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## Non-steroidal Anti-inflammatory Drug Induced Duodenal Diaphragm Managed with Endoscopic Dilatation

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The adverse effects of non-steroidal anti-inflammatory drugs (NSAIDs) on small bowel are increasingly encountered in gastroenterology practice. Diaphragm disease is a relatively rare condition associated with the prolonged use of NSAIDs. We present a case of duodenal diaphragm disease successfully managed with endoscopic balloon dilation.

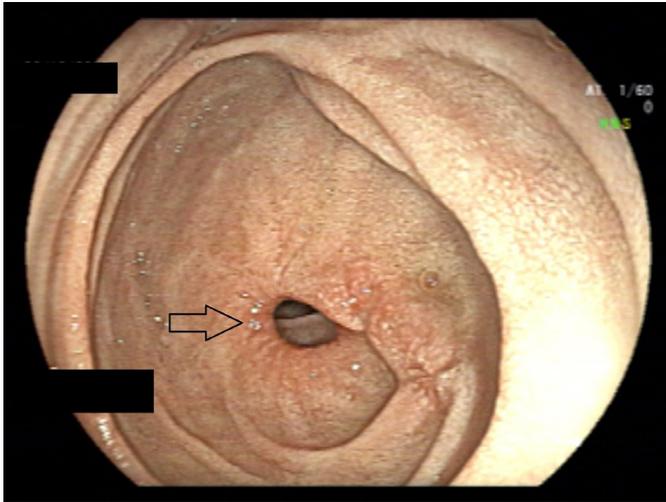
## Case Report

A 31-year-old female with rheumatoid arthritis (RA), presented with complains of recurrent vomiting for three months, non-responsive to symptomatic treatment. She had been taking NSAIDs for RA for about a decade. She was found to have haemoglobin of 9.6 gm/dl (12-15) with total iron binding capacity (TIBC) 482 microgram/dL (normal: 250-450 microgram/dL), transferrin saturation 10.7% (normal: 13-45%) and albumin 2.43g/dl (normal: 3.5-5.2 g/dL).

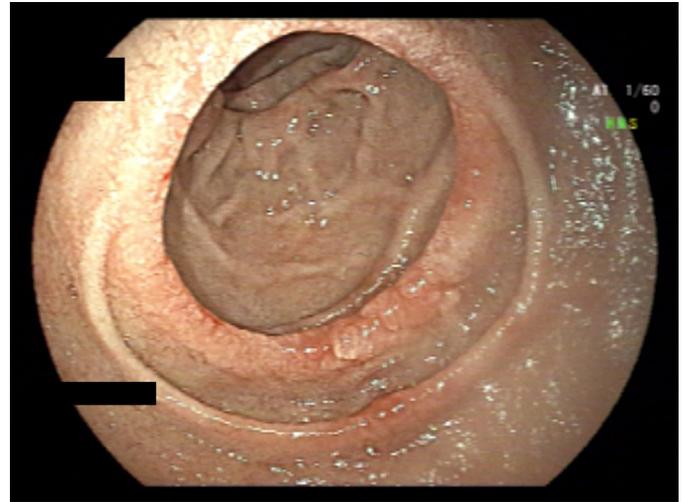
Computed tomography (CT) of abdomen showed a filling defect in the second part of the duodenum (**Figure 1**) and upper gastrointestinal endoscopy confirmed the presence of a ring like duodenal lesion (**Figure 2**). There were few other ulcerated circumferential lesions in the duodenum which were non obstructive (**Figure 3**). Biopsy from the lesion showed architectural distortion, ulcer-associated cell lineage and moderate increase in lymphocytes and plasma cells in the lamina propria (**Figure 4**). Gastric antral biopsy showed reactive gastropathy. Therefore, it was diagnosed as an NSAID-induced diaphragm lesion. She was managed with discontinuation of NSAIDs and balloon dilation of the diaphragm (**Figure 5**). She had improvement of symptoms and biochemical parameters and continues to do well at one year follow up.



