A rare case of juvenile-onset Behçet's disease: Fournier's gangrene followed by intestinal involvement

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Behçet's disease (BD) is a multisystemic, inflammatory disease with still unknown etiology and rarely seen in childhood. BD has worse prognosis in young, male patients. BD exacerbations may be triggered by viral, bacterial, and other undefined antigenic stimuli in genetically predisposed individuals. Fournier's gangrene (FG) is a rapidly progressive, necrotizing fasciitis of the genital and perineal regions with high morbidity and mortality. FG is usually seen in immunocompromised patients and may be triggered by local factors such as trauma, thrombosis, and vasculitis. Here, we present a adolescent, male patient with juvenile-onset BD who developed FG and afterwards entero-Behçet. This unique assocation without any other underlying immunocompromised condition is discussed. ***Ann Pediatr Surg*** **13:56–58 © 2017 Annals of Pediatric Surgery.**

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Introduction

Behçet's disease (BD) is a systemic inflammatory disease characterized by exacerbation and remissions. Genetic factors triggered by infectious agents, vascular endothelial pathologies, and immunological factors are believed to be involved in the etiology [1]. The clinical spectrum of juvenile-onset BD seems to be similar to that of adult-onset BD [2]. Male sex and early onset of the disease have been shown as the risk factors for severe systemic involvement [1,2].

Fourniere gangrene (FG) is a rapidly progressive form of necrotizing fasciitis located especially on the scrotum and perianal areas. Various microorganisms are involved and it is often accompanied by comorbidities that can lead to immunosuppression [3].

Here, we present a young, male patient with BD who first developed FG followed by intestinal involvement of BD.

Case report

A 19-year-old male patient was admitted to the Emergency Department because of the formation of a rapidly growing, painful, necrotic wound. He did not recall any genital lesion, trauma, or shaving before ulceration. The patient's body temperature reached 38.6°C, and he had a necrotic ulcer of ~8 cm in diameter on the right gluteal region extending to right scrotum.

He had been diagnosed with BD since 15 years of age and had been using colchicum dispert 1.5 g daily and intramuscular 1.2 mIU benzathine benzylpenicillin injections monthly since then. In the past he only had skin involvement of BD in the form of oral and genital aphtae and pustular lesions.

Laboratory investigation revealed an increased white blood cell count of 26 000/μl (4000–10 000/μl), minimally increased blood urea nitrogen of 26.57 mg/dl (5–25 mg/dl), creatinine of 1.42 mg/dl (0 : 40–1 : 20 mg/dl), and alkaline phosphatase of 183 U/l (25–120 U/l).

Erythrocyte sedimentation rate was increased (56 mm/h) (0 : 01–15 : 00 mm/h) as was his C-reactive protein (354 mg/l) (0.01–5 mg/l).

The patient was diagnosed with FG and underwent a debridement operation (Fig. 1a). *Escherichia coli* was isolated from the wound culture.

Despite treatment with broad-spectrum intravenous antibiotics such as teicoplanin 400 mg/day, meropenem 3 g/day, amikacin 1 g/day, and metronidazole 1.5 g/day, his fever was still high at 38.5°C.

On MRI, a collection of abscess was detected on the right perineal area (Fig. 2). After drainage of the abscess, the general condition of the patient improved and his fever normalized.

He continued colchicine treatment and monthly benzathine benzylpenicillin injections (intramuscularly, 1.2 mIU).

Two months after his second operation the wound healed completely (Fig. 1b) and his laboratory tests were normal.

One month later, he started to have diarrhea. In the physical examination, there was right lower quadrant tenderness. In computed tomography, inflammatory changes in the cecum were seen. Acute appendicitis was ruled out. In colonoscopy, a 4 cm ulcer covered with a white exudate was seen on the ileocecal valve. Histopathological examination showed ulcerations and

