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Telogen effluvium as the first symptom of Crohn's disease in a child

Maria Rogalidou[a], Meropi Tzoufi[a], Konstantinos Katsanos[b], Georgios Gaitanis[c], Aikaterini Zioga[d], Epameinondas Tsianos[b], Antigoni Siamopoulou-Mavridou[a]

University Hospital of Ioannina, Ioannina, Greece

Abstract

Crohn's disease usually manifests gastrointestinal symptoms, however in some cases the patient presents with prominent or even exclusive extraintestinal involvement. Alopecia has been reported as a complication of therapeutic agents used in the treatment of inflammatory bowel disease, and, in a few cases of adult patients, prior to the appearance of gastrointestinal symptoms. We present a 10 year-old-child with telogen effluvium that appeared one year before the diagnosis of Crohn's disease, as the first and only symptom at that time. Other systemic causes of hair loss such as micronutrient deficiencies, endocrine imbalance or chemical exposure were excluded. Eight months later the patient presented with mild iron deficiency and signs of social retraction, while two months before the final diagnosis of Crohn's disease other more characteristic alarming symptoms (mild fever, oral apthous ulcers, weight loss) were added to the clinical picture. Alopecia improved after remission of Crohn's disease, reappeared when the patient relapsed, and finally resolved gradually when complete remission of Crohn's disease was achieved. Telogen effluvium was the first symptom of Crohn's disease in a child, and, although this is a rare association, it should be considered as an extraintestinal manifestation of Crohn's disease.

Keywords Telogen effluvium, Crohn's disease, inflammatory bowel disease, child, alopecia

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Introduction

Crohn's disease (CD) usually presents with gastrointestinal symptoms; however, some patients present atypically with prominent extraintestinal manifestations, while symptoms from the gastrointestinal tract are absent or minimal. Such atypical presentations may occasionally pose diagnostic problems that delay definite diagnosis and appropriate treatment initiation.

Effluvium and alopecia are common multifaceted pathologic conditions also observed in a variety of systemic, including autoimmune, diseases. Only in few cases of CD has some form of alopecia heralded the presence of full-blown disease in adult patients [1,2]. In addition, alopecia may be an adverse event of treatment with agents prescribed for inflammatory bowel disease (IBD) such as methotrexate, mesalamine, 6-mercaptopurine [3-5], and anti-tumor necrosis factor (TNF)-α drugs, such as infliximab and adalimumab [6,7].

We describe a child with a one-year history of diffuse reversible alopecia as the presenting symptom of CD. Alopecia recovered upon remission of CD.

Case report

A 10-year-old girl was admitted because of weight loss of 5 kg, mild fever (37.6-38°C) 2-3 times/week, and 1-2 episodes of vomiting/week over the last two months. Her medical history was unremarkable until she developed diffuse alopecia last year, refractory to treatment with topical steroids. Four months earlier, a mild iron deficiency without anemia was recorded for which she received iron supplements. During this period the alopecia worsened despite treatment (Fig. 1). At the same time she had consulted a child psychiatrist because of loss of interest in activities normal for her age and signs of social retraction. Two months before admission, recurrent oral aphthous ulcers appeared, and softening of her stools without episodes of diarrhea was noticed.

Her growth was normal; about the 50th centile both in weight and height. Physical examination revealed a slightly pale skin and scalp alopecia with friable hair and positive hair pull test in an otherwise completely normal child.

[a]Pediatric Gastroenterology Unit (Maria Rogalidou, Meropi Tzoufi, Antigoni Siamopoulou-Mavridou); [b]Division of Gastroenterology (Konstantinos Katsanos, Epameinondas Tsianos); [c]Dermatology Department (Georgios Gaitanis); [d]Department of Pathology (Aikaterini Zioga), University Hospital of Ioannina, Greece

Conflict of Interest: None

Correspondence to: Maria Rogalidou, MD, PhD, Consultant of Pediatrics, Ped-Gastroenterologist, University Hospital of Ioannina, Stavrou Niarchou, 45 500 Ioannina, Greece,
Tel.: +30 265109886, Fax: +3065106617,
e-mail: mrogalidou@yahoo.com

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Laboratory investigations revealed white blood count within normal limits, erythrocyte sedimentation rate (ESR) at 51 mm/h; C-reactive protein (CRP) 21 mg/L, hemoglobin 12.9 g/dL and platelet count 508,000 /μL. Serum iron was 37 μg/dL, total iron-binding capacity (TIBC) 404 μg/dL, and ferritin 50 ng/mL. Total proteins were 7.7 g/dL, serum albumin was 3.8 g/dL. Serum electrolytes, cooper and zinc liver function tests, prothrombin time, lipid profile, vitamin B12, folic acid, vitamin D, thyroid function tests, serum immunoglobulins, and cortisol levels were all within normal limits. Celiac antibodies were negative. In addition, serological tests were negative for pANCA, ASCA, anti-DNA, antinuclear antibodies, and antibodies for viruses were also negative. Stool examinations were positive for occult blood but negative for bacteria and parasites. Abdominal ultrasound, electrocardiogram, and chest x-ray were normal. Purified protein derivative skin test was negative and the opthalmological examination was unremarkable.

