is not equipped to resist the irritant contents of the stomach. Under these circumstances, gastro-oesophageal reflux disease may be said to be present.

CLINICAL MANIFESTATIONS

4. The most frequent symptom is heartburn, often described as a burning pain behind the sternum, usually coming on just after a meal and worsened by sitting in a slumped position, bending, straining or lying down. Occasionally the pain may mimic angina. Symptomatic relief is usually obtained by taking antacid preparations.

5. Oesophageal inflammation is the first change to occur and frank ulceration may follow. This may be observed on endoscopic examination and is graded on a scale 1-4, according to severity.

6. The condition may lead to episodes of overt haemorrhage, although blood loss more often takes the form of slow chronic bleeding which in due course can result in iron-deficiency anaemia..

7. Other complications include narrowing of the oesophagus, or stricture, and difficulty swallowing; however, perforation is rare. If it does occur the resulting mediastinal involvement carries a high mortality.

8. Respiratory complications may occur, notably asthma, due to the repeated direct inhalation of refluxed gastric contents.

9. Occasionally in more severe cases of gastro-oesophageal reflux disease a distinctive histological change occurs in the cells lining the lower oesophagus. The normal squamous epithelium changes to a more resistant, glandular epithelium of the type found in the stomach. This condition is known as Barrett's oesophagus and in some 5-10% of cases it leads to malignant change.

10. Treatment of gastro-oesophageal reflux disease is by acid suppression, usually on a long-term basis, and proton-pump inhibitors are particularly valuable in this situation. Motility stimulants have a medium level of efficacy. Surgery may be very effective.

AETIOLOGY

11. Gastro-oesophageal reflux disease is multifactorial in aetiology, with important modifying roles played by the resistance of the oesophageal lining, the effectiveness of oesophageal acid clearance and the nature of the reflux material. However, the key event – the repeated reflux of stomach contents into the oesophagus – is normally prevented by compression of the lower oesophageal opening by a complex muscle barrier.

12. The functional integrity of this barrier is dependent on a variety of factors including the tone and intrinsic sphincter action of the lower oesophageal musculature, the extrinsic compression of the diaphragm, the integrity of the associated ligaments, and maintenance of an acute angle of His (the angle of entry of the oesophagus into the stomach).

13. Although the exact mechanism whereby damaging amounts of gastric contents are permitted to overcome these mechanisms and ascend into the oesophagus is as yet imperfectly understood, it is probable that in most patients it is due to abnormal neural control of the oesophageal musculature.

14. Hiatus hernia, a very common disorder in which part of the stomach herniates through the diaphragmatic opening, may in some cases play a part in initiating gastro-oesophageal reflux, although further research is required in order to identify the extent of its role. It may adversely influence the efficiency of the lower oesophageal musculature.

15. There is no evidence that intense or sustained physical effort has any role in the aetiology of the condition.

16. *H. pylori*-associated ulcer disease is not a risk factor for gastro-oesophageal reflux disease, although the two may co-exist.

17. Factors which aggravate the symptoms of gastro-oesophageal reflux disease include recent weight gain (for example in pregnancy), high fat foods, caffeinated or carbonated beverages, tea, coffee, chocolate, alcohol and tobacco smoking. However none of these agents has a primary role in the aetiology of the condition.

18. In a similar way certain drugs reduce the effectiveness of the muscular barrier to reflux. They include theophylline, progesterone, anticholinergic drugs (used to relax stomach and intestinal smooth muscle contractions), antihistamines, tricyclic antidepressants, calcium channel blockers, and nitroglycerin preparations. However the effect is easily reversed by withdrawing the drug and substituting a suitable alternative.

CONCLUSION

19. Gastro-oesophageal reflux disease is a disorder in which there is repeated reflux of gastric contents into the oesophagus, causing damage to the oesophageal lining and symptoms such as heartburn.

20. The mechanism is imperfectly understood but it is probable that abnormal neural control of the lower oesophageal musculature plays a primary role.

21. Weight gain, dietary factors and smoking aggravate the symptoms but are not causative. Certain therapeutic drugs reduce the effectiveness of the muscular barrier to reflux. Repeated or sustained physical effort plays no part in the aetiology of the condition.

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