A rare cause of esophagitis with crystal deposition

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CASE PRESENTATION

A 77-year-old woman with poorly differentiated signet ring cell gastric adenocarcinoma (T4aN1M0, Stage III-B), for which she underwent partial gastrectomy and received chemotherapy with leucovorin and 5-fluorouracil (5-FU), presented to hospital for elective endoscopic evaluation of an abnormal computed tomography (CT) scan that revealed thickening in the proximal stomach. Her medical comorbidities included type 2 diabetes mellitus, benign essential hypertension and congestive heart failure. Apart from the chemotherapy regimen, the patient was taking carvedilol, furosemide and ranitidine at home. The patient appeared comfortable but complained of poor appetite and weight loss. She denied any heartburn, dysphagia or odynophagia. Physical examination revealed a cachectic, euvoletic woman with palpebral conjunctival pallor and a midline surgical abdominal scar, but no obvious mucosal or skin lesions. The initial set of laboratory investigations revealed severe anemia, with hemoglobin level of 61 g/L, a white blood cell count of $16 \times 10^9/L$ (88.8% segmented neutrophils, 6.3% lymphocytes, 4.4% monocytes), a platelet count of $250 \times 10^9/L$ and renal dysfunction, with an elevated serum creatinine level of 3.5 g/L and blood urea nitrogen level of 38 g/L.

Esophagogastroduodenoscopy (EGD) was performed and the images of the findings are shown in Figures 1 and 2. Biopsies obtained from the esophagus revealed squamous mucosa with ulceration and crystal deposits (Figures 3A and 3B).

DISCUSSION

Esophagitis dissecans superficialis secondary to 5-FU use

EGD revealed severe desquamative esophagitis with no active bleeding (Figure 1). Violaceous esophageal epithelium that instantly desquamated on contact with the flexible endoscope was noted (Figure 2). Esophageal biopsy revealed ulceration, cellular debris and crystalloid/foreign material (Figure 3A). Ballooning degeneration, edema, ulceration and cellular debris were observed at lower magnification (Figure 3B).

Esophagitis dissecans superficialis is a rare condition characterized by the sloughing of large sections of esophageal mucosa. Multiple conditions have been recognized as precipitants of this dramatic finding, including autoimmune bullous dermatoses such as pemphigus vulgaris or pemphigoid (1,2); autoimmune enteropathy such as celiac disease (3); endoscopic esophageal manoeuvres, such as dilation (4), or variceal sclerotherapy (5); and medications such as bisphosphonates (6) or nonsteroidal anti-inflammatory drugs (7). This patient did not have any of these medical comorbidities and was not on any medication reported to cause this rare abnormality.

5-FU is an antimetabolite and a pyrimidine analogue that irreversibly inhibits thymidylate synthase. Gastrointestinal tract mucositis is one of the most important dose-limiting side effects of 5-FU (8). Chemotherapy-induced generation of free radicals with DNA damage and subsequent initiation of inflammatory cytokine cascade with

mucosal injury has been extensively studied (9,10). The mucositis is an entity with a possible continuum of manifestations ranging from erythematous mucosa without a deficit in structural integrity, to florid desquamative lesions such as observed in our patient.

To our knowledge, the present case is the first report of an anti-metabolite-induced esophagitis dissecans superficialis in the medical literature.

Figure 1) Severe desquamative esophagitis with no active bleeding on esophagogastroduodenoscopy

Figure 2) Violaceous esophageal epithelium that instantly desquamated on contact with the flexible endoscope

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Figure 3) **A** Esophageal biopsy revealing ulceration, cellular debris and crystalloid/foreign material (original magnification $\times 100$). **B** Ballooning degeneration, edema, ulceration and cellular debris can be seen at lower magnification (original magnification $\times 40$)

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