Magnetic resonance imaging enteroclysis showed thickening of terminal ileum wall. Endoscopy from upper and lower intestinal tract showed aphthous ulcers in duodenum and ulcers with mucopurulent exudate in terminal ileum. Mucosal biopsies confirmed the diagnosis of Crohn's colitis with presence of granulomas in terminal ileum (Fig. 2A) and stomach (Fig. 2B) and chronic inflammation in colon. Findings of celiac disease were not recorded. Treatment with prednisone (2 mg/kg/d initial dose with tapering) and azathioprine 2.5 mg/kg (final dose) was started after thiopurine methyltransferase evaluation. After one month of treatment the hair loss gradually stopped in parallel to the cessation of the symptoms from the gastrointestinal tract. Six weeks after prednisone discontinuation, the patient was re-admitted to the hospital because of CD symptoms (diarrhea, oral aphthous ulcers, excessive hair loss), accompanied by elevation of ESR and CRP. Due to hepatotoxicity, azathioprine was stopped and infliximab (5 mg/kg/8w) was introduced. After one year in sustained remission under infliximab her hair has gradually regrown (Fig. 3) as seen by negative hair pull test. Meanwhile she has grown from the 50th centile to the 75th centile. She is fully resocialized with a normal spectrum of activities for her age and with no need for further psychotherapy. She presently attributes her past social retraction to the tiredness felt at that time and low self-esteem caused by hair loss.

Discussion

A wide spectrum of associated cutaneous findings is seen in patients with IBD. Their appearance usually coincides with or follows the diagnosis of IBD, but it may also antecede the bowel involvement by months or years.

Little is known about the pathogenesis of the extraintestinal manifestations in CD [8,9]. The exact prevalence of hair loss in patients with IBD is unclear. In particular telogen effluvium has been described in association with severe acute or chronic illness, nutritional deficiencies that accompany IBD and as a side effect of medications used to treat IBD [9].

On the other hand, there is also a number of case reports of alopecia areata that causes anagen effluvium in patients with IBD [10]. Although many molecular pathways are implicated in the pathogenesis of alopecia areata as well as in CD, a Th1 cytokine-dominated inflammatory process is shared by both.

In our patient, systemic causes of hair loss, such as micronutrient deficiencies, endocrine imbalance, or chemical exposure, have been excluded in the initial assessment of

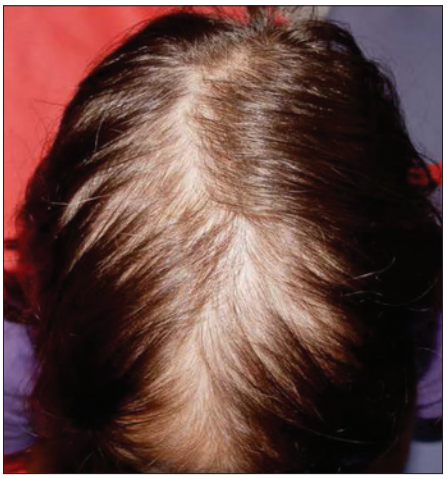

Figure 1 Patient's hair at diagnosis of Crohn's disease

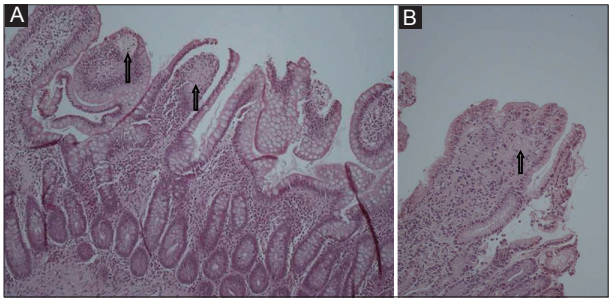

Figure 2 H-E x 200 Non-caseating granulomas in the mucosa of: (A) ileum (B) stomach

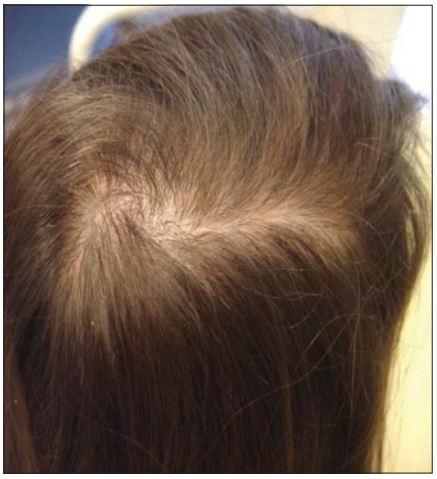

Figure 3 Patient's hair one year after treatment

alopecia. Hair loss has stopped after initiation of treatment for CD and effluvium relapsed after the treatment was discontinued. Alopecia dramatically improved after complete remission of CD with a gradual recovery of quantity and quality of hair. Thus, hair loss appears to have been a very early manifestation of CD, probably its first presenting symptom in this case. The mechanism of chronic diffuse hair loss in this case remains elusive. The patient was not malnourished and did not have evidence of malabsorption. The mild iron deficiency with normal TIBC and ferritin levels, without anemia could be a contributing factor but can hardly explain the hair loss. Iron substitution did not improve effluvium in our patient, and, even now, it persists, although hair loss resolved. This suggests that inflammation is the major factor for the pathogenesis and resolution of alopecia in this patient.

The association of CD and diffuse effluvium should be considered as an extraintestinal manifestation of CD if unexplained alopecia occurs, especially when other alarming symptoms are present.

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