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Generalized Body Rash with Pediculosis Capitis: Case Report

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Abstract:

Pediculus humanus capitis (head lice) are obligate ectoparasites that live on the human scalp. While common, head lice infestations usually present with scalp itchiness and are rarely associated with hematologic abnormalities. A 30-year-old woman presented with a generalized itchy rash persisting for three months. Her medical history was unremarkable. Examination revealed erythematous papules and plaques on the trunk and upper limbs, along with yellowish crusted patches on the upper back and neck suggestive of impetigo. Scalp examination uncovered a heavy infestation of nits, adult lice, and nymphs. Laboratory findings showed a hemoglobin level of 15.2 g/dl, a white blood cell count of 12,490 /µL, and significant eosinophilia with an absolute eosinophil count of 1,873 /µL. The patient was treated with dimethicone solution, manual nit removal, fexofenadine, amoxicillin/clavulanate, and emollients. Follow-up after four weeks showed complete resolution of the rash and elimination of head lice. This case highlights the unusual presentation of eosinophilia associated with head lice infestation. Pediculid reactions, secondary to Pediculosis capitis, can present as generalized eczematous rashes. It is crucial to consider head lice in differential diagnoses, especially when unexplained hematologic changes such as eosinophilia are present. Further research is needed to explore the relationship between eosinophilia and Pediculosis capitis.

Keywords:
Head lice; Pediculosis capitis; Eosinophilia; Id reaction; Pediculid.

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Introduction

Pediculus humanus capitis (head lice) are obligate ectoparasites of human beings. They live on the scalp and attach their eggs to the hair shafts [1]. Head lice infestation can occur in any age group, and transmission is usually by head-to-head contact [2]. Treatment costs in the United States alone have been estimated at 500 million dollars annually [3]. Hematologic derangements are not a common manifestation of head lice. We herein describe a case of head lice with a generalized body rash and eosinophilia.

Case Report

A 30-year-old woman presented to our clinic complaining of a generalized itchy rash for at least 3 months. The patient was otherwise healthy with no significant past medical illnesses. The patient

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was doing well until three months prior, when she noticed an itchy rash appearing on her trunk that spread over time. She did not associate the appearance of the rash with any illnesses or drugs. She was not taking any regular medications; however, after the rash appeared, the patient started taking an over-the-counter antihistamine and noticed that the rash improved partially.

On physical examination, we noted scaly, deeply erythematous papules and plaques with a few pustules, mainly on the trunk and upper limbs. In addition, there were small papules on the lower limbs **(Figure 2)**. We also noticed yellowish crusted patches on the upper back and neck, highly suggestive of impetigo. Furthermore, we observed small vesicles on the dorsum of the hands, lateral sides of the fingers, and finger knuckles **(Figure 3)**. Upon removal of her headscarf, we observed a massive number of white nits firmly adherent to the hair shafts, in addition to several adult lice and nymphs **(Figure 1)**. The diagnosis of Pediculosis capitis was made based on the clinical picture, and an examination of her clothes was performed to exclude co-infestation with Pediculus humanus corporis (body lice).
Laboratory investigations were ordered and revealed the following: Hemoglobin of 15.2 g/dl (reference range 12-16 g/dl), White blood cell count of 12,490 /µL (reference range 4,000-11,000 /µL), and an absolute eosinophil count of 1,873 /µL (reference range < 500 /µL).

Accordingly, the patient was treated with dimethicone solution once weekly for 3 weeks along with manual nit elimination using a fine-toothed comb. She was also prescribed fexofenadine 180 mg once daily, amoxicillin/clavulanate (875/125 mg) twice daily for 10 days to treat the impetigo, and topical emollients. At her 4-week follow-up visit, there was complete resolution of the body rash and a total absence of head lice. A follow up CBC was ordered and showed Hemoglobin of 14.8 g/dl (reference range 12-16 g/dl), White blood cell count of 7,900 /µL (reference range 4,000-11,000 /µL), and an absolute eosinophil count of 79 /µL.

