

Brief communications

Lower oesophageal erosion due to iron pill impaction: an under recognized cause of oesophageal injury

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Introduction

The most common cause of oesophageal erosion/ulceration is gastroesophageal reflux disease. Drugs such as potassium chloride, non steroidal anti-inflammatory drugs and tetracycline are also known to cause oesophageal mucosal injury (1). Oral iron supplements also produce oesophageal mucosal injury even at the therapeutic dose (1,2). However, despite the wide usage, oral iron supplement is an under recognized cause of oesophageal injury (1,2). Although most drugs that cause oesophageal injury produce nonspecific histological changes, iron pills produce a histologically characteristic pattern of injury that enables recognition of the agent (2,3).

Case report

A 70 year old woman presented with epigastric pain of four days duration. She was no history of repeated blood transfusions or chronic liver disease. Patient had an uneventful recovery. did not have prior similar episodes. Upper gastrointestinal endoscopy revealed erosions in the lower oesophagus at 36cm, just above the gastro-oesophageal junction. The stomach and duodenum were endoscopically normal. Biopsies were obtained from the site of

oesophageal erosion and the proximal gastric mucosa. Histology revealed oesophageal squamous epithelium with extensive necrosis (Figure 1). The squamous epithelium also contained a golden brown pigment in crystalline and granular forms and the epithelial surface was crusted with the same pigment. Perl's stain revealed that the pigment to be iron (Figure 2). The gastric biopsies were unremarkable and had no iron deposits on Perl's stain. This appearance is characteristic of oesophageal erosions due to impacted iron pills. On subsequent inquiry it was revealed that the patient was diagnosed to have nutritional anaemia and was on oral iron supplements. There is no history of iron over dosage.

Discussion

Some drugs are known to cause erosion and ulceration of the oesophagus, with therapeutic doses, when the pill gets impacted in the mucosa, for a sufficiently long period. Pills are known to get lodged in the anatomically narrowed regions of the oesophagus and most commonly reported region is the proximal oesophagus (1). However, in this patient pill impaction occurred in the distal oesophagus, above the gastro-oesophageal junction.

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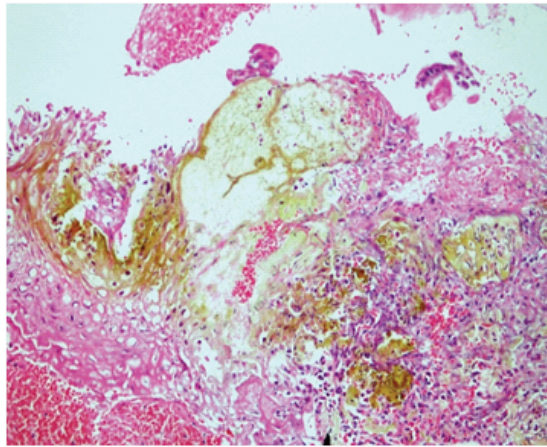


Fig 1. Site of erosion with golden brown brown pigment (short arrows)(H&EX10)

Experimental studies have shown that lower oesophagus, above the gastro-oesophageal junction, is the preferred site for pills to get lodged when tablets are taken in supine position (4). Pill induced injury in the lower oesophagus are more commonly seen among the elderly (5,6). Ingestion of pills in supine position due to physical disabilities, gastroesophageal reflux related delays in drug transit, hiatal hernia and oesophageal motility problems among the elderly population could be responsible factors for this observation (2,7,8). Drug related injuries in the lower oesophagus are often clinically under recognized because often they are attributed to reflux. Iron deposition in the mucosae of the upper gastrointestinal tract can occur with systemic iron overload and with oral iron therapy (9). Deposition of iron in gastric glands without erosions/ulcers is well recognized with iron overload and oral iron therapy (9). Whereas oesophageal iron deposition tends to associate with erosions/ulcers and is often attributed to iron tablet impaction (9). However, erosions/ulcers due to impacted iron pills can also occur in the stomach, particularly

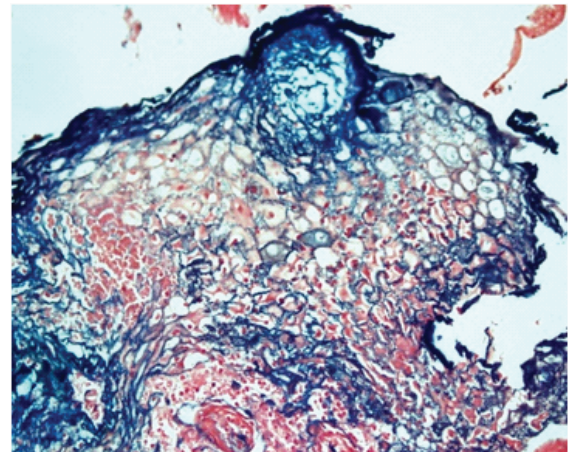


Fig 2. Iron, staining blue (Perl's stainX10)

in the antrum and the pyloric regions. The characteristic histological features of oesophageal injury due to impacted iron pills include heavy localized mucosal deposition of iron associated with necrosis. The mucosal surface at the impacted site is covered with a crust of crystalline iron (2,3,9). With routine stains iron is seen as an extracellular golden brown crystalline substance and intracellular granular deposits (2). Perl's stain confirms that the golden brown pigment is iron. This classic picture of mucosal injury due to impacted iron pill was present in the current case.

Although not seen in this case, thrombosis of superficial submucosal blood vessels has also been reported (2,3). In this case, oesophageal mucosal necrosis with associated iron depositions and crusting of iron on the surface (Figures 1 and 2) and absence of iron in the gastric mucosa strongly suggest that the injury is due to iron tablet impaction rather than overload. Recognition and reporting of these pathological features will enable the clinicians to appreciate this under recognized cause of oesophageal ulceration.

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