

Gastroduodenal Pathology in Inflammatory Bowel Disease

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Background

Inflammatory bowel disease (IBD) includes Crohn's disease (CD) and ulcerative colitis (UC). Traditionally, CD is thought to involve the entire gastrointestinal tract in a patchy manner. UC involves the colon in a diffuse and continuous manner. Upper gastrointestinal inflammation, relatively common in CD, has been shown to occur also in UC, albeit less frequently.

Focal active gastritis (also referred to as "focally enhanced gastritis") has been reported in various percentages of patients with CD, whereas chronic inactive gastritis has been associated with UC. Recently, chronic active duodenitis, known to occur in CD, has been reported also in patients with UC. It remains unclear whether these findings could help establish a specific diagnosis in patients with suspected IBD.

This study was designed to assess the prevalence and the types of gastritis and duodenitis in patients with a synchronous diagnosis of IBD.

Methods

The gastrointestinal division of Miraca Life Sciences is a specialized histopathology laboratory that receives specimens from gastroenterologists operating in private outpatient endoscopy and surgery centers across the U.S. All demographic, histopathologic, endoscopic, and clinical information is stored in a searchable SQL database (the "Miraca Life Sciences Database").

From this database, we extracted all patients who underwent a bidirectional endoscopy between 1/2008 and 9/2012 and had both gastric and ileo-colonic biopsies. Study patients were those with a clinicopathologic diagnosis of IBD (UC, CD, or indeterminate, IND). Patients without history of IBD and who had a normal colon and/or ileum endoscopically and histologically were categorized as controls. Subjects with history or diagnosis of malignancy, upper GI surgery, autoimmune, or infectious diseases were excluded. Gastritis was classified according to the Updated Sydney System.

Results

There were 699 patients with CD (57.4% female; median age 46 years, range 5-86), 988 with UC (51.6% female; median age 51 years, range 9-93); 246 with IND (47.2% female; median age 50 years, range 3-92); and 26,409 controls (67.3% female; median age 49 years, range 1 month - 98 years). Table 1 summarizes the results of the gastric pathology. Table 2 explicitly highlights focal active gastritis. Gastric granulomas were found in 4 patients with CD (0.6%), and in one each of UC, IND, and control subjects. Duodenal biopsies were obtained in 18,109 controls (68.6%), 467 patients with CD (66.8%), 494 with UC (50%), and 144 with IND (58.5%). Active duodenitis was significantly more common in all IBD patients (14.4%) than in controls (7.5%), with the highest prevalence (17.6%) in those with CD (Table 3).

	<i>H. pylori</i> Negative Chronic Active Gastritis			<i>H. pylori</i> Positive Chronic Active Gastritis			Chronic Inactive Gastritis		
	n=	%	OR (95% CI)	n=	%	OR (95% CI)	n=	%	OR (95% CI)
Controls (n=26,409)	738	2.8	1 (ref)	1,950	7.4	1 (ref)	1,257	4.8	1 (ref)
CD (n=699)	156	22.3	9.99 (8.24-12.11)	31	4.4	0.61 (0.42-0.88)	77	11	2.48 (1.94-3.16)
UC (n=988)	70	7.1	2.65 (2.06-3.42)	59	6.0	0.80 (0.61-1.04)	85	8.6	1.88 (1.50-2.37)
IBD-IND (n=246)	30	12.2	4.83 (3.27-7.13)	19	7.7	1.05 (0.66-1.68)	17	6.9	1.49 (0.90-2.44)

