

# Penoscrotal Angioedema in an 8-year-old Boy Following Insect Bites

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## Abstract

Angioedema in children displays a varied etiology and clinical manifestations, unlike adult angioedema. As opposed to angioedema in adults, pediatric angioedema majorly results from food, insect bites, and drugs. Reactions to insect bites, both allergic and toxic, are frequently encountered in pediatric medical practice but rarely seen in urological practice. Here, we present a case of penoscrotal angioedema resulting from an insect bite in the affected region. This case report emphasizes the need to consider penoscrotal angioedema as an important differential diagnosis of genital swelling, as early diagnosis may obviate fatal complications.

**Keywords:** Allergy, angioedema, giant urticaria, penoscrotal swelling

## INTRODUCTION

Angioedema is the rapid swelling of the area beneath the skin or mucosa occurring in both hereditary and nonhereditary forms. It is anatomically limited and nonpitting. It seems to be closely linked with general urticaria. Angioedema denotes similar but larger swellings of the deep dermal, subcutaneous, and submucosal tissues.<sup>[1]</sup> It is known by various names such as giant urticaria and angioneurotic edema.<sup>[2]</sup> Angioneurotic edema may be fatal, particularly with systemic involvement.<sup>[3]</sup>

Although reactions to insect bites are commonly seen in general medical practice,<sup>[4]</sup> angioneurotic edema is not often seen in urological practice. Penoscrotal angioedema is rarely considered as a differential diagnosis of scrotal or penoscrotal swelling, particularly in the pediatric age group. Herein, we present an 8-year-old boy with genital angioedema in whom the pathology appeared to result from a centipede sting on his scrotum with subsequent swelling of his penis and scrotum.

## CASE REPORT

Master CP was an 8-year-old boy who was brought to the urology clinic by the mother with a day history of penoscrotal swelling, scrotal skin rash, and pruritus. A day before the onset of these symptoms, he was said to have been stung on the scrotum by a centipede on the bed he slept on. This was

identified and killed. Following this, he complained of scrotal pain which subsided within 2 h. The following morning, he developed progressive scrotal swelling and subsequently penile swelling. He was also noticed to have the pruritic rash about the same time. There was no prior history of penile or scrotal swelling. He had no family history of such ailment. This was the first episode of genital swelling. No sore was present on the penis or scrotum. There was neither urethral discharge nor lower urinary tract symptoms.

Examination revealed a distorted, grossly edematous penis and a diffuse, soft, nonpitting edematous scrotum with papular skin rash involving the dorsal aspect of the scrotum [Figure 1]. Both penis and scrotum were nontender. There was no inguinal lymphadenopathy or erythema, and the remainder of the genital examinations were unremarkable. He was not dyspneic and had a respiratory rate of 20/min. His pulses were of normal volume, and his heart rate and blood pressure were 92/min and 90/50 mmHg, respectively. The heart sounds were normal. He did not have any other significant abnormalities in other

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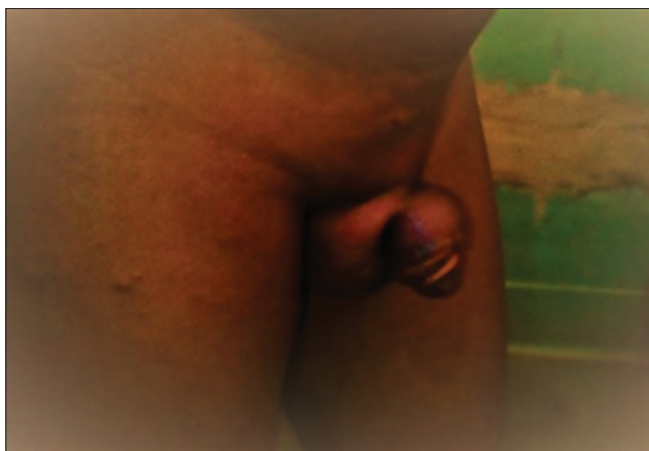
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**Figure 1:** Penoscrotal edema following insect bite

systems. Investigations done included urinalysis and full blood count. All these were within normal ranges.

A diagnosis of angioneurotic edema was made. He was subsequently placed on a tapered dose of steroid and antihistamine for 5 days. All symptoms resolved without complications within 4 days [Figure 2] and had not recurred at follow-up 2 months later.

