

Diagnostic yield of random colon biopsy in patients with chronic diarrhea and normal colonoscopy: A systematic review & meta-analysis

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1. Background and Aims

- Chronic diarrhea is a frequently encountered indication for outpatient colonoscopy.
- A majority of these patients do not reveal endoscopic abnormalities, and routine random colon biopsies are taken for further diagnostic assessment.
- We aim to perform a systematic review and meta-analysis to identify the pooled diagnostic value of random colonic biopsy in patients with chronic non-bloody diarrhea and a normal colonoscopy exam.

2. Methods

- Multiple databases including MedLine, Embase, Scopus were searched from inception to April 4th, 2022.
- Random-effects model was used to calculate the pooled rates.
- Study heterogeneity was assessed by I² values and 95% prediction interval.
- Primary outcomes assessed were the pooled rates of various diagnoses reported based on the histopathological assessment of random colon biopsy samples.

3. Results

- A total of 3322 individuals were analyzed in the 21 studies.
- Random colon biopsy in chronic diarrhea patients with normal colonoscopy provides a diagnostic yield in 30% of patients. A diagnosis of microscopic colitis was made in 15%.
- Normal colon biopsy was noted in 48%, and normal ileum biopsy in 88.5%.
- In studies with mean age <49 years, 40% demonstrated significant histopathological changes.
- The pooled diagnostic yield of individual diagnosis are summarized in Table.

4. Conclusion

- In our meta-analysis, random biopsies made it possible to identify significant histopathological changes in 30% of patients with chronic diarrhea.
- Future studies are needed to analyze the diagnostic yield on left versus right side random colon biopsy.

Table: Summary of pooled rates

Outcome: Diagnostic value of random colonic biopsy in the evaluation of chronic unexplained diarrhea with normal colonic appearance.	Pooled rate	95% confidence interval, (I ² heterogeneity)	Number of studies
Normal colon biopsy	48%	31-65, (98%)	17 studies
Normal Ileum biopsy	88%	51-98, (92.9%)	3 Studies
Microscopic colitis	15%	10 -21, (92%)	18 studies
Lymphocytic colitis	9.0%	6 -13, (85%)	14 studies
Collagenous colitis	3.5%	2.1-5.8, (80%)	12 studies
Nonspecific colitis	20%	11-35, (96%)	13 studies
Inflammatory bowel disease	1.7%	0.8-3.5, (54%)	12 studies
Infective colitis	2%	1.1-3.7, (17.6%)	8 studies
Eosinophilic colitis	2.3%	1.1-4.5, (69%)	11 studies
Melanosis coli	2.5%	1.1-5.8, (70%)	9 studies
Total significant histopathological change	30%	20 - 41, (96 %)	21 studies