Open Peer Review on Qeios

CASE REPORT

Unexpected Pthirus pubis Infestation of the Knee: A Case Report

Yassine Merad[1], Hichem Derrar[2], Zakaria Merad[3], Derouicha Matmour[1], Yasmine Rezoug[1], Sara Tabouri[4], Nazim Bellifa[1], Zoubir Belmokhtar[5], Samia Merad[6], Fethi Mohamed Reda Moulessehoul[6], Amine Merbouh[7], Mohamed Amine Boumelik[8], Adila Bassaid[9]

1 Central Laboratory, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
2 Pulmonary Department, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
3 Pathology Department, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
4 Independent researcher
5 Department of Environmental Sciences, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
6 Occupational Health Department, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
7 Epidemiology Department, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
8 Forensic Department, Hassani Abdelkader Hospital, Université de Sidi-Bel-Abbès (Djillali Liabès), Algeria
9 Parasitology-Mycology Department, Hôpital Mustapha Pacha, Algiers, Algeria

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.

Abstract

A 23-year-old male military patient from a rural area presented with a persistent cough, significant weight loss, and pruritic, erythematous papules and excoriations on the knee. Microscopic examination of a skin scraping from the knee revealed adult *Phthirus pubis* and nits. While pubic lice typically infest the pubic area, they can also occur on other body regions, including the eyelashes, axillary area, and scalp. In this case, the patient may have acquired the infection through sexual contact or contaminated bed linens, common in military settings. Additionally, autoinoculation during scratching may have spread the lice to the knee. Healthcare providers should be aware of the potential for *Pthirus pubis* to migrate to non-perineal hairy locations.

Introduction

Pthirus pubis, "the pubic lice" or "crab louse", is an human-specific ectoparasite of the order Psocodea. Pediculosis is widespread globally, and has been documented across all socioeconomic groups[1][2], with a particularly high incidence in developing regions[1].

Adult pubic lice are grey in color and cannot survive more than 24 hours without blood feeding[3]. *Pthirus pubis* eggs, known as nits, are oval-shaped, translucent, and measure 0.5 to 0.8 millimeters. These nits are firmly glued to the hair shaft[1][2][3].

Pthirus pubis transmission occurs predominantly via sexual intercourse or close contact with infected individuals.

Ectoparasite infections have been reported in various body locations, including the eyelashes, armpits, chest, and head[2][4][5][1].

Pthirus pubis infection primarily manifests as itching, which can worsen with scratching, leading to inflammation[1]. As mechanical irritation triggers widespread inflammation[6], we report an atypical localization after examination of a skin scraping sample from the knee.

Case report

A 23-year-old male patient, of rural origin and military profession, was admitted to the pulmonary medicine department, for the management of a pneumopathy with suspected tuberculosis. The patient presented with a cough and an 8 kg weight loss over the past year. He also exhibited pruritic skin lesions on the knee (Figure 1), evolving over the past three months, with a less intense onset in the pubic area.

No similar cases have been reported by the patient, and there was no reported history of contact with contaminated items, such as clothing. However, the patient is a military professional and comes from a rural area with poor hygiene.

Pthiriasis was diagnosed by microscopic identification of live lice (Figure 2), and eggs firmly attached to hair (Figure 3) after scraping of the skin of the knee.

The morphology of lice was characterized by a flattened, crab-like body shape, with a dark brown pigmentation in the central abdominal region (Figure 2).

The parasitic infection was treated, and given the negative tuberculosis culture and the absence of radiographic findings, the patient was discharged from hospital.

Figure 1. Clinical appearance of scratching irritation on the lower extremity

Figure 2. Adult *Pthirus pubis* recovered from knee scraping under microscopic visualization

