Nodular scabies: a classical case report in an adolescent boy

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Abstract This case report presents a classical case of nodular scabies in a 12 year boy who complained of itching for 20–21 days before presentation to the hospital. Application of Betnovate ointment (Betamethasone valerate 0.1 %) before presentation to the hospital had provided only 2–3 days of relief from itching. Dermatological examination revealed skin colored to erythematous papule of 3–4 mm on the body with predilection for web space of fingers and flexural areas and nodules on the scrotum and groin. Based on this, clinical diagnosis of scabies with nodular scabies was made on the child. The scraping obtained from the web-space of the child showed mite under the light microscope, which confirms the diagnosis. Treatment with topical permethrin 5 % lotion resulted in 50–70 % subsidence of itching within a day, and improvement in impetigo lesions of his father in 5 days. However, the scrotal and groin nodular lesion of the child persisted with severe itching. Treatment with topical steroid and tacrolimus 0.1 % ointment did not show much improvement. Intralesional injection of triamcinolone (5 mg/ml) on the nodule resulted in 30–40 % subsidence in itching and 50–60 % reduction in the size of the lesion over 2–3 weeks.

Keywords Nodular scabies · Tacrolimus · Intralesional corticosteroid

Introduction

Nodular scabies is a well-known clinical variant of scabies, characterized by pruritic nodule that persists even after the specific treatment of scabies (Kerl and Ackerman 1993). It occurs in about 7 % of scabies patients (Chosidow 2000). The nodular lesions represent the hypersensitivity reaction to retained mite parts or antigens on the body. Genitalia and scrotum are the most common sites of its occurrence. The absence of fatty layer underneath the skin of scrotum, nasolabial fold and peri-orbital area makes these areas more prone to induration and nodule formation. The treatment of nodular scabies can be challenging. The standard approach to treatment is scabicide followed by symptomatic treatment of the nodule. The nodular lesions are treated with topical steroids or intralesional steroids but the response is less than satisfactory and relapses are frequent (Almeida 2005). A delayed type IV hypersensitivity reaction to the mites, the eggs, or scybala (packets of feces) occurs approximately 30 days after infestation. This reaction is responsible for the intense pruritis. Individuals who are already sensitized from a prior infestation can develop symptoms within hours (Walton and Currie 2007). The long term use of topical corticosteroid may cause atrophy of the scrotal skin. Therefore, Tacrolimus has been used because of its anti-inflammatory and immunomodulatory effects. But it has been reported to have variable success in nodular scabies (Mittal et al. 2013). It acts through calcineurin inhibitor which binds it to the FK506-binding protein and inhibits calcineurin and prevents activation of Nuclear Factor of Activated T cells (NFAT). This block transcription of the gene encoding IL-2, blocks T cell activation and further cytokine production, and inhibits the release of histamine from mast cells and basophiles (Lin 2007). We report a classical case presentation of nodular scabies which will add to the pool of classical cases.

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Case report

A 12 years old school going boy from a middle income group was brought to hospital by his parents with a complaint of severe itching of his body and scrotum for last 20–21 days. The family had four members (father, mother and a younger brother). All other family members were also experiencing itching during the last 4–5 days, and more severely at night. The patient's parents had applied from the counter, Betnovate ointment (Betamethasone valerate 0.1 %) on the patient's body. It temporarily reduced itching for 2–3 days, but recurred and the papular lesions present on the child's groin turned nodular with intense itching Fig. 1a, b, c. The boy was given intralesional steroid and the response of lesions were noted Fig. 2. His father developed bullous and crusted lesions with mild tenderness, which was diagnosed as the impetigo and was treated successfully with Fucidic acid 1 % ointment and supportive oral antibiotic regimen Fig. 3.

Dermatological examination of the child revealed skin colored to erythematous papule of 3–4 mm on the body with predilection for web space of fingers and flexural areas and nodules on the scrotum and groin. Majority of the papules and nodules were excoriated. His mother, father and younger brother had papular and crusted lesions distributed on the body and web spaces. No other systemic findings were significant. Their clinical diagnosis suspected the presence of scabies in all of them with nodular scabies of the boy.

Routine examination showed TLC $8,000/\text{mm}^3$, Neutrophilia 70 %, Eosinophil 3 %, and ESR-20 mm in 1st hour. The scraping obtained from the web-space of the child showed mite under the light microscope. Biopsy of the nodule could not be done as his parents did not agree to the biopsy.

The child and the family members were treated with topical permethrin 5 % lotion. The permethrin lotion was applied for a night on the entire body after scrub bath and was repeated after 7 days. The child was under antibiotic cover to prevent super-added secondary bacterial infection. The itching of the body subsided by 50–70 % on the very next day and other family members became fully cured by next 5–7 days. His father had impetigo in addition to scabies. The impetigo lesions improved in 5 days after oral and topical antibiotic. However, the scrotal nodular lesions persisted in the child with severe itching. The lesions were then treated with topical steroid and tacrolimus 0.1 % ointment application, but there was no significant improvement. 2 months later, he was treated with intralesional triamcinolone (5 mg/ml) on the scrotal nodule, which resulted in 30–40 % subsidence in itching and 50–60 % reduction in the size of the lesion over 2–3 weeks after intralesional injection Fig. 2. Now the child is in follow-up for last 5 months.

Fig. 1 a, b, c Various views showing out-patient presentation of the lesions

Discussion

Generally, the frequency of developing nodular lesion in scabies is less. The nodular lesions persist for long and severely itch even after the scabitic treatment (Hengge et al. 2006). In the present case, the nodular lesion persisted for more than 5 months after the 5 % permethrin treatment. The diagnosis of scabies and nodular scabies is generally clinical and is supported by demonstration of mite and mite products under the light microscope (Woodley and Saurat 1981). In the present case also, the diagnosis was confirmed by the demonstration of mite under the light microscope. An alternative method of diagnosis is by

Fig. 2 The lesions after treatment with intralesional steroid injection

Fig. 3 Impetigo in patient's father

demonstration of the burrow by ink test, where the burrows become readily visible after absorption of the ink (Woodley and Saurat 1981). In the present case, the ink test was not done. Primary treatment is by topical scabicide drugs like Permethrin (5 %), Crothamiton, Sulphur (5–10 %), Benzyl benzoate (10–25 %), and Lindane (γ -hexachlorocyclohexane 1 %). The present case was treated with Permethrin (5 %). The nodular lesions of the scabies are best treated with the topical (corticosteroid and Tacrolimus) and intralesional steroid with variable success. In the present case intralesional steroid with topical steroid and tacrolimus were used and there was subsidence in itching and reduction in the nodular lesion. The impetiginous lesions are caused by superadded streptococcal infection, if untreated may manifest as secondary glomerulonephritis.

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