A Case Study

The Pathogenesis Cause And Complications Of Peptic Ulcer

By

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The cause of peptic ulcer remains a mystery in spite of much research on the disease. It is not even clear whether gastric and duodenal ulcer are the same diseases. Points of similarity are their identical appearance and histology, their similar clinical course and their occurrence in the presence of secretion of large volumes of hydrochloric acid. Yet there are differences, for duodenal ulcer has become more frequent and is equally distributed throughout the social classes whereas the less common gastric ulcer has a predilection to the lower income groups. Ulcers in families tend to keep to the same site, either gastric or duodenal.

All peptic ulcers whether in the oesophagus, stomach, duodenum, jejunum after gastrojejunoctomy or in Meckel's Diverticulum have the common denominator of hydrochloric acid and pepsin.

Digestion in The Stomach

Little is known about the mechanisms which protect the gastric mucosa from injury and from auto-digestion. It seems possible that loss of resistance of the gastric mucosa occurs in state of severe illness and multiple erosions form in the stomach and duodeum, the so-called stress ulcers. Acute ulceration of the upper gastro-intestinal tract is traditionally linked with burns.

Experiments on Tom, the subject with the gastric fistula, by Wolf & Wolff indicated that the flow of mucus was a vital protective mechanism. A noxious substance applied to the mucosa caused an immediate outpouring of mucus which neutralised and diluted the irritating substances. When the flow of mucus was inhibited or prevented, damage and erosions were easily produced by mechanical means.

The Influence Of Hormones

Women seem to be protected against developing peptic ulcer and its complications such as perforation during their reproductive period.

There is a preponderance of Blood Group 'O' in peptic ulcer, especially duodenal ulcer patients.

A Psychosomatic Disease

The remarkable influence of emotion upon the alimentary tract has been shown by Wolf & Wolff on their subject Tom, with the gastric fistula. They have shown that not only the secretions but also the motility and vascularity of the stomach are influnced by nervous stresses. The stomach is thus a mirror of emotions.

It is perhaps the dietetic and nutritional factors which account for the ulcers in the labourers and peasants in rural population and the lower income groups, who are not as a rule subjected to much worry and tension in their lives. The diet of such population in our country is bulky, non-nutritious carbohydrate food consisting mainly of rice and tapioca. Peptic ulcer is rare in the Punjab where the diet is different and more nutritious.

The essential mechamism in the formation of a peptic ulcer is the digestion of the alimentary mucosa by acid and pepsin. It has been shown that multiple factors are involved in the development of a peptic ulcer upsetting the forces of attack and defence—increased power to digest, the result of unusual size of the parietal cell mass, or of an unusual activity of the cell ; or inadequacy in the force of defence because of structural degeneration or interference with cell metabolism, or a breakdown of the normal buffering mechanisms may result in the formation of ulcer. Genetic, nervous and hormonal mechanism- may be responsible for increase in the forces of attack, and metabolic hormonal and vascular disturbances for decrease in the power of defence.

The almost universal location of peptic ulcer either on the lesser curvature or in the first part of the duedenum, the fact that only a fraction of 1 per cent of the entire mucosa is involved by the ulcer, and the apparent immunity of the remainder of the mucosa, even of the hyperchlorhydric stomach, must be explicable by local peculiarities of mechnics, motility, cellular protection or chemical buffering which are not at present well understood. Advances in our knowledge of these various factors should eventually lead to more rational management, with attention directed to the particular etiological factors which are at work in an individual with a peptic ulcer.

We know that the hypersecretion and hypermotility related to the genesis of duodenal ulcer is not the hormone-induced response to food but the nocturnal vagal overaction during sleep, which is reflected by the high night secretion of duodenal ulcer subjects.

Pathology

On opening the stomach or duodenum, the ulcer is found as round or oval in outline. It has a punched out or funnel shaped appearance, with the margin of the ulcer overhanging. There is complete breach of the muscle coat. Its size varies from 0.5 to 1.5 cm. small in duodenal ulcer, and larger in gastric ulcer, microscopically, it shows four zones ; the zones of exudation of necrosis, of granulation and of cicatrization. The blood vessels at the base of the ulcer show endarteritis.

Course

Chronic gastric and duodenal ulcer is a lesion in which there may

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