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A case report of leukocytoclastic vasculitis after vaccination in a patient with inflammatory bowel disease

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ABSTRACT

Patients with inflammatory bowel disease are likely to receive immunomodulation treatment and therefore, should be properly vaccinated. Despite their proven safety, vaccines are not exempt from adverse reactions. The clinical case was a young female with ulcerative colitis under mesalazine treatment, who developed leukocytoclastic vasculitis following vaccination for pneumococci, varicella and hepatitis A. This adverse reaction after the previously mentioned vaccines is barely described in the literature and has never been reported in a patient with an underlying condition.

Key words: Vasculitis. Leukocytoclastic vasculitis. Vaccines. Ulcerative colitis.

INTRODUCTION

The prescription of biological therapies has increased exponentially over the last few years (1). Immune system modulation by these drugs requires optimizing the immune spectrum of patients in order to prevent a potential secondary infection. Vaccination before therapy onset provides greater immunogenicity and the possibility to administer live attenuated vaccines when necessary (2). Vaccine safety is important in all development stages and is assessed at every point in the process, from pre-clinical toxicology studies using cell cultures and animal models to evaluation in clinical trials. Following approval, safety remains of primordial interest and is the primary focus of pharmacovigilance (3). Therefore, it is of interest that the management of immunosuppressed and/or special status patients occurs within hospital vaccination units.

CASE REPORT

We report a case of leukocytoclastic vasculitis following vaccination against pneumococci (23-valent, polysaccharide), varicella and hepatitis A virus. The case was a 21-year-old female diagnosed with peripheral spondyloarthropathy and ulcerative colitis under mesalazine treatment. She was referred to the Vaccination Unit from the Inflammatory Bowel Disease Unit as she was eligible for immunosuppressive therapy. A baseline serology was performed once her vaccination history was taken. The patient had correctly undergone the systematic childhood immunization program except for the chickenpox vaccine, of which she only received one dose.

The 13-valent pneumococcal conjugate vaccine was administered during the first visit and no immediate or delayed adverse reactions of interest were identified. She was scheduled to return after eight weeks for the serology results (Table 1) and continue the vaccination program. At this point, the 23-valent pneumococcal polysaccharide, hepatitis A virus and varicella vaccines were administered. On the same day, the patient developed fever of up to 39 °C that persisted for four days. She reported joint pain in both lower limbs as well as skin lesions on the sixth post-vaccination day. Thus, she presented to the Emergency Department. Physical examination revealed brownish macules ranging from 0.5 to 20 mm in size on the anterior aspect of both lower limbs, as well as a smaller number of purplish macules and papules. Biopsy samples were

taken from the lesions and the patient was admitted due to a suspicion of vasculitis. The histological examination documented the following: "Incisional biopsy of the skin lesion on the anterior aspect of the leg with epidermis and no remarkable changes except for a small pustule. Dermis with blood extravasation and areas of leukocytoclastic vasculitis defined by nuclear fragmentation in neutrophils and vascular wall damage, with no evidence of fibrinoid necrosis". On this basis, a diagnosis of *fully evolved leukocytoclastic vasculitis* was established. The patient responded well to low-dose corticosteroids (methylprednisolone 10 mg/day) and evolved favorably. She stayed in hospital for two days. The case was also reported to the Spanish pharmacovigilance system (# NR2570).

DISCUSSION

Leukocytoclastic vasculitis is defined as a small-vessel type of vasculitis with inflammation and necrosis together with neutrophils exhibiting nuclear fragmentation. Etiological factors include infection, drugs and idiopathic origin, although the disorder has also been associated with systemic autoimmune conditions, including inflammatory bowel disease. The condition is clinically characterized by palpable nonthrombocytopenic purpura, most commonly on the lower extremities, and the diagnosis is confirmed by pathology findings (4). In general, varicella vaccines should not be administered to patients under active treatment with acetylsalicylic acid due to the theoretical risk of Reye's syndrome. However, even though mesalazine is a derivative of acetylsalicylic acid, these adverse events have not been reported. Thus, its use is not contraindicated (5).