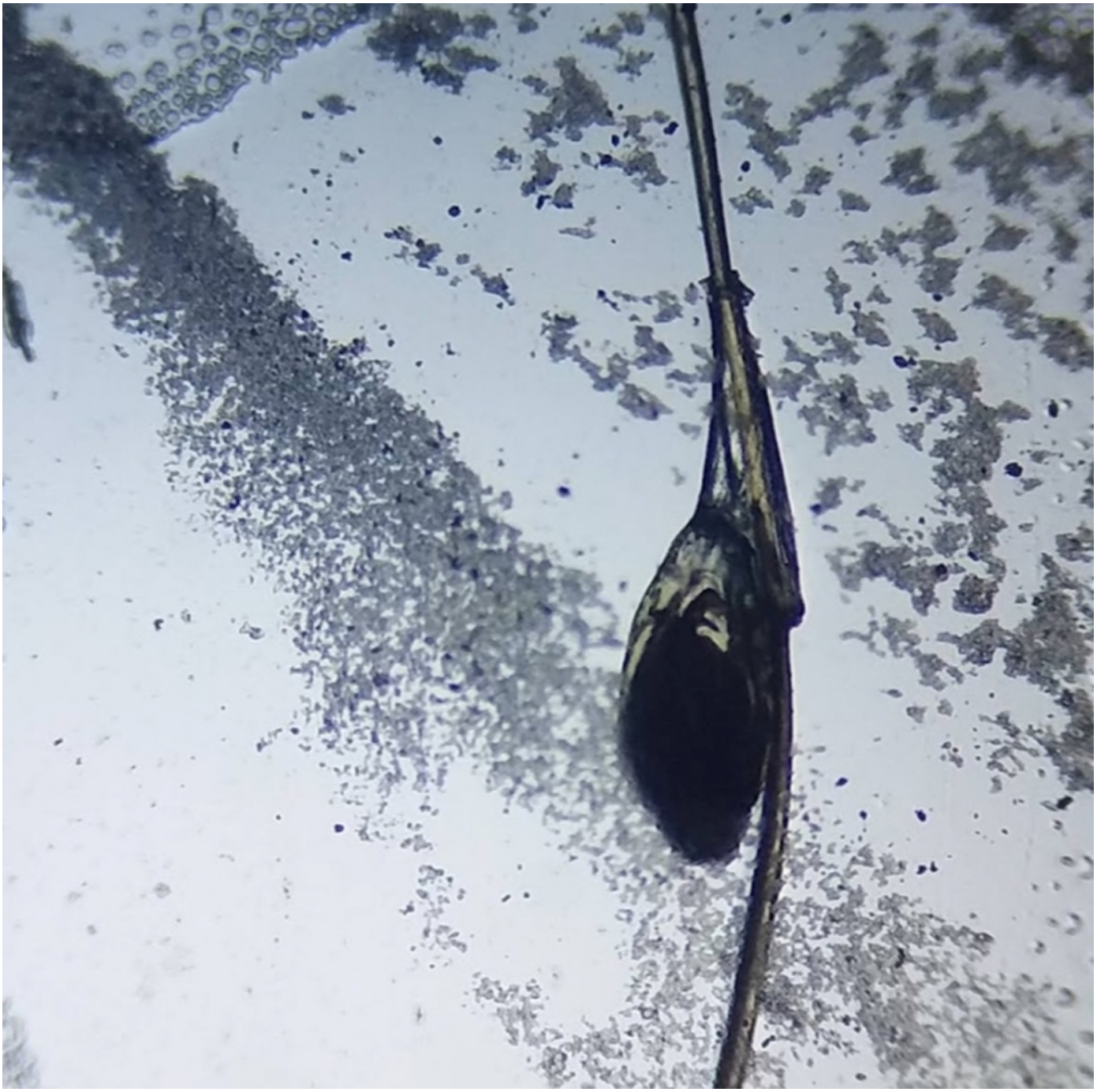

Figure 3. A louse egg (nit), appearing opalescent and dark brown under microscopic examination.

Discussion

Pubic lice can easily spread from perineal regions to other hairy body parts, such as the eyelashes, armpits, scalp, and axillary region[7][8][1].

Pthirasis can have atypical presentations[6]. *Pthiriasis Palpebrarum* has been reported as mimicking conjunctivitis in a newborn[5]. Furthermore, twenty cases of *Pthirus pubis* infestation involving the scalp have been also reported[9].

Clinical differentiation between *Pthiriasis palpebrarum* and common ocular condition, such as conjunctivitis, chalaezion, blepharitis and eyelid eczema could be confusing[10].

The primary symptom of *Pthirus pubis* infection is intense itching. Persistent scratching can damage the skin, causing inflammation and potentially diffuse secondary infections[6][1], which can explain our unexpected report.

In cases of *Pthirus pubis* infections in areas like the armpits and head, it's crucial to differentiate them from skin conditions like seborrheic dermatitis, eczema, capillary hair and superficial fungal infections[11][12].

Moreover, Pediculosis can present atypically, without the usual symptoms of hyperemia, burning sensation, redness or reddish-brown crusts[13][14].

Pubic lice are typically contracted through sexual contact. Fomites (bedding, clothing) may play a minor, albeit rare, role. Our patient denied sharing clothing with others, but on the other hand, he could be contaminated following certain sexual practices or by contaminated sheets or bedding, especially in a military setting where promiscuity and sharing bedding is common[1][2].

