

A case of reactive arthritis caused by a perianal abscess

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Abstract

Reactive arthritis is an immune-mediated aseptic arthritis resulting from either genitourinary or intestinal tract in a genetically susceptible host. Reactive arthritis is not uncommon, and the most common infectious agents are *Chlamydia trachomatis*, *Salmonella*, *Yersinia*, and *Shigella*, some new infectious agents include *Staphylococcus lugdunensis*, *Rothia mucilaginosa*, and *umbilical cord-derived Wharton's jelly*, as well as the SARS-CoV-2 virus, which has been more studied in recent years. We found that reactive arthritis caused by infection of perianal abscesses is very rare and few cases have been described in the medical literature. We report a 21-year-old man with polyarticular swelling and pain, and subcutaneous hematoma at his right ankle joint; he was considered reactive arthritis. After treating with non-steroidal anti-inflammatory drugs, sulfasalazine, surgery, and antibiotics, the patient's arthralgia gradually improved and the symptoms largely disappeared at the 1-month follow-up.

Keywords

Reactive arthritis, perianal abscess, pathogenic bacteria

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Introduction

Reactive arthritis (ReA) is an inflammatory disease of the joints secondary to bacterial infections of the gastrointestinal tract, urogenital or pulmonary.¹ It is most often self-limited, but can progress to chronic spondylarthritis,² although the relationship between HLA-B27 and infectious agents has been known for decades, the pathogenesis of ReA remains to be poorly understood, genetic and environmental factors are involved; hence, we should consider different aspects of the development of ReA, including the persistence of their antigens in the joints, genetic factors, impaired elimination of causative microbes, and host immune response.³ ReA is more common in young adults between the ages of 18 and 40.⁴ The treatment including non-steroidal anti-inflammatory drugs (NSAIDs), disease modifying antirheumatic drugs (DMARDs), biological agents, and antibiotics.^{5–7}

Perianal abscess is a purulent disease which mainly results from the spread of inflammation to the soft tissues or tissue spaces around the anal canal and rectum after the infection of the anal glands; 90% of perianal abscesses are caused by infection of the anal glands, but about 10% are caused by other causes, including chronic inflammation, tuberculosis, Crohn's disease, malignancy, radiotherapy, or foreign bodies.^{8–11} ReA causes aseptic arthritis mainly through the mucosal portal (mainly digestive and urogenital

at the site of infection, and it occupies a special place in chronic inflammatory rheumatic diseases.¹² For perianal abscesses, mixed bacteria infection was more common, in this paper we describe a patient with a perianal abscess caused by mixed infection (*E. coli*, *Morganella morganii*, and *Enterococcus faecium*), who developed acute inflammatory arthritis and a subcutaneous hematoma at the knee joint.

Case report

A 21-year-old man was admitted to our hospital with a 1-week history of multiple joint swelling and pain (both knees, both ankles, the right shoulder, and wrist) and fever, we could observe that significant redness, swelling, and a subcutaneous hematoma in his right ankle joint, and the local skin temperature was elevated (Figure 1). He had a history of cold, and had had aqueous diarrhea 3 days before the onset of his current symptoms. Laboratory analysis at admission showed the

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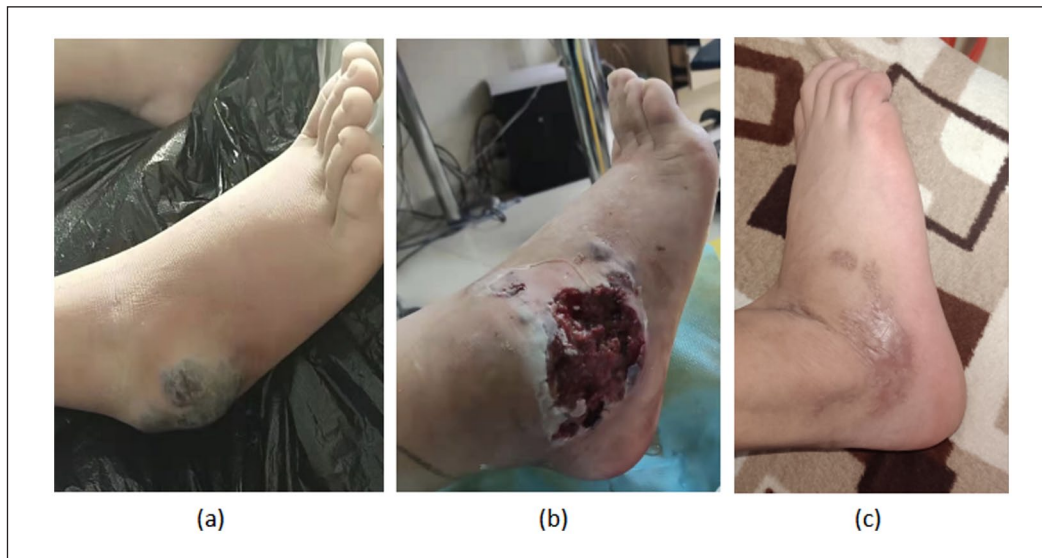


Figure 1. Swelling and subcutaneous hematoma involving the right ankle joint (a). Debridement of subcutaneous hematoma of the right ankle joint (b). Right ankle joint after treatment (c).