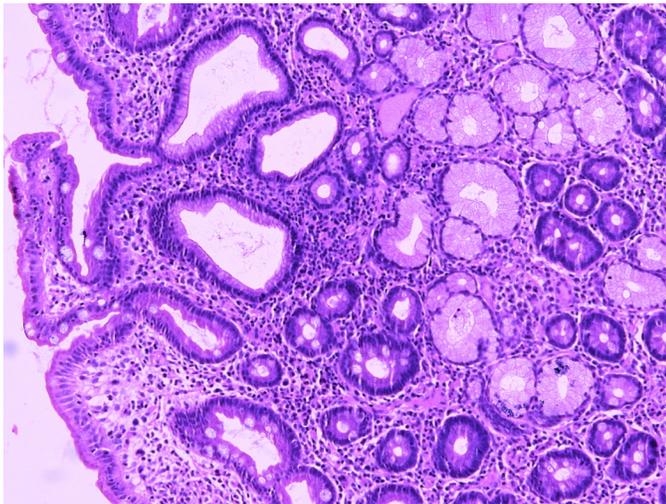
**Figure 1: Axial image of abdominal computed tomography scan showing a duodenal obstructive lesion.**



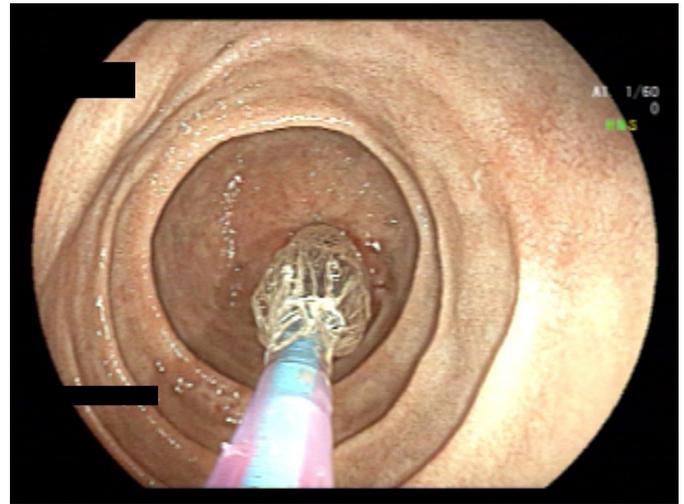
**Figure 2: Upper gastrointestinal endoscopy showing a duodenal diaphragm lesion.**



**Figure 3: Upper gastrointestinal endoscopy showing circumferential ulcerated lesion in the duodenum.**



**Figure 4: Duodenal biopsy from diaphragm site showing architectural distortion, pyloric metaplasia and moderate increase in lymphocytes and plasma cells in the lamina propria (H and E x20).**



**Figure 5: Balloon dilation of the diaphragm lesion with controlled radial expansion (CRE) balloon.**

## Discussion

Apart from affecting the stomach, NSAIDs rarely affect the small bowel as well. An increasing trend of small bowel involvement due to NSAIDs has been noted, which could be attributed to increased use of aspirin and other NSAIDs.<sup>1</sup> The NSAID injury to small bowel may manifest with abdominal pain, unexplained anaemia due to ulcers, protein losing enteropathy and diaphragm-like lesions

causing obstruction or perforation.<sup>2,3</sup> NSAIDs reduce the villous microcirculation by inhibiting cyclooxygenase and tend to solubilize lipids of brush border phospholipids. This results in disruption of intracellular junctions which causes increased permeability, thus facilitating injury to the mucosa by proteolytic enzymes, bile acids and intestinal bacteria. Prostaglandin inhibition may contribute to the injury.<sup>4</sup> Diaphragm disease is relatively rare and often presents as a diagnostic challenge.<sup>5</sup> Contrast tomography (CT) with oral contrast of the abdomen mostly shows diaphragm lesions as strictures

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(usually multiple) and bowel wall thickening. Mucosal enhancement and small bowel dilation are relatively rare. Balloon enteroscopy and capsule endoscopy are useful modalities for diagnosis; however, capsule endoscopy in this setting has high rates of retention.<sup>6</sup> Histology for diaphragm disease was described by Pertis *et al.* in ten such cases. Focal injury with chronic inflammatory infiltrate, architectural distortion, and ulcer associated cell lineage (also called as pyloric metaplasia), were common findings.<sup>7</sup> Symptomatic diaphragm lesions need intervention, usually, segmental resection of the involved bowel is done.<sup>8</sup> Balloon dilation with enteroscope may obviate the need for surgery.<sup>3,9</sup>

To conclude, diaphragm disease is a rare cause of bowel obstruction and clinicians must be aware of this entity in patients taking NSAIDs.

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