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Original contribution

Is focal active colitis of greater clinical significance in pediatric patients? A retrospective review of 68 cases with clinical correlation

Allison Osmond MD [a], Dhandapani Ashok MD [b], Courtney A Francoeur [b], Michael Miller [b], Joanna C Walsh MB, BCh [a,*]

[a] Western University & London Health Sciences Centre, London, ON, Canada
[b] Children's Hospital of Western Ontario, London, ON, Canada

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Summary Focal active colitis (FAC) is a histopathologic finding of uncertain clinical significance in individual patients. In adults, infection accounts for approximately 50%, Crohn's disease (CD) for 0–13%, and 20%–30% are idiopathic. One previous study of 29 cases of pediatric FAC showed a 28% rate of CD. This study reviewed a larger cohort of pediatric patients to determine what proportion had IBD, and whether an amount or pattern of inflammation could predict IBD. Sixty-eight patients aged ≤18 years with FAC were identified and reviewed. Patients with a prior diagnosis of IBD or chronic colitis in the index biopsies were excluded. Slides were assessed for a number of inflammatory criteria. Clinical data and final diagnoses were recorded. Data were analyzed using Pearson correlations and Fisher's exact χ^2 analyses. Sixteen patients (24%) had a final diagnosis of IBD. When cases with terminal ileal (TI) inflammation were excluded, 6 of 54 patients had a final diagnosis of IBD (11%). A final diagnosis of IBD was significantly associated with crypt abscesses and elevated serum inflammatory markers. IBD was significantly associated with TI inflammation. An amount or pattern of inflammation that could be used to predict IBD was not determined. This study demonstrated a 24% rate of IBD in pediatric patients with FAC; however, when patients with associated TI inflammation were excluded, the rate was 11%, similar to reported rates in adults. FAC in pediatric patients without terminal ileal inflammation does not appear to warrant more aggressive follow-up.

1. Introduction

Focal active colitis (FAC) has been defined as colonic neutrophilic crypt injury, in the absence of other abnormal histologic features [1]. In practice, FAC is applied to inflammation ranging from a single neutrophil in a single crypt to multiple neutrophils involving several crypts and including crypt abscesses (Fig. 1). FAC is a histopathologic finding that is of uncertain clinical significance in individual patients, as it may be seen in association with inflammatory bowel disease (IBD), infection, and ischemia, but may also be an effect of bowel preparation given prior to colonoscopy, with no consequent clinical implications.

Data regarding the likely significance of FAC in the pediatric population have been reported in one previous paper [2]. Twenty-nine cases were reviewed and revealed approximately equal numbers of cases (≈30% each) in which the cause of the FAC was Crohn's disease (CD), acute infection (including *C. difficile*) and idiopathic. Possible reasons stated for the

* Corresponding author at: Department of Pathology and Laboratory Medicine, London Health Sciences Centre, University Hospital, 339, Windermere Road, London, ON, N6A 5A5, Canada.
E-mail address: Joanna.walsh@lhsc.on.ca (J. C. Walsh).

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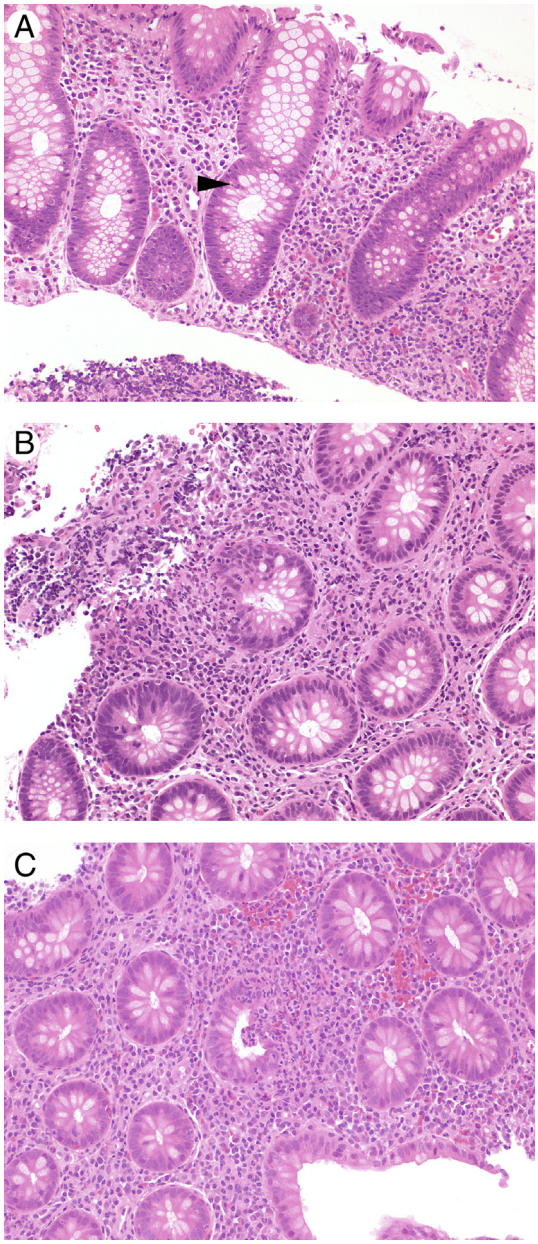

