

CROHN'S DISEASE

Characterized by transmural mucosal inflammation that leads to fibrosis and to obstructive clinical presentations, as well as microperforations and fistulae which may be formed by burrowing sinus tracks.

May involve entire GI track from mouth to perianal area:

80% with small bowel involvement –most commonly in distal ileum

50% with ileocolic involvement ---involvement of ileum and colon

20% with only colonic involvement

Small % with predominant involvement of mouth, gastroduodenal area, esophagus, or proximal small bowel

Approximately 1/3 with perianal disease

Signs & Symptoms:

- Most common symptoms are diarrhea, abdominal pain, weight loss, and fever.
- Since 1/3 have perianal involvement; may have presentation of perianal disease --- anal fissures, skin tags, perirectal abscesses, and anorectal fistulae.

Diagnosis:

- The hallmarks of Crohn's disease are prolonged diarrhea with abdominal pain, weight loss, and fever, with or without gross bleeding.
- Endoscopic techniques and radiologic procedures are mainstay of diagnosis – if symptoms suggest colonic involvement (left sided pain and gross bleeding), then colonoscopy is most often effective. Features on colonoscopy suggestive of Crohn's are focal ulcerations adjacent to areas of normal appearing mucosa --- cobblestone appearance. Frequently associated with skip lesions.
- Barium study of small bowel is mainstay of diagnosis of ileal disease. Typical features – narrowing of lumen (“string sign”), ulceration, cobblestone, fistulae, abscess formation
- Biopsy is confirmatory – granulomas are diagnostic of disease. Only present in 30%

Extraintestinal involvement:

- Uveitis, erythema nodosum, pyoderma gangrenosum, peripheral arthritis, ankylosing spondylitis, sclerosing cholangitis, amyloidosis, venous and arterial thromboembolism

Medical treatment:

- *anti-inflammatory agents* --- sulfasalazine, infliximab, azathioprine;
- *antibiotics* to treat infections associated with disease process --- metronidazole, cipro;
- *corticosteroids* --- prednisone, budesonide

Indications for surgery: Most common indication is disease activity that has been intractable to medical therapy. Ex:

- Persistent symptoms despite high dose treatment with steroids
- Remission dependent upon steroids
- Progression of disease with worsening of symptoms
- Significant treatment related complications

- Suspicion of malignant stricture or fistula

Surgical options in Crohn's Colitis: Predominant options are segmental resection vs. subtotal colectomy

Article Review:

P. Andersson, M.D.; G. Olaison, M.D., Ph.D.; O. Hallböök, M.D., Ph.D.; R. Sjö Dahl, M.D., Ph.D., F.R.C.S. **Segmental Resection or Subtotal Colectomy in Crohn's Colitis**; *Diseases of the Colon and Rectum*; 2002;45:47-53

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Purpose: Compared with subtotal colectomy, segmental resection is reported to be associated with a higher-rate of re-resection. This study compared segmental resection to subtotal colectomy with anastomosis with regard to re-resection, postoperative symptoms, and anorectal function.

Methods:

- 57 patients underwent surgery – only patients with primary involvement of colon were included.
 - 26 patients with subtotal colectomy
 - Bowel continuity restored anastomosis:
 - ileorectal (20)
 - Ileosigmoidal (4)
 - Cecorectal (2)
 - 31 patients with segmental resection
 - Restored anastomosis:
 - ileocolic (12)
 - Colocolic (19)
- Colon divided into 5 segments: 1) cecum 2) ascending 3) transverse 4) descending 5) sigmoid
- Removal of <= 3 segments ----> segmental resection
- Removal of 4-5 segments ---> subtotal colectomy
- This study also examined specifically those patients who had <= 3 segments of colon with involved Crohn's colitis. Out of the total of 57 patients, 43 patients fell into these criteria. In this group, which had three or fewer segments involved at the time of surgery, 12 patients underwent subtotal colectomy, and 31 underwent segmental resection. The indications for surgery in the 12 who underwent STC were symptomatic disease (9) and inability to rule out malignancy (3).
- Anorectal function was assessed with a questionnaire that used questions with answers classified on a 4 point scale; 1 meant excellent function and 4 indicated miserable function

Results:

- 26 STC → 12 re-resection → 0 2nd re-resection
Cumulative ten-year re-resection rate was 41.4%
Median time to re-resection was 7.3 years
Reasons for initial re-resection in patients with previous STC were ileocolic anastomotic recurrence (6), cecorectal anastomotic recurrence (1), rectal involvement (3), and a combination of anastomotic recurrence and rectal involvement (2).
- 31 segmental resection → 12 re-resection → 6 2nd re-resection
Cumulative ten-year re-resection rate was 55.3%
Median time to re-resection 2.6 years
Reasons for initial re-resection in patients with previous segmental resection were ileocolic anastomotic recurrence (2), rectal/colonic involvement (8) and a combination of the two (2)
- Re-resections in patients with ≤3 segments involved with Crohn's colitis
 - 12 STC patients → 9 re-resection
Cumulative ten-year re-resection rate were 53.1%
Median time to re-resection was 7.2 years
 - 31 segmental resection patients → 12 re-resection → 6 2nd re-resection
Cumulative ten-year re-resection rate was 55.3%
Median time to re-resection was 2.6 years
- Ano-rectal function:
 - Composite score showed better anorectal function for patients who had segmental resection than for patients who had STC.
 - The number of colonic segments removed proved to be the only independent factor that predicted postoperative anorectal function.
- Symptoms and perceived health: Patients who had segmental resection had a lower symptom index and fewer loose stools than patients who had STC. The number of segments removed and male gender were independent factors that predicted symptom index, as well as predicting loose stools.

Discussion:

- Subtotal colectomy with ileorectal anastomosis is regarded as the operation of choice for Crohn's colitis with a spared rectum
- In the present study, a similar risk for re-resection was found in patients treated with segmental resection compared with those who underwent STC. Furthermore, patients who had segmental resection had better functional outcome in terms of anorectal function, symptom index, and number of loose stools.
- The ten-year re-resection rates in of 55 and 41 percent in this study were consistent with those in previous studies. The numerically higher cumulative ten-year re-resection rate was explained by earlier re-resection in the segmental group.
- In the subgroup of patients with ≤3 segments involved, the difference in the median time to re-resection for the two groups was statistically significant.
- The risk for more than one re-resection was greater in the group treated with segmental resection; however, the total re-resection counts did not differ

- Patients treated with segmental resection had 1.8 loose stools per day compared with 4.9 in patients treated with STC --- similar to previous studies
- Patients receiving segmental resection had a better composite score regarding anorectal function – scored significantly better with regard to incontinence for loose stools, the ability to break wind without fecal leakage, and soiling
- The number of colonic segments removed proved to be the only independent variable to predict postoperative anorectal function.
- Colonic segments removed and male gender were the only factors that predicted loose stools and symptom index.

Conclusions:

“Segmental resection is not associated with a higher risk for re-resection than subtotal colectomy, although the time to re-resection may be shorter. Symptoms are less common and functional results are better after segmental resection. The number of colonic segments removed is the strongest predictor of functional outcome. Thus, segmental resection should be considered for limited Crohn’s colitis.”

Michael Wolfeld, M.D.