Moreover, one of the possibilities to consider is that the patient himself inoculated*Pthirus pubis* at the knee level following pubic scratching.

Additionally, a weakened immune system could explain massive or unusual localisation of ectoparasites[15].

Undeniably, microscopic observation is a reliable method for accurately identifying *Pthirus pubis* and minimizing diagnostic errors[1][2]. This tool is also important in monitoring treatment effectiveness by checking if nits on the hair are empty or contain a louse. Based on the clinical symptoms and microscopic results, a diagnosis of *Pthirus pubis* infestation of the knee was made, an unusual but possible presentation. Typically, these lice are found in hair-bearing areas, such as the pubic region, underarms, or chest hair.

Conclusion

Pubic lice infections typically affect the pubic and inguinal areas but can also spread to other body parts, including the perineum, eyelashes, armpits, chest, and head. This report details a case of *Pthirus pubis* infection in limb, along with its clinical features. Direct microscopic examination of non- perineal hairy areas remains a reliable and essential method for diagnosing the atypical location of *Pthirus pubis*, helping to prevent misidentification.

Statements and Declarations

Informed consent

Informed consent was obtained from the patient for publication of this case report.

References

1. [a, b, c, d, e, f, g, h, i]*Nie J, Shen X, Li Y, Wang W. Case Series of Phthirus pubis Infestation in Non-Perineal Regions. Clin Cosmet Investig Dermatol. 2023 Aug 22;16:2277-2281.*
2. [a, b, c, d, e]*Veraldi S, Nazzaro G, Esposito L, Genovese G, Pontini P, Gelmetti C. Pthiriasis of the eyelashes. Giornale Italiano di Dermatologia e Venereologia. 2020;155(2):198–201.*
3. [a, b]*Martin DH, Mroczkowski TF. Dermatologic manifestations of sexually transmitted diseases other than HIV. Infect Dis Clin North Am 1994; 8: 533–582.*
4. [^]*Patel PU, Tan A, Levell NJ. A clinical review and history of pubic lice. Clin Exp Dermatol. 2021;46(7):1181–1188.*
5. [a, b]*Ozer PA, Kabatas EU, Gurkan A, Kurtul BE. Treatment of Phthiriasis Palpebrarum Mimicking Conjunctivitis in a Newborn. Indian J Pediatr. 2016;83(7):730–731.*
6. [a, b, c]*Huo Y, Mo Y, Jin X, Huang X, Chen W. First case of Phthirus pubis and Demodex co-infestation of the eyelids: a case report. BMC Ophthalmol. 2021;21(1):122.*
7. [^]*Scott GR, Chosidow O; IUSTI/WHO. European guideline for the management of pediculosis pubis, 2010. Int J STD AIDS. 2011;22(6):304–305.*
8. [^]*Burgess I, Maunder JW, Myint TT. Maintenance of the crab louse, Pthirus pubis, in the laboratory and behavioural studies using volunteers. Community Med. 1983;5(3):238–241.*
9. [^]*Veraldi S, Pontini P, Nazzaro G. Phthirus pubis infestation of the scalp: a case report and review of the literature. Korean J Parasitol. 2018;56(5):487–489.*
10. [^]*Altinsoy F, Alver O, Doganay S. A Rare Case of Blebharitis: phthiriasis Palpebrarum. Turkiye Parazitol Derg. 2018;42(1):90–92*
11. [^]*Scanni G. Phthiriasis capitis ab initio. Use of entodermoscopy for quick differentiation between Phthirus pubis and Pediculus capitis nits. An Bras Dermatol. 2020;95(6):777–779.*
12. [^]*Tang JQ, Ran X, Ran YP. Cover Image: dermoscopy in vivo for the life cycle of Phthirus pubis. Br J Dermatol. 2017;176(1):279.*
13. [^]*Lin YC, Kao SC, Kau HC, Hsu WM, Tsai CC. Phthiriasis palpebrarum: an unusual blepharoconjunctivitis. Zhonghua Yi Xue Za Zhi. 2002;65(10):498–500.*
14. [^]*Gurnani B, Hafsi W. Phthiriasis Palpebrarum, in StatPearls. StatPearls Publishing LLC: Treasure Island (FL); 2022.*
15. [^]*Merad Y, Derrar H, Hebri ST, Adjmi-Hamoudi H. Demodex, an Eclectic Mite Living in both Hair and Skin: A Review. J Allerg Res, 1(1): 1-7*