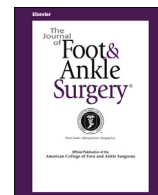




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Pedal Gangrenous Changes in the Digits of an Adolescent With Ulcerative Colitis: A Case Report



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ABSTRACT

Ulcerative colitis is an autoimmune inflammatory disease of the colon and is occasionally associated with thrombosis. We report the case of an adolescent with ulcerative colitis who presented with bilateral gangrenous toes without signs of ascending cellulitis. Radiographs indicated the presence of bilateral and erosive changes in the distal phalanges. The vascular team referred the patient for podiatric intervention for distal vasculitis and thrombosis of the digital vessels. Transphalangeal amputations were performed, and postoperative antibiotics were initiated. The surgical sites healed uneventfully, and the patient was able to resume daily activities. Thrombosis of the foot in the context of ulcerative colitis is a rare, but serious, complication that can lead to serious comorbidities, including amputation.

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Ulcerative colitis is a chronic autoimmune inflammatory bowel disease characterized by mucosal inflammation and ulceration of the colon (1). Although the exact causes remain unclear, the etiology is believed to be multifactorial, involving genetic, environmental, and immune components (1). The global incidence and prevalence of ulcerative colitis vary, depending on the geographic area and have been reported to be as high as 24.3/100,000 person-years and 505/100,000 persons, respectively (2). According to Benchimol et al. (3), the incidence of pediatric inflammatory bowel disease ranges from 0.25 to 13.30/100,000 person-years in North America and Europe and is increasing internationally. Ulcerative colitis is an important clinical concern, because the incidence and prevalence are increasing rapidly, particularly among the pediatric population (4). According to the Swiss Inflammatory Bowel Disease Cohort Study Group, this could be because of an increase in the overall incidence of the disease itself, rather than onset at a younger age (4).

In addition to the reduced quality of life that occurs with chronic abdominal discomfort, a number of serious comorbidities are associated with ulcerative colitis. The chronic inflammatory state is linked to a hypercoagulable state and thromboembolism (5). In the

general population, the incidence of thrombotic events in inflammatory bowel diseases is approximately 6%, and the mortalities associated with thrombosis have ranged from 8% to 25% (5). Specifically, the absolute risk of any thrombotic event was reported to be about 102/10,000 hospitalizations and of deep vein thrombosis to be about 63/10,000 hospitalizations in children with ulcerative colitis (14). The age-adjusted incidence rate ratio for deep vein thrombosis in patients with ulcerative colitis compared with those without ulcerative colitis is 2.77, with a greater incidence rate (4.08) observed in patients younger than 40 years (6). According to Nylund et al. (14), the general risk of developing thromboembolism in the pediatric population is lower than that in adults. Hence, it has often been assumed that the risk of developing thromboembolism in the presence of ulcerative colitis would also be lower (14). However, venous thrombosis is a potentially serious comorbidity that is significantly associated with the presence of ulcerative colitis. Although the risk of developing venous thrombosis is greatest during active periods of the disease, patients who are asymptomatic and ambulatory can also develop thrombi (7). Therefore, awareness and follow-up examinations for thrombotic events are important in patients with ulcerative colitis.

Although deep vein thrombosis and pulmonary emboli have been relatively well studied among patients with inflammatory bowel diseases, cases of distal thrombi have not been widely reported. The absolute risk of developing pulmonary embolism in children with ulcerative colitis is lower (0.064%) than that in children without

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Fig. 1. Preoperative image showing gangrenous tissue extending to distal digits 1 to 5 bilaterally, with no signs of ascending cellulitis.

ulcerative colitis (0.12%). A previous case report described a patient with active ulcerative colitis who developed severe pain and hypoxia in the toes of 1 foot owing to the development of aortic microemboli (8). That patient was successfully treated with anticoagulant agents. In our case report, we present a young patient with ulcerative colitis

who developed thrombosis of the feet and subsequent gangrene of the toes, resulting in amputation. Our case report highlights the rare, but serious, complication of thrombosis of the foot in the setting of ulcerative colitis.

Case Report

An 11-year-old female presented in March 2006 with bilateral, chronic gangrene that had affected all 5 toes without infection. She had been referred by the vascular team for debridement of the tips of the affected digits and additional treatment. As a result of the ulcerative colitis, the patient had experienced bilateral distal vasculitis and thrombosis of the small vessels involving the toes, which resulted in ischemia.

The patient's medical history included ulcerative colitis, urinary tract infection, and hypotension. Her surgical history included total colectomy owing to the ulcerative colitis. She also had an allergy to metronidazole. Her family history included diabetes mellitus and hypertension.

The physical examination revealed that the neural status of both feet was within normal limits. Gangrenous tissue was present bilaterally on distal digits 1 to 5, with no purulence, malodor, or signs of ascending cellulitis (Fig. 1). The patient denied having any fever, nausea, vomiting, chills, or shortness of breath. Radiographic imaging showed bilateral erosive changes to the distal phalanges (Fig. 2). Surgery was scheduled for transphalangeal amputation of all affected digits with consent given by the patient's mother.

General anesthesia was used during surgery without a tourniquet. Transphalangeal amputation of toes 1 through 4 was performed on the right foot, with subsequent removal of all necrotic tissue from the dorsal and distal pulp of the digits. A viable plantar flap was transposed dorsally for primary closure of the incision site. The right fifth



Fig. 2. (A) Anteroposterior radiograph of left foot preoperatively showing erosion at the intermediate and distal phalanges of the second to fifth toes, without evidence of fracture or dislocation. (B) Anteroposterior radiograph of right foot preoperatively showing erosion at the intermediate and distal phalanges of the second to fifth toes, without evidence of fracture or dislocation.



Fig. 3. (A) Postoperative anteroposterior radiograph of the left foot showing transphalangeal amputation of toes 1 through 5. (B) Postoperative anteroposterior radiograph of the right foot showing transphalangeal amputation of toes 1 through 4, with fifth toe not undergoing debridement.

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