A Rare Case of Ulcerative Colitis with Neurofibromatosis Type 1

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Summary: Concomitant association of histologically proven inflammatory bowel disease (IBD) and neurofibromatosis type 1 (NF1) is a rare finding documented in only 5 adult clinical cases. A 34-year-old woman with known neurofibromatosis was admitted to our department with a 6-month history of intractable bloody diarrhea and abdominal pain. After a thorough clinical examination and paraclinical assessments, including colonoscopy and biopsy, ulcerative colitis (UC) was confirmed as the cause of gastrointestinal bleeding. NF1 is considered an autosomal dominant condition caused by mutations in the NF1 gene, which is located on chromosome 17q11.2 [1]. A wide variety of NF1 mutations have been found in patients with NF1, but no frequently recurring mutation has been identified. Since the pathogenesis of IBD is also associated with genetic make-up, these two entities may be associated with a genetic factor.

Key words neurofibromatosis type 1, inflammatory bowel disease, ulcerative colitis, lower gastrointestinal bleeding, “café au lait” spots

INTRODUCTION

The most common gastrointestinal involvement in neurofibromatosis is due to tumoral lesions which may present with gastrointestinal bleeding or obstruction. So far as we can ascertain, only 5 reports have been published about neurofibromatosis associated IBD. Here, we report a case of concurrent neurofibromatosis and UC.

CASE REPORT

A 34-year-old woman who had been diagnosed with neurofibromatosis 12 years previously was admitted to our department with a 6-month history of intractable bloody diarrhea and abdominal pain. She had a history of four admissions for the resection of neurofibromas of the peripheral nerves in the neck. There was no positive family history for neurofibromatosis. She was a non-smoker and did not mention alcohol consumption. At her first visit, her major complaint was bloody diarrhea and colicky abdominal pain. She complained of more than seven episodes of diarrhea each day along with nocturnal episodes starting a week prior to the visit. Her stool was mixed with bright red blood.

Upon initial examination, vital signs were within the normal limits, except for mild tachycardia (pulse, 102 bpm). The abdomen was soft, and several freely movable, soft, and non-tender subcutaneous and intradermal nodules of varying sizes were detected on superficial palpation. On skin examination, there were widely distributed freckles and hyper-pigmented macules (Figure A) and patches with sharp borders of variable sizes (Figure B). The hyper-pigmented brown patches, known as “café au lait” spots, were mostly

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Abbreviations: IBD, inflammatory bowel disease; NF1, neurofibromatosis type 1; UC, ulcerative colitis.
Laboratory data were as follows: white blood cell count, 7300/μL; hemoglobin, 5.4 g/dL; platelet count, 584,000/μL; blood urea nitrogen (BUN), 11.7 mg/dL; Cr, 0.49 mg/dL; Na, 136 meq/L; K, 3.2 meq/L; albumin, 2.05 g/dL; and erythrocyte sedimentation rate (ESR), 26 mm/h. Stool examination revealed many red blood cells without any evidence of parasites, and stool culture was negative for infectious colitis. Total colonoscopy showed diffuse edema with a peculiar granular pattern, erosions, and deep ulcers on the entire colonic mucosa (Figure C). Several biopsy samples were obtained from the cecum to the rectum. Histological examination of the colonic mucosa revealed a prominent lymphoplasmacytic infiltration in the lamina propria, goblet cell depletion, cryptitis, and crypt abscesses (Figure D). Therefore, the patient was diagnosed with severe UC and started treatment with prednisolone 50 mg/day and 5-aminosalicylic acid (ASA) 4 g/day. Six weeks after admission, she was discharged from the hospital while on prednisolone 25 mg/day and 5-ASA 4 g/day.

**DISCUSSION**

NF1 is considered an autosomal dominant condition caused by mutations in the *NF1* gene, which is located on chromosome 17q11.2 [1]. Clinical mani-

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*Fig. A. Skin lesions*
There were widely distributed freckles and hyperpigmented macula. The hyperpigmented brown patches were mostly seen on abdominal and lumbosacral areas.

*Fig. B. Skin lesions*
There were patches with sharp border of variable sizes.

*Fig. C. Sigmoid mucosa*
In colonoscopy, diffuse edema with a peculiar granular pattern, erosions, and deep ulcers on the entire colonic mucosa.

*Fig. D. H&E staining (10×)*
In microscopic examination the lamina propria was infiltrated with lymphocytes and plasma cells. The crypts showed goblet cell depletion, cryptitis, and crypt abscesses.
festations include “café au lait” spots, neurofibromas, frecklings, Lisch nodules, optic gliomas, and bone deformities. A wide variety of NF1 mutations have been found in patients with NF1, but no frequently recurring mutation has been identified. Since the pathogenesis of IBD is also associated with genetic make-up, these two entities may be associated with a genetic factor. However, any genetic association between IBD and NF1 remains to be elucidated, and only four reports of UC with NF1 and one report of Crohn’s disease with NF1 are available [2-5]. It will be necessary to accumulate more cases of IBD with NF1 to clarify this hypothesis.

REFERENCES