

Novel appearance of healing mucosa following anti-*Mycobacterium avium paratuberculosis* therapy for Crohn's disease

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Background To our knowledge, the pattern of mucosal healing induced by therapy for Crohn's disease (CD) has not been described previously. Combination anti-*Mycobacterium avium paratuberculosis* (anti-MAP) therapy has shown some success in the treatment of refractory CD and has now been noted to result in an unusual pattern of mucosal healing.

Aim To highlight the unique appearance of healing colonic mucosa in patients receiving anti-MAP treatment for severe CD.

Methods Six patients (2M, 4F; aged 20-49) with severe CD received a combination of rifabutin, ethambutol, clofazimine and clarithromycin as per CDD clinical protocol. Duration of anti-MAP therapy ranged from 2-5 years. Some patients used additional initial medications including prednisone, mesalamine, azathioprine, infliximab and metronidazole. A descriptive visual analysis of the mucosa was obtained prior to treatment and 3-6-monthly by colonoscopy in all patients.

Results *Visual appearance:* Unusual, previously unreported, longitudinal scarring of the colonic mucosa was observed in all 6 patients on anti-MAP therapy. Scarring had not been noted in any patient prior to the commencement of therapy nor whilst on previous standard CD treatment. In 3 patients, scarring was observed within 3-6 months of commencing treatment. Longitudinal scar tissue formed in inflamed colonic areas as the mucosa became visually free from inflammation and ulceration. Scarring was observed in all areas of the colon including the sigmoid (4/6 patients), descending colon (5/6), transverse colon (2/6) and cecum (1/6). Scarring appeared as long, pale "ribbon-like" patterns.

Histology: All patients displayed histologically active Crohn's disease at commencement of anti-MAP therapy. Of these, 2 patients (33%) showed no histological evidence of inflammation after 2-5 years of treatment.

Conclusions 1. Unique, longitudinal scarring of the colon is described in patients receiving anti-MAP therapy. 2. Such scarring has not previously been reported following conventional Crohn's treatment nor experienced before in this clinical practice. 3. This may possibly indicate more complete or perhaps full thickness healing. 4. Long term follow-up is now needed to confirm whether such scar tissue will fade with time and to determine the functional implications of such scarring.