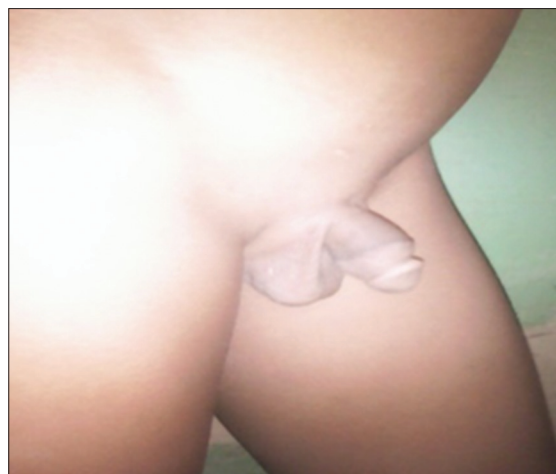
## DISCUSSION

Angioedema is a variant of urticaria resulting from extravasation of fluid into the subcutaneous tissue.<sup>[5]</sup> Skin lesions may be seen on the lips, eyelids, tongue, pharynx, and the genitalia. Sudden onset is typical, and skin changes last for some hours to a few days.<sup>[6]</sup> While the majority of cases are acquired, hereditary angioedema accounts for 5% of cases of angioedema.<sup>[7]</sup>

The incidence of angioedema is the same for both males and females and peaks in the third and fourth decades of life,<sup>[8]</sup> which said that angioedema in children exhibits a varied cause, severity, and clinical manifestation than in the adult. On the whole, acute attacks are more frequent in children and are often as a result of allergic reactions or infection.<sup>[6,7]</sup>

Probable causes of angioedema are food (40%), insect bites (30%), infection (20%), and antibiotics (10%).<sup>[6,8]</sup> In addition, there are reported cases of genital edema triggered by trauma to the perineum, horse riding, or following sexual intercourse.<sup>[6]</sup> There have also been reported cases without a trigger factor.<sup>[7]</sup> The angioedema of our patient was from a centipede bite.

Reactions to insect stings are seen regularly in pediatric clinical practice.<sup>[9]</sup> Characteristic reactions following an insect sting are erythema, itching, pain, swelling, and indurations limited to the area of the sting. Large local reactions also occur commonly involving large areas of the skin typically with sometimes swelling as large as 10 cm in diameter around the location of the bite. These swellings generally peak within 2 days, but reactions can persist for up to 7–10 days. Children exhibit predominantly facial (80%) and lip (40%) edema.<sup>[4]</sup> When



**Figure 2:** Resolved penoscrotal swelling after 4-day treatment

the external genitals are involved, it may present a diagnostic dilemma as genital angioedema is relatively rare and not often considered as a cause of genital swelling. Although systemic reactions to insect bites are <1% in children, they can be life-threatening.<sup>[4]</sup>

Understanding the different possible etiology is the preliminary step in managing angioedema. For allergic angioedema, the first line of action is to remove the cause and clean and rinse the area and then addresses the systemic manifestation.<sup>[6]</sup> The initial management of systemic reactions targets the treatment of anaphylaxis, for which administration of epinephrine (0.3 ml of a 1/1000 dilution) is the favored treatment. This is essentially employed in the emergency treatment of nonhereditary angioedema involving larynx. It can be administered intramuscular and subcutaneous routes or inhaled when the reaction is severe.<sup>[4]</sup>

An antihistamine, such as diphenhydramine or hydroxyzine, may be administered to reduce pruritus and inflammation.<sup>[4]</sup> When the conventional H<sub>1</sub> and H<sub>2</sub> antihistamine failed, other second-line drugs such as nifedipine may be used as an adjunct. Some authors believe in the use of systemic steroid as the mainstay of treatment. Topical steroids also have been noted to be useful.<sup>[9]</sup> Our patient had resolution of symptoms following administration of a tapered dose of dexamethasone and diphenhydramine for 4 days. Intravenous fluids for volume expansion and enhanced diuresis or ventilator support for management of lung edema is a useful supportive care.<sup>[5]</sup>

## CONCLUSION

Angioedema should be considered as a differential diagnosis of genital swelling of acute onset in children. Patients who have no evidence of urinary retention from complications such as phimosis and paraphimosis can be safely discharged on a dose of oral steroids and antihistamines and instructed to discontinue the offending agent and to return in case of development of the aforementioned conditions.

### Declaration of consent

The authors have obtained all necessary consent from the patient's mother. They have also been informed that his identity will not be revealed in any way.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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