Discussion

Lice are obligate human ectoparasites that survive and complete their life cycle on the host's blood [4]. There are two main types of lice species: Pthirus pubis (pubic lice, crab lice) that affect mainly pubic hair, and Pediculus humanus, which is subdivided into P. humanus corporis (body lice) and P. humanus capitis (head lice) [5, 6].

The manifestation of Pediculosis capitis usually presents as scalp itchiness and irritation favoring the posterior auricular area, the occipital part of the scalp, and the nape of the neck [7]. Definitive diagnosis is made by the identification of nits and/or adult lice on the hair shaft [7]. In addition, red-brown spots representing excreted digested blood can sometimes be seen on the patient's scalp [8].

Some patients can present with unusual manifestations such as lymphadenopathy and low-grade fever secondary to impetiginization [7]. Others may present with pruritic papules on the nape of the neck or a generalized non-specific pruritic eruption, as observed in our case [9]. A "pediculid" is an id reaction secondary to Pediculosis capitis [10]. It represents a form of autoeczematization (AE)—a disseminated eczematous reaction that occurs days or weeks after exposure to a primary stimulus, resulting from the systemic release of antigens [11]. Whitfield first described AE in 1921, hypothesizing that the id reaction was due to sensitization of the skin following a primary stimulus [12].

Head lice feed on human blood. When feeding, they inject anticoagulant saliva into the host's scalp, which leads to a localized, and sometimes systemic, immune response [8, 13]. A pediculid can present as generalized, itchy, symmetrical, erythematous, scaly papules, patches, and plaques that may become crusted if impetiginized, as in our patient [14]. It may also present as vesicular hand dermatitis (pompholyx), which was prominently seen in our case **(Figure 3)** [14].

Laboratory investigations are not essential for the routine diagnosis of Pediculosis capitis; however, there are reported cases of laboratory derangements associated with head lice, including iron deficiency anemia and eosinophilia [15]. Although our patient presented with a marked eosinophil count of 1,873

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/µL (reference range < 500 /µL), she did not exhibit anemia (Hemoglobin 15.2 g/dl). Further data are needed to thoroughly understand the pathophysiological relationship between systemic eosinophilia and Pediculosis capitis.

In conclusion, clinicians should suspect an id reaction triggered by head lice in the differential diagnosis of a new-onset, generalized eczematous body rash and pompholyx in non-atopic adults. Furthermore, head lice should be kept in mind when blood eosinophilia is otherwise unjustified. We recommend further research to investigate the relationship between systemic eosinophilia and Pediculosis capitis.

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Figure Legends

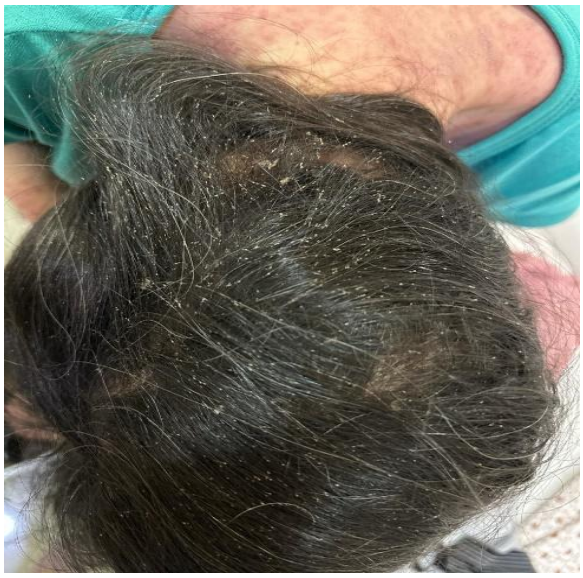

Figure 1. Scalp examination showing a heavy infestation of white nits firmly adherent to the hair shafts, alongside adult lice

Figure 2. Examination of the limbs and trunk demonstrating diffuse, deeply erythematous, scaly papules and patches with a few scattered pustules

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Figure 3. Clinical photograph showing multiple vesicles on the dorsum and lateral aspects of the fingers, consistent with pompholyx (dyshidrotic eczema).