

## A Rare Case of Bullous Scabies in Children

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### Abstract

**Background:** Scabies is a parasitic infection of the skin caused by *Sarcoptes scabiei* var. *hominis*. It affects mostly adults and is a worldwide disease with around 300 million cases reported per year. Bullous scabies is a rare subtype of the disease, with only 5 cases reported in children less than 14 years old. Clinical findings appear several weeks after exposure, and are associated with pruritus. Burrows, excoriations, vesicles, papules and nodules are seen on physical examination. Differential diagnosis should be made with adverse cutaneous drug reactions, contact and atopic dermatitis, dyshidrotic eczema, pediculosis, other parasitosis, dermatitis herpetiformis and bullous pemphigoid. Infested individuals are at risk of secondary bacterial

infection. Diagnosis is often made clinically, but can be confirmed by performing a scabies preparation and/or dermoscopy.

**Case Report:** We present the rare case of a 5 years old boy who came to our health center complaining of severe itchy rash for 4 weeks, getting worse during night time. On physical exam we found an erythematous papulonodular rash all over his body and bullous lesions on his genitals. He was clinically diagnosed with Bullous Scabies. Here we will discuss the differential diagnosis and treatment options.

**Conclusion:** Bullous scabies is a rare presentation in children. The diagnosis should be considered in all patients who present with bullous lesions accompanied by pruritus and

maculopapular rash. These lesions do not resolve with topical steroids treatment. It is important to treat the patient and his family members with topical scabicides like permethrin 5% cream.

**Keywords:** child, bullous, scabies

## INTRODUCTION

Scabies is a common skin disease in developing countries. According to WHO, it is estimated to affect more than 200 million people at any time worldwide. (1) Prevalence estimates in the recent scabies-related literature range from 0.2% to 71%. In the past, epidemics occurred in cycles every 15 years. The latest epidemic began in late 1960s but has continued to the present. (2) Scabies occurs all over the world and is a major public health problem in less- developed countries, with an estimated average prevalence of 5–10% in children. The most vulnerable groups are children and the elderly, especially in overcrowded and poor communities where there is limited access to treatment. Recurrent infestation are common.

Scabies is usually transmitted by skin-skin contact with an infested individual. Mites can remain alive for >2 days on clothing or in bedding, therefore scabies can also be acquired without skin-skin contact. The highest risk of transmission is in individuals with crusted scabies. Scabies mites of all developmental stages burrow into epidermis shortly after contact, no deeper than stratum granulosum where the adult female lays eggs. Females lay eggs in tunnels and burrow 2 to 3 mm daily. After 4–6 weeks the patient develops an allergic reaction to the presence of mite proteins and feces in the scabies burrow, causing intense pruritus and rash.

Patients, typically the immunocompetent hosts, present with severe intense widespread pruritus.

Pruritus often interferes or prevents sleep and often presents in family members. Rash ranges from no rash to generalized erythroderma. The first sign of infestation consists of 1-2 mm red papules, some of which are excoriated, crusted or scaling. Other clinical findings are linear intraepidermal burrows, 0.5-1 cm gray or skin-colored ridges, either linear or wavy with vesicles or papule at the end of the tunnel. These burrows are present around the interdigital webs of hands, wrist flexors, anterior axillary folds, upper and lower extremities, umbilicus and belt line. Infants and small children will have a diffuse eczematous eruption that will typically involve scalp, neck, face, palms and soles that are generally spared in adults. In rare cases, bullae on the penis and scrotum of children and adult males are seen in the other rare variant called bullous scabies. Additional clues include facial sparing, affected family members, poor response to topical antibiotics and temporary response topical steroids (3)

Diagnosis of scabies can often be made clinically. Burrows are pathognomonic for human scabies. The diagnosis is confirmed by microscopic identification of mites, ova and scybala in epithelial debris. Scrapings most often test positive when obtained from burrows of fresh papules. ( 4, 5, 6 )

## CASE PRESENTATION

A 5 years old boy presented to ABC Health Centre, in December 2021 with a history of papular rash and nodules on his body for about

one month. These lesions were localized in arms, under the axilla, trunk and genital area. His biggest complaint was the appearance of a big vesicle on his penis in the last week and severe pruritus during the night time. The patient was treated with topical steroids for two weeks without improvement. Patient attended daycare where other children have shown similar symptoms. His family members manifested similar complaints and lesions.