following: a leukocyte count of $11.78 \times 10^9/L$ (3.50–9.50) with a neutrophil count of 82.9% (40–75), platelet count of $384 \times 10^9/L$ (100–300), an erythrocyte sedimentation rate 77 mm/h (0–21), high-sensitivity C-reactive protein of 176.49 mg/L (0–5), uric acid of 250.5 $\mu\text{mol/L}$ (210–430), activated partial thromboplastin time (APTT) of 44.60 s (24–39), FIB of 6.74 g/L (2–4), D-dimer of 10.67 Ug/mL (0–1), and factor VIII activity of 203.7% (70%–150%). Bloody fluid was extracted from the right ankle joint cavity, and a large number of leukocytes and red blood cells were found in the joint puncture fluid. We found that the subcutaneous hematoma was ulcerated and necrotic, so debridement was performed (Figure 1) and wound secretions were taken for culture; the cultures of joint fluid and wound secretions were negative, and the right ankle magnetic resonance imaging (MRI) examination suggested inflammatory arthritis. Tests for rheumatic factor, antinuclear antibodies, HLA-B27, stool cultures, and other infectious agents were negative. On the third day of admission, he developed severe left perianal pain with localized skin redness and swelling (Figure 2), a diagnosis of perianal abscess was made, and soon he underwent surgery. When the pus collected was cultured, three types of pathogenic bacteria were found (*E. coli*, *M. Morganii*, and *E. faecium*); biopsy of the surgical tissue revealed suppurative inflammation. After admission, he was treated with NSAIDs, sulfasalazine, and intravenous cefuroxime sodium and ornidazole for 2 weeks, which resulted in significant improvement and the patient was discharged; after 1-month follow-up, the symptoms largely disappeared (Figure 1).

Discussion

The term ReA was first introduced in 1969 by Ahvonen and colleagues to describe arthritis that occurs during or

after infection at another body site, without evidence of microorganisms entering the joint,¹³ with an annual incidence of 250–300 per 100,000 inhabitants. ReA is not uncommon, and many infectious agents can cause ReA, such as bacteria, helminths, viruses, amoeba, vaccinations, and protozoa.¹⁴ Recent articles described chronic asymptomatic prostatitis (*Neisseria meningitidis* infection) associated with chronic ReA and the first case of ReA with urticaria caused by *Blastocystis*,^{15,16} and we found ReA can also be caused by the infection of perianal abscesses. This article presented a patient with unexplained polyarticular swelling and pain, subcutaneous hematoma of the right knee joint, and the right ankle joint fluid; MRI examination suggested noninfectious inflammatory arthritis, and no evidence of other infectious agents was found; later, the patient developed a perianal abscess. We cultured the pus and found three pathogenic bacteria, and biopsy of the surgical tissue showed purulent inflammation, so we considered ReA.

ReA needs to be differentiated from a variety of diseases; patients with joint pain accompanied by fever are easily misdiagnosed as septic arthritis or tuberculous arthritis, which can be excluded according to the history, signs, and results of joint fluid culture. Hemophilia A is an inherited X-linked coagulopathy characterized by low levels or total absence of factor VIII, and hemophilic arthritis (HA) is one of main complications in patients with hemophilia,¹⁷ it also should be considered in the differential diagnosis for ReA. Both of them (ReA and HA) can cause bleeding in the joint cavity, but we considered the former in this case. First, the patient had no family history of hemophilia and no history of recurrent bleeding; second, although the patient had a prolonged APTT, the activity of factor VIII was not low or total absence; finally, the patient's joint swelling and

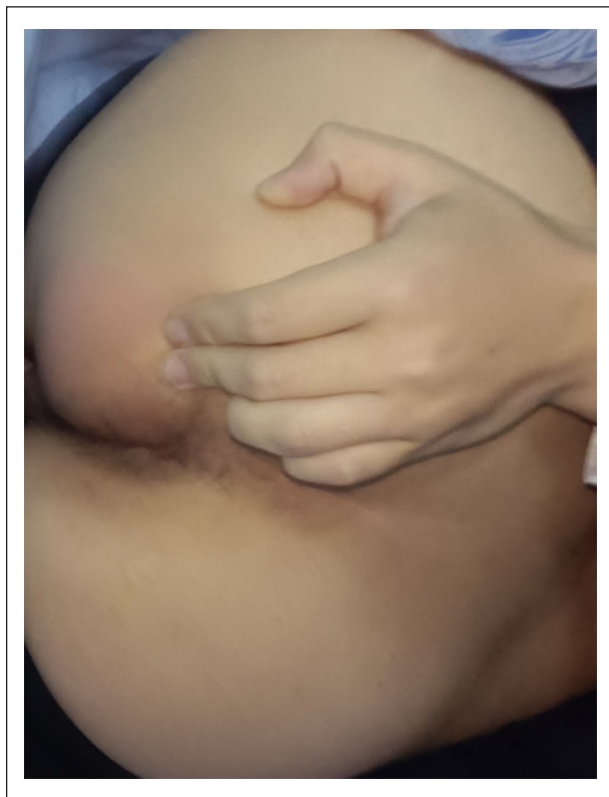


Figure 2. Redness and swelling of the left perianal skin.

pain gradually improved after treating with anti-infection. Therefore, we considered the patient's joint pain and subcutaneous hematoma as "like hemophiliac arthritis (HA)" due to abnormal coagulation function caused by perianal abscesses; however, we need to further study the pathogenesis of ReA.

Conclusion

At present, most of the studies on ReA are caused by intestinal or urinary tract infections, and we found that perianal abscesses should also be considered as an etiology of ReA, and further study is required because reports of ReA caused by perianal abscesses are extremely uncommon and their pathophysiology is yet unknown.

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Not applicable, this case was reported in accordance to CARE checklist.

Author contributions

P.L. and X.Z. participated in patient treatment and collection of relevant data, P.L. reviewed the literature and participated in the drafting of the manuscript, and J.L. was responsible for the revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

Declaration of conflicting interests

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Ethical approval


Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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