While various forms of vasculitis have been occasionally described after vaccination, they remain an uncommon adverse reaction that usually develops in the pediatric population (6). The few cases reported were associated with influenza vaccines and, to a lesser extent, with BCG and hepatitis B virus vaccines, always administered on an individual basis. In the case reported here, the varicella, hepatitis A virus and 23-valent pneumococcal polysaccharide vaccines were concurrently administered. Thus, the adverse reaction cannot be specifically attributed to any particular one. Even so, vasculitis cases have been described in the literature including a 22-month-old child

who developed Schönlein-Henoch purpura following immunization with a pediatric hepatitis A vaccine (8). In addition, a 26-year-old male had clinical vasculitis (inconclusive biopsy) after receiving a varicella vaccine (9) and a 57-year-old male developed leukocytoclastic vasculitis after the administration of a 23-valent pneumococcal polysaccharide vaccine (10). None of the above patients had a definite or suspected chronic condition of immunosuppression. Thus, the case presented here is the first such case reported in the scientific literature.

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Table 1. Baseline serology (pre-vaccine)

<i>Antigen</i>	<i>Parameter</i>	<i>Result</i>
Chickenpox	IgG	Negative
Measles	IgG	Positive
Hepatitis B	antiHBs	Positive
	tot antiHBc Ab	Negative
	HBsAg	Negative
Hepatitis A	IgG	Negative

IgG: immunoglobulin G; antiHBs: anti-HBsAg surface antibody; tot antiHBc Ab: total anti-core antigen antibody; HBsAg: surface antigen.

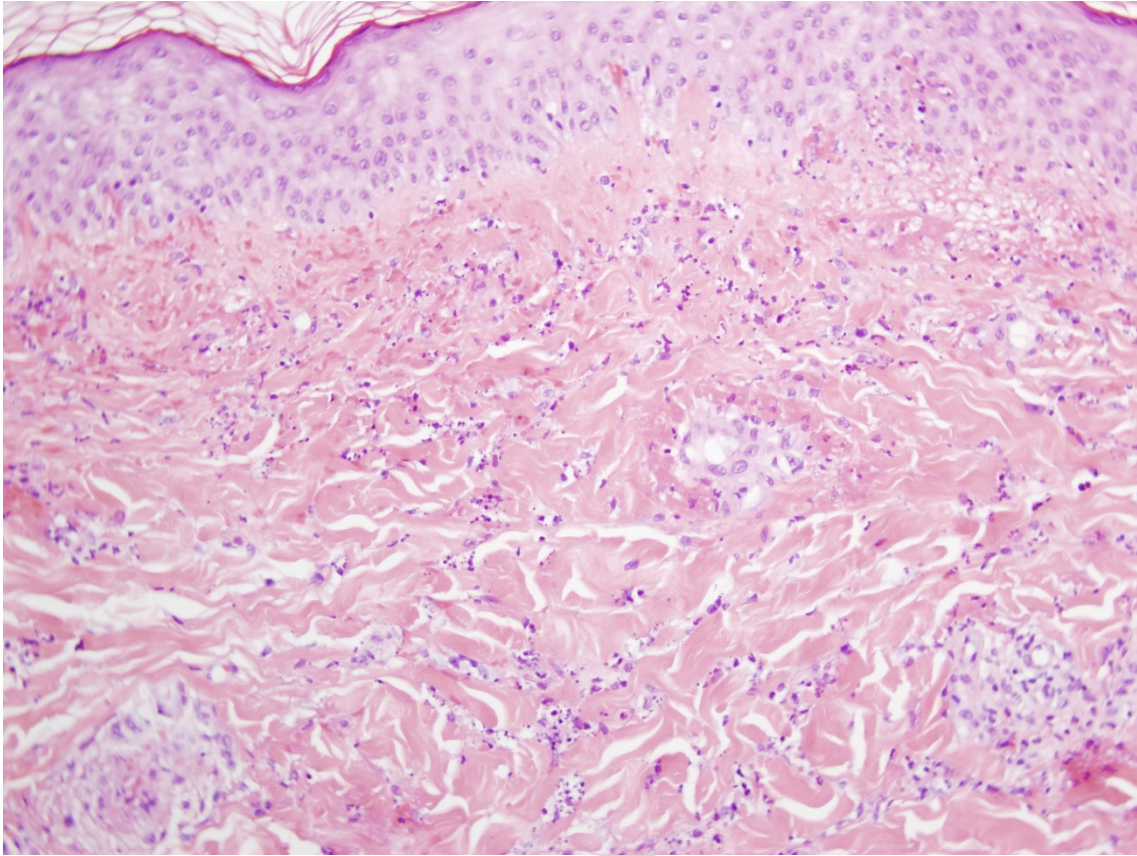


Fig. 1. Fully evolved leukocytoclastic vasculitis. Hematoxylin-eosin stain, 40x magnification.