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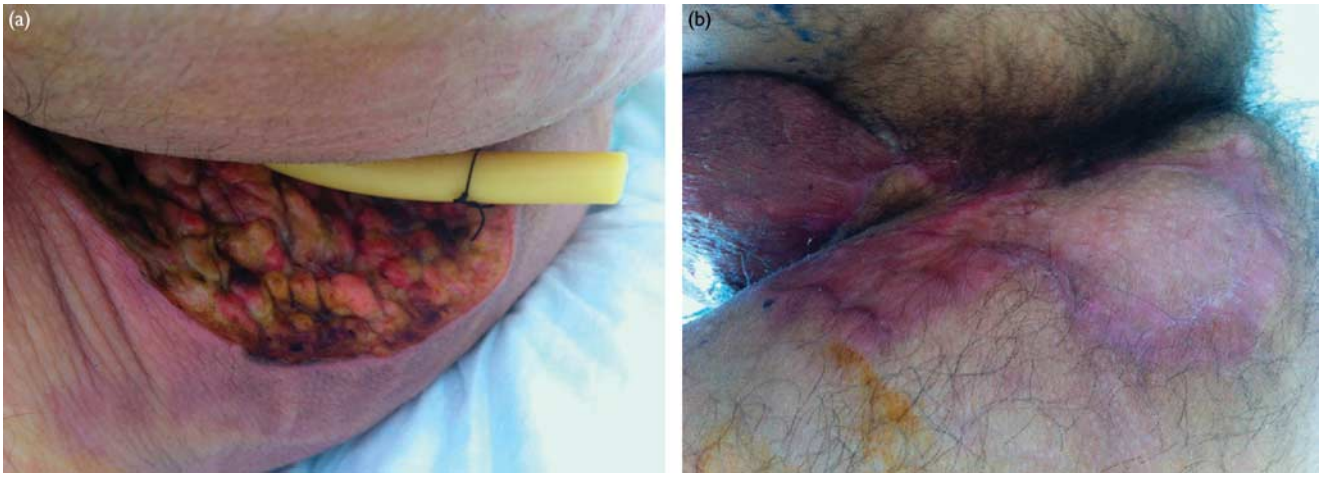
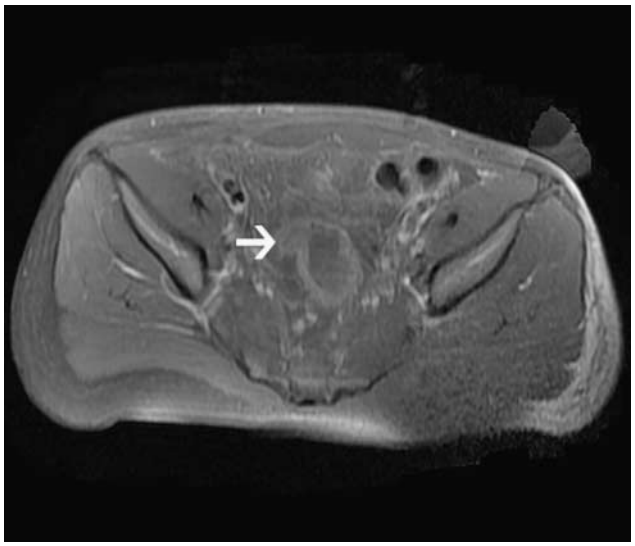
Fig. 1



(a) The primary wound including right glutea and scrotum after debridement. (b) The repaired defect 45 days after surgery.

Fig. 2



Collection of abscess on hyperintense T2 images of MRI (arrow).

nonspecific inflammatory changes with an infiltration of monocytes and lymphocytes.

A diagnosis of intestinal BD was reached and Crohn's disease was ruled out by colonoscopic and histopathologic examination. Colchicum treatment was stopped because of gastrointestinal side effects, and fluocortolone (40 mg/day) and azathioprine (100 mg/day) was started. After 1 year, the patient reported no symptoms of cutaneous or intestinal BD and laboratory investigations were totally normal. Azathioprine was discontinued. The patient continued to be followed up with 5 mg/day fluocortolone dose on alternate days.

Discussion

Necrotizing fasciitis also results from local and/or systemic debilitating states such as diabetes mellitus, alcoholism, or chemotherapy, although mixed microbial etiologic factors have been identified. As local factors, lymphedema, trauma, vascular insufficiency, hypersensitivity vasculitis, and thrombosis have all been considered. Despite various treatment schedules with new broad-spectrum antibiotics, surgical debridement remained the main treatment [3,4].

In our case, because of a lack of accompanying comorbities or immunosuppressive therapy, BD seems to be the only predisposing factor. In the retrospective analysis of Orhan *et al.* [5] of 11 FG cases with an age range of 24–80 years, coexistence of FG and BD was reported only in one patient, who was 47 years old. In addition, Sumi [6] has reported a case of a 48-year-old with myelodysplastic syndrome and recurrent FG followed by intestinal involvement of BD.

Subcutaneous tissue necrosis in FG related with vascular pathologies has been stated to precede the infection, or infection leading to endarteritis and thrombosis as the initiating factor has also been proposed [7]. The vasculopathy in BD may lead to an abnormal inflammatory response against bacterial microorganisms arising from the gastrointestinal or urogenital tract. This response leads to obliterative endarteritis, thrombosis of cutaneous and subcutaneous blood vessels by spreading the fascias [4]. Vascular injury and increased T-cell response against microbial antigens can be considered as playing a role in the development of FG in BD.

Intestinal involvement is not rare in BD. Studies has reported the frequency of gastrointestinal manifestations as 3–25% in adults and 0–50% in children [8]. Karıncaoglu *et al.* [2] and Krause *et al.* [9] reported significantly more gastrointestinal involvement among patients with juvenile-onset BD than with adult-onset BD. Fujikawa and Suemitsu [10] also reported that there was a higher frequency of intestinal symptoms in children with BD compared with adults. Ulcerations are often located in the ileocecal region [8]. T-cell-based immunity induced by bacterial pathogens is considered in the pathogenesis of intestinal BD [11]. The cytokine pool before or after the operations is believed to affect the outcome and

the extent of postsurgical complications and events. Pathergy-like effect has been described in patients with BD after surgical procedures in the perioperative tissue [12]. In our case, activation of BD with intestinal involvement may have been triggered by cytokine activation after FG surgery rather than by microbial stimulation.

FG developed in our patient who was followed up with juvenile-onset mucocutaneous BD, and intestinal involvement was added to the clinical picture after few months. Accompanying BD can be considered a predisposing factor for the development of FG. Additionally, inflammatory cell migration and tissue injury, which is triggered either by trauma or by microbial pathogens, seem to play a role in the pathogenesis of intestinal BD preceded by FG. In conclusion, younger patients with BD have a more active course, and gastrointestinal involvement is more prominent. In the adolescent age group, FG and accompanying intestinal involvement of BD should be kept in mind.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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