Skin examination revealed polymorphous lesions such as, erythematous papules all over his body, intraepidermal burrows of hands, wrist, anterior axillae, and around umbilicus. Excoriated maculopapular lesions and inflammatory nodules were localized more on the trunk. (Figure 1)



**Figure 1.** Excoriated maculopapular lesions, erythematous papules and intraepidermal burrows

During genital examination were noticed bullous lesions with diameter 1 to 3 cm, that were filled with fluid surrounded by papulo-nodular erythematous rash in the scrotal area. (Figure 2) There was no mucosal and facial involvement. No signs of dehydration. The Nikolsky sign over the lesions was negative.



**Figure 2.** Penile bullous lesions with diameter 1 to 3 cm (demonstrated by the yellow arrow), filled with fluid surrounded by papulo-nodular erythematous rash in the scrotal area

Clinical diagnosis of bullous scabies was made based on 2018 IACS criteria considering borrows and penile bullous lesions as pathognomonic for bullous scabies. (10)

Other possible diagnosis such as, bullous pemphigoids, drug eruptions, urticaria, varicella, dermatitis herpetiformis, seborrheic dermatitis were ruled out based on history, clinical findings and no response to steroid treatment.

Patient was treated with Permethrin 5% cream. He was advised to apply the cream for 8-12 hours on his full body. Patient was prescribed antihistamine medication for pruritus. He showed improvement in 4 weeks. On skin examination was noticed disappearance of erythematous rash and flattening of the penile bullous lesions. (Figure 3) Family members were treated with Permethrin 5% cream and showed similar improvements. No recurrence occurred during a 6 months follow-up.



**Figure 3.** Flattening of the penile bullous lesions and disappearance of erythematous rash

## DISCUSSION

Bullous Scabies is a rare diagnosis in children. In our case, bullous lesions on genital organs, scabies burrows, nocturnal itching and response to antiscabies treatment confirmed the diagnosis

of bullous scabies based on 2018 IACS criteria (Table 1). (10)

The diagnosis of “confirmed scabies” needs direct visualization of mites or mite products like eggs and faeces by methods including direct microscopy or dermatoscopy. (6) However, there were some cases in the literature, like in our case, when these methods could not be used and diagnosis was made based on clinical findings of tense bullous lesions accompanied by pruritus and a maculopapular rash. (8) The “clinical scabies” 2018 IACS criteria help health workers to diagnose scabies and is being used in literature to confirm the diagnosis.

The differential diagnosis depends on the type of lesions. Papulovesicular lesions are misidentified as urticaria, varicella, drug eruptions, dermatitis herpetiformis and folliculitis. Eczematous lesions may look like atopic dermatitis and seborrheic dermatitis. Both clinical and pathological features of bullous scabies are quite similar to those of bullous pemphigoid (7). Even when

**Table 1.** Summary of 2018 IACS criteria for the diagnosis of Scabies

Criterion	Diagnostic features
<b>A: Confirmed scabies</b>	<i>At least one of:</i> A1: Mites, eggs, or faeces on light microscopy of skin samples A2: Mites, eggs, faeces visualized on individual using high-powered imaging device A3: Mites visualized on individual using dermatoscopy
<b>B: Clinical scabies</b>	<i>At least one of:</i> B1: Scabies burrows B2: Typical lesions affecting male genitalia B3: Typical lesions in a typical distribution and two history features
<b>C: Suspected scabies</b>	<i>One of:</i> C1: Typical lesion in a typical distribution and one history feature C2: Atypical lesion or atypical distribution and two history features
<b>History features</b>	H1: Itchy rash H2: Close contact with individuals who has itch or typical lesions in a typical distribution

histopathology and scraping findings are positive for scabies, it is still difficult to differentiate and to exclude the possibility of scabies and concomitant bullous pemphigoid. It is also reported that patients diagnosed with scabies have an increased risk for bullous pemphigoid. Detection of scabies mites and/or its eggs from scraping, good response to scabicides treatment, and no response to topical or oral steroids are important clues for the diagnosis of bullous scabies. (11)

The treatment of bullous scabies is done with topical scabicides like permethrin 5% cream which is applied to the full body from the neck down. In infant's scabies is usually found above the neck, requiring treatment of the scalp. Additional therapies may include lindane 1% lotion or cream, sulfur ointment 5-10 %, malathion 0.5% in aqueous base, and benzyl benzoate emulsion 10-25 %. (4, 6) Topical steroids, however, do not resolve bullous scabies lesions in contrast with other bullous cutaneous diseases. (11) For severe infestations and or in immunocompromised patients oral ivermectin 200 µg/kg per dose should be given orally for 2 doses, taking it 2 weeks apart which is highly effective and is approved in several countries. (9) Clothing, bed linens and towels should be washed in hot water and dried using high heat. All close contacts of the infested child which includes family members and care takers should be treated.

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#### **Conflict of interest:**

None declared.

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