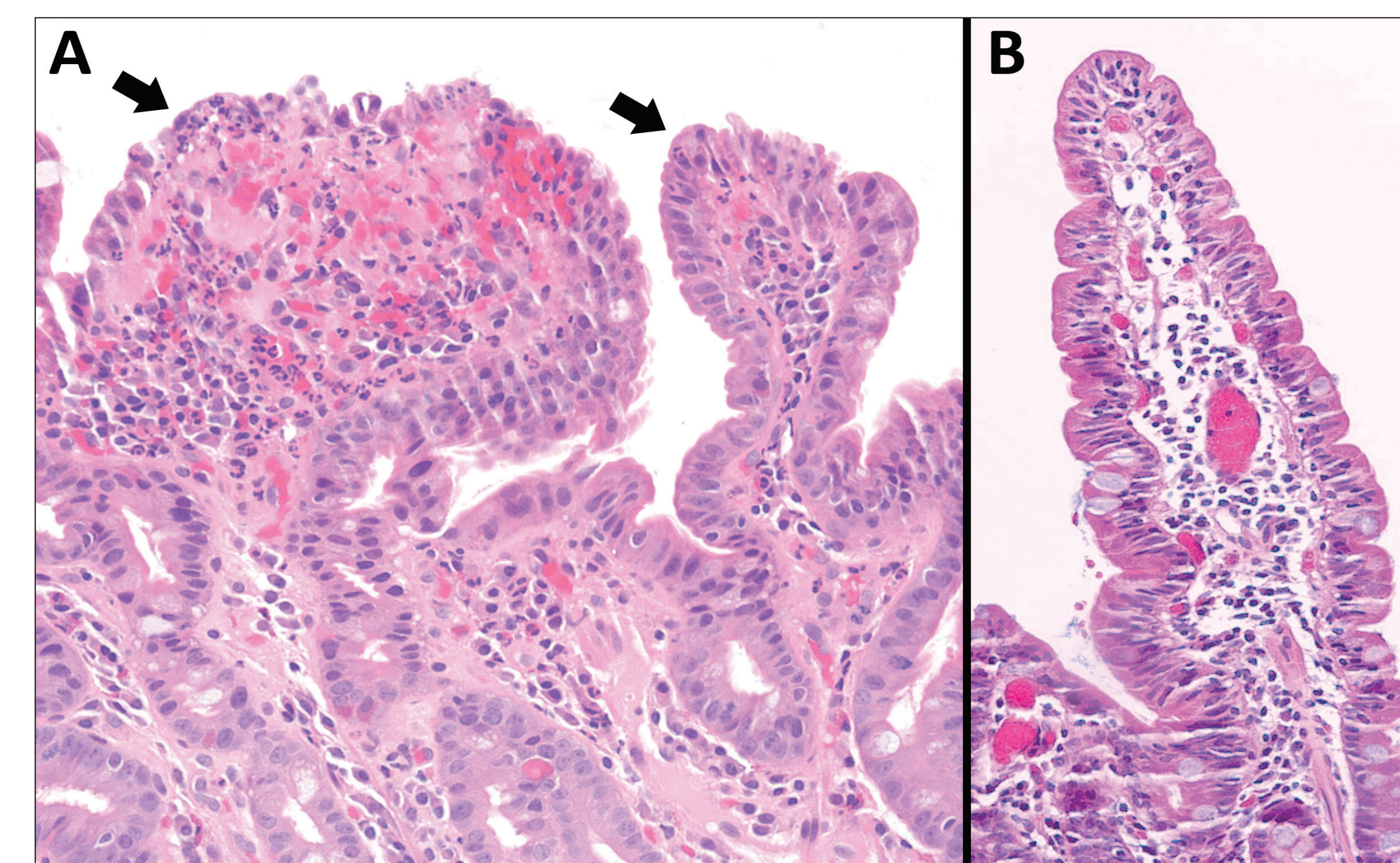
Table 1 – Gastric pathology found in Control and IBD patients with bidirectional endoscopies.

	Focal Active Gastritis		
	n=	%	OR (95% CI)
Controls (n=26,409)	11	0.04	1 (ref)
CD (n=699)	27	3.86	96.4 (47.6-195.2)
UC (n=988)	0	0	-
IBD-IND (n=246)	4	1.63	39.7 (12.5-125.4)

Table 2 – Subset of *H. pylori* negative chronic active gastritis.

	Duodenitis			Increased Intraepithelial Lymphocytes		
	n=	%	OR (95% CI)	n=	%	OR (95% CI)
Controls (n=18,109)	1,353	7.5	1 (ref)	847	4.7	1 (ref)
CD (n=467)	82	17.5	2.64 (2.07-3.37)	14	3.0	0.63 (0.37-1.08)
UC (n=494)	55	11.1	1.55 (1.17-2.06)	15	3.0	0.64 (0.38-1.07)
IBD-IND (n=144)	22	15.3	2.23 (1.41-3.53)	4	2.8	0.58 (0.22-1.58)

Table 3 – Duodenal pathology found in Control and IBD patients with bidirectional endoscopies.



A: Duodenitis. Arrows indicate active inflammation.
B: Duodenal Intraepithelial Lymphocytosis.

Study Highlights

- Compared to subjects with no IBD, *H. pylori* gastritis is significantly less common in patients with CD, but not in those with either UC or indeterminate IBD.
- Both chronic active *H. pylori*-negative gastritis and active duodenitis are significantly more common in patients with any form of IBD than in controls.
- These associations may be pathogenetically important, as they reflect a wide involvement of the gastrointestinal tract not only in CD, but also UC and indeterminate IBD.
- Neither the prevalence nor the type of gastritis and duodenitis are sufficiently distinctive to help pathologists focus on a diagnosis of CD versus UC.

Limitations

- Patients with quiescent IBD whose mucosa had reverted to normal (thus, no independent pathologic diagnosis of IBD could be made) were not included.
- Therefore, our data must be interpreted as reflecting the gastroduodenal pathology in patients with histologically confirmed IBD.

References

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