Schaumann bodies in Crohn's disease: a case report and review of the literature

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Abstract

Schaumann bodies are inclusion bodies, first described by Schaumann in 1941, typically seen in granulomatous diseases such as tuberculosis, sarcoidosis and chronic beryllium diseases. Williams WJ, in 1964, reported Schaumann bodies to occur in 10% of Crohn's disease (CD). We report a case of Crohn's disease, initially misdiagnosed as a schistosoma-related colitis for the presence of numerous calcified bodies resembling calcified ova and scattered granulomas. Subsequent biopsies showed more typical histological features and, in combination with a more complete clinical history, diagnosis of Crohn's disease was made.

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1. Introduction

Crohn's disease (CD), together with ulcerative colitis (UC), is a chronic, relapsing, inflammatory bowel disease (IBD) of uncertain etiology. Recent studies address IBD as heterogeneous diseases characterized by various genetic abnormalities that lead to overly aggressive T-cell responses to a subset of commensal enteric bacteria. Histological evaluation of ileal and colonic biopsies is critical in the diagnosis of CD and should always be correlated with full clinical data. Morphological diagnosis of CD is based on the presence of specific mucosal and submucosal alterations, namely disturbance of the mucosal architecture, basal plasmacytosis, transmural inflammation with granulomas and fistulae. A segmental distribution of the lesions, with unaffected "skip areas" is typical of CD and the disease can involve any site of the digestive gut, from the mouth to the anus.
IBD histological diagnosis presents many pitfalls, subordinated to the exclusion of other several conditions ranging from infective colitis to diverticular associated colitis. CD in particular must be differentiated from infective colitis with granulomatous reactions such as tuberculosis and Yersinia pseudotuberculosis. Granulomas are of diagnostic value in CD but they are not always present, they are observed in a number of CD surgical specimens varying from 15% to 85%, and they are more common in samples from children and from the distal colon and the rectum.5

In our experience calcified bodies are a rare finding in ileal and colonic biopsies.

We report the case of a 55 year old woman suffering from chronic kidney failure, severe diarrhea and weight loss; the first set of colon biopsies showed numerous granulomas with giant cells and calcified inclusions and was diagnosed as schistosoma related colitis. Subsequent biopsies and clinical response to IBD-therapy forced a change in diagnosis to Crohn’s disease and to the correct interpretation of concentric calcified bodies as Schaumann bodies, an infrequent finding in CD.

2. Case report

A 55 years old woman, with a 12-year history of kidney failure and affected by migrating joint pain, suffered from chronic diarrhea, occasional constipation, abdominal discomfort and weight loss for eight months before undergoing the first colonoscopy.

Biopsies were correctly taken from different colon segments: caecum, ascending, transverse and descending colon, sigma and rectum, oriented on acetate cellulose filters and submitted to the pathology department with a clinical information of “hemorrhoids and mild sigmoiditis”.

Biopsies showed inflammation of the mucosa and the submucosa in all the analyzed sites. Glands showed focally distorted architecture with a reduced number of goblet cells and inflammation relevant in all the analyzed biopsies focally creating initial and complete cryptic abscesses (Fig. 1, upper-left panel). In nearly all sites, in the mucosa and submucosa, concentric calcifications were observed either in the cytoplasm of Langerhans or giant cells, or surrounded by histiocytes (Fig. 1 upper-right panel) closely resembling Schistosoma calcified ova, remnants of a previous infection. Since the high rate of immigration from endemic areas is increasing the incidence of this disease in northern Italy and travels abroad by the patient could not be excluded, the diagnosis of Schistosoma-related colitis was proposed. The patient was referred to the Infectious disease centre where Schistosoma infection was excluded by fecal and serological tests.

Because of severe worsening of the clinical situation, three months from the first biopsies, the patient was admitted to the gastroenterology unit and a second colonoscopy was performed that showed a macroscopic aspect of pancolitis but no biopsies were taken. To do so a third endoscopy was performed, limited to the rectum and sigmoid colon. This second set of biopsies showed a similar histological pattern with chronic inflammation, focally active, associated with epithelioid granulomas and calcifications.

On the basis of the clinical presentation and the deterioration of symptoms Mesalazine, Deltacorten and Pantoprazole were administered with immediate improvement of the symptoms. Three months later a fourth endoscopy was performed

Figure 1  Schaumann bodies in Crohn’s disease.

Schaumann bodies in Crohn’s disease.
and biopsies showed a typical granulomatous colitis with affected glands' architecture, inflammation of the submucosa and epithelioid granulomas, even in the absence of calcified bodies (Fig. 2) and diagnosis of Crohn's colitis was made.

3. Discussion

Diagnosis of inflammatory bowel diseases lies on the integration of symptoms, clinical history and histological features. Morphological diagnosis of IBD is made by the presence of specific patterns in the ileum and colon mucosa and submucosa. Architectural glands distortion with crypt branches, mucosal atrophy, basal plasmocytosis, epithelioid granulomas and Paneth cell metaplasia are the stronger histological predictors of IBD. CD specific histological patterns include also granulomas, fistulae, skip lesions and intramural inflammation but rarely they are all present. CD diagnosis can be tough and in each case differential diagnosis must be made with other conditions such as diverticular disease associated colitis and infective colitis.

Schaumann bodies are inclusion bodies found in granulomatous diseases, composed of two elements, birefringent, calcium carbonate, crystals and concentric, laminated, conchoidal bodies. Schaumann bodies have been first described in sarcoidosis in the 1940s and characterized in their nature and origin by Williams WJ in 1960. The author suggested calcium carbonate crystals to be the primary inorganic inclusion, acting as a nidus for the secondary deposition of conchoidal bodies, composed of a protein matrix added with calcium, phosphate or iron salts.

In 1963 the same author described, for the first time, Schaumann bodies in Crohn's disease reporting them in 10% of Crohn's disease, in a series of 61 cases.

Recent literature on the incidence of Schaumann bodies in Crohn's disease is lacking and, in our experience, they are not a frequent finding in biopsy material, as well as in surgical specimens.

Since their rare occurrence, Schaumann bodies are a potential pitfall in the diagnosis of Crohn's disease, in particular, we describe the potential misdiagnosis with Schistosoma-related colitis. Calcified schistosomal ova of chronic schistosomal colitis, in fact, are basophilic calcifications that can be similar to conchoidal bodies, furthermore the chronic inflammation of the mucosa and the foreign-body giant cell reaction in the submucosa are usually present.

In conclusion we would like to stress that diagnosis of IBD relies on clinical information as well as on histological morphology. The pathologist should be given all the clinical data available at the moment of biopsies to reduce the incidence of misdiagnosis, above all in those cases susceptible of

Figure 2 Colon biopsies with Crohn's morphological patterns. The last set of colon biopsies showed inflammation of mucosa and submucosa with mucosal atrophy, branched crypts (upper photographs) and epithelioid granulomas (lower photographs).
chronic therapy or destructive surgery. The experience and the knowledge of potential pitfalls will be, at the end, the valuable tools in the pathologist’s hands.

References