Fig. 1 Inflammation in FAC ranges from a single intraepithelial neutrophil (A, arrowhead; H&E, ×200) to multiple neutrophils (B, H&E, ×200) and crypt abscesses (C, H&E, ×400).

increased rate of IBD compared to that in the adult population (0–16% in 3 studies [1,3,4]) included lack of screening colonoscopies in the study set (ie, the biopsies were in a targeted, symptomatic population and more likely to show significant abnormality), and lack of oral sodium phosphate bowel preparation use in these patients.

The three major papers that have examined FAC in adults (49, 90 and 31cases, respectively [1,3,4]) reported infectious colitis (including *C. difficile* colitis) as the overall commonest cause for FAC (20%–50%). Approximately 20%–30% were thought to be idiopathic (likely the result of bowel preparation with sodium phosphate). Of the remainder, approximately 0%

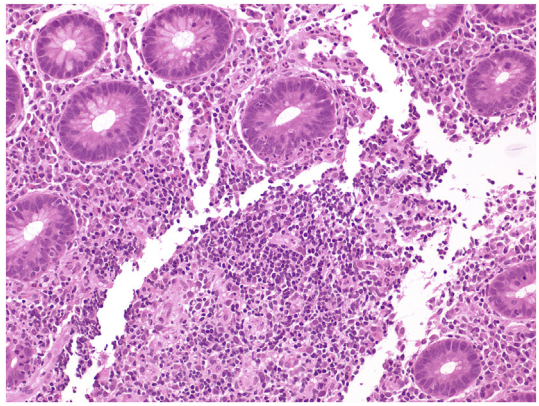

Fig. 2 Aphthous inflammation: acute inflammation overlying a lymphoid follicle (H&E, ×200).

[1], 16% [3], and 13% [4] were thought to have underlying IBD, specifically CD.

In the pediatric population there are likely to be fewer confounding factors that could cause FAC, including the recommendation that children do not receive oral sodium phosphate bowel preparations [5] and they are less likely to be taking non-steroidal anti-inflammatory drugs (NSAIDs), proton pump inhibitors (PPIs) and corticosteroids, all of which have been associated with colonic inflammation [6-12]. In addition, children are less likely to have large bowel ischemia, which is a cause of FAC in 4%–10% of adult patients.

Histologic features that can distinguish between incidental and clinically significant FAC have not been elucidated. Specifically, there is no minimum neutrophil cut-off for distinction between pathologic inflammation and inflammation that is of no clinical significance. Whereas a single focus of minimal acute inflammation in an adult is likely to be attributed to the use of bowel preparation and would not necessarily prompt further or repeat investigation, there is no guidance in the literature as to whether the same minimal degree of inflammation requires follow-up in the pediatric population. Given that almost 1/3 of children in the Xin et al study [2] were subsequently diagnosed with Crohn's disease, it would be reasonable to assume that all inflammation in this patient

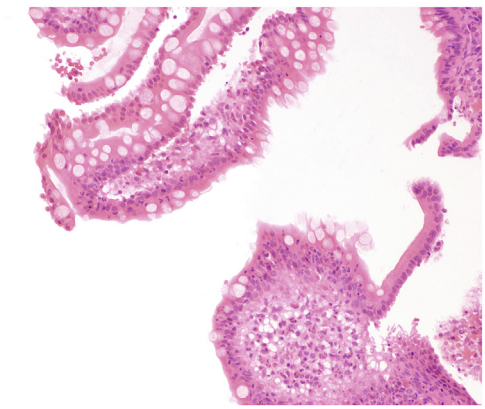

Fig. 3 Acute terminal ileal inflammation with surface epithelial neutrophil infiltration (H&E, ×200).