Involvement of the appendix in pseudomembranous colitis

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Abstract
Pseudomembranous colitis (PMC) is an inflammatory disorder usually limited to the large intestine and is the consequence of antibiotic associated *Clostridium difficile* overgrowth with production of its toxin. It has a characteristic gross and microscopic appearance. PMC-like changes, usually associated with perioperative hypotension and with more extensive gastrointestinal tract involvement, have also been described. In neither clinical setting has pseudomembranous appendixitis been recorded. A case of pseudomembranous appendixitis in a 76 year old woman is described.

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Pseudomembranous colitis (PMC) is an inflammatory disorder usually limited to the large intestine and is the consequence of antibiotic associated *Clostridium difficile* overgrowth with production of its toxin. It has a characteristic gross and microscopic appearance. PMC-like changes, usually associated with perioperative hypotension and with more extensive gastrointestinal tract involvement, have also been described. In neither clinical setting has pseudomembranous appendixitis been recorded and we therefore wish to document its occurrence.

Case report
A 76 year old woman on haemodialysis for chronic renal failure developed rigors. Blood cultures grew staphylococcus and she was treated with clindamycin. The patient developed abdominal pain and diarrhea, and a diagnosis of pseudomembranous colitis was confirmed on colonoscopy and biopsy appearances. She was treated conservatively, given metronidazole and settled. Four weeks later, the patient was readmitted with recurrent pseudomembranous colitis. Because she was unresponsive to further conservative treatment, a proctocolectomy was performed. The patient died of septic shock five days later.

Pathology
The proctocolectomy specimen measured 70 cm in length with an attached appendix 6 cm in length. Multiple diverticula were present over almost the entire length of the transverse and descending colon. The mucosal surface showed diffuse disease with areas of ulceration alternating with adherent greenish membranes. Microscopic examination showed the typical appearances of pseudomembranous colitis with well-formed intracryptal summit lesions (type I) and type II lesions composed of dilated and disrupted crypts, showing partial destruction and surrounded by an expansive exudate of neutrophils and fibrin. There was extensive involvement of the diverticula and sections of the appendix showed typical lesions involving the mucosal surface (figs 1 and 2).

Examination of our records revealed five other colectomy specimens submitted to our laboratories with pseudomembranous colitis during the preceding 20 years. The patients’ ages ranged from 47 to 77 years and three of these had a history of antibiotic usage with...
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Discussion

Involvement of the appendix in pseudomembranous colitis has not to our knowledge been documented previously. This disease typically involves the colon, although a case involving an ileal conduit has also been published. Similarly, PMC-like changes involving the gastrointestinal tract from the oesophagus to the colon have been described, usually occurring after abdominal surgery, but there is no mention of appendiceal involvement. Why there is occasional appendical involvement despite similar degrees of severity and extent of disease is uncertain. Although the features of pseudomembranous colitis have been reported in other pathological states, including infective and ischaemic aetiologies, we feel it is important to document the occurrence of pseudomembranous appendicitis. While Arber described the case of a 76 year old woman who had an exploratory laparotomy for a presumptive diagnosis of perforated appendicitis and who had pseudomembranous colitis localised to the caecum, the clinical presentation in our two cases with appendiceal involvement was that of typical PMC rather than that of acute appendicitis. Although in up to 10% of patients with pseudomembranous colitis, the proximal colon only may be involved and despite our findings which indicate that appendiceal involvement can occur, an isolated pseudomembranous appendicitis with clinical features of acute appendicitis has yet to be described.

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