colonisation of gastric mucosa in a resected Meckel’s diverticulum (Gut 1989; 30: 1233–5). We have recently published a similar study of 69 Meckel’s diverticula, in which four of 13 diverticula were colonised by organisms indistinguishable from H pylori. There was an active histological ‘gastritis’ present in all four cases containing the bacteria, while four others showed ‘gastritis’ but no organisms. In one case where organisms were present there was a perforating ulcer within the focus of histotropism mucosa, while in the other cases the bacteria were clearly not related to the patient’s symptoms. Bacteria were scanty in three of the four cases.

The odds would seem to be stacked against H pylori successfully colonising what is often only a tiny focus of gastric mucosa at this site. Studies on reflux gastritis have shown colonisation of gastric mucosa is inhibited in the presence of alkaline duodenal contents.

Furthermore, the organism does not colonise small intestinal mucosa, and in some diverticula the heterotopic tissue is situated beneath the normal surface epithelium, where colonisation could presumably not occur. In view of these adverse factors, the finding of even infrequent colonisation of Meckel’s diverticula by H pylori is significant, as it suggests that large numbers of bacteria are likely to be traversing the length of the bowel while still remaining viable. If this is so, transmission of H pylori from person to person by the faecal oral route is entirely feasible.

Acridermatitis enteropathica with normal zinc concentrations

SIR.—I was extremely interested to read of the abnormalities of Paneth cells characteristic of acridermatitis enteropathica aiding the diagnosis in a child with normal serum zinc concentrations1. I must comment on the statement ‘that the high zinc content of the normal Paneth cell renders it particularly vulnerable to zinc deficiency’. The belief that human Paneth cells contain high concentrations of zinc is based on the histochimical findings in rat small intestine using dithizone and cytochemical detection of zinc by these cells. We have shown that human Paneth cells are dithizone negative and that human and rat Paneth cells on X ray microanalysis contain no measurable zinc than other intestinal cells1 and that in man Paneth cells had lower zinc levels than goblet cells, stem cells, and enterocytes in jejunum and ileum.

Our study on Paneth cell abnormalities in acridermatitis enteropathica and the effect of the zinc therapy is cited by Dr Mack and colleagues. We agree that zinc deficiency is associated with Paneth cell abnormalities. Rat Paneth cells have been reported to contain the zinc binding protein metallothionein (MT) and we have done some preliminary immunohistochemical studies on human Paneth cells using a monoclonal antibody raised in mice to horse MT1 and MT2. Paneth cells were strongly positive but both goblet and crypt epithelial cells showed punctuate positivity as well.

We conclude that present evidence does not indicate that the Paneth cell has an exceptionally high zinc content when compared with other intestinal epithelial cells, but do not disagree with the suggestion that it may be sensitive to changes in body zinc status.

The role played by metallothionein in zinc metabolism of intestinal epithelial cells including Paneth cells needs further investigation.

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References


Reply

SIR.—We thank Dr Elmers for her interest in our recent paper. We are also grateful for her comments regarding her work on X ray microanalysis of zinc in intestinal tissues which adds further to the discussion in our case report. Dr Elmers also raises an interesting topic with regards to the metallothionein content of Paneth cells.

Although there has been speculation that metallothionein plays a homeostatic role in the metabolism of zinc, the true role remains unknown. Metallothioneins are inducible by a number of agents, including the heavy metals. It appears that Paneth cells contain greater levels of metallothionein than other cells in the small intestine.

Whether this increased metallothionein level is a primary event and in some way responsible for greater susceptibility of the Paneth cell to changes in body serum zinc status when compared with other markers, or whether this is secondary to increased synthesis will be an interesting study to explore. DAVID B MACK AND ANOTHER Dept of Paediatrics, Hospital for Sick Children, Toronto, Ontario, Canada


Some possible pathological consequences of peptic ulcer therapy

SIR.—The past 25 years have produced