

CASE REPORT

AN UNUSUAL CASE OF URETHRAL HIRIDUNIASIS

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Abstract. Bleeding as the result of a leech in the male urethra is very rare. We describe a 13-year-old boy who had a leech in his urethra. In the emergency department he persistently squeezed his penis in an attempt to prevent the leech from going deeper into his urethra. Manual removal by forcep failed and cystoscopic removal was recommended. Penile block with lidocaine 1% relieved the pain and enabled him to squeeze his penis harder until the leech was pushed out making forcep removal easier. Post-removal he had hematuria and penile pain for 2 days. A description of his presentation and management, along with a review of the literature is presented.

INTRODUCTION

Leeches are invertebrates of the phylum Annelida and class Hirudinea. There are approximately 650 species, but not all pose a problem to humans. Terrestrial and amphibious species are common in Southeast Asia, the Pacific Islands, India and South America. They are good swimmers. Usually victims are people visiting marshy areas or walking in or near slow-moving small brooks or streams (Deka and Rajeev, 2001).

Leech bites of the skin are common. Other less common sites of leech bites are the nose, pharynx, larynx, esophagus, rectum, bladder and vagina. Rectal, vaginal and urethral bleeding, hemoptysis, chronic headache, dysphagia, hoarseness, inspiratory stridor and laryngeal edema are known complications

(Cundoll *et al*, 1986; Bergua *et al*, 1993; Hamid *et al*, 1996; Raj *et al*, 2000; Ibrahim *et al*, 2003; Kruger *et al*, 2004).

Urethral bleeding as the result of a leech in the urethra or urinary bladder is very rare. We found little medical literature regarding this uncommon cause of hematuria. There were only 4 related articles available in the Medline-indexed literature in the last 40 years and most of them pertained to vesical hiriduniasis (Mackay, 1970; Saha and Saha, 1977; Aung and Lee, 1995; Paul and Islam, 2005).

We present a secondary school boy who arrived at the emergency department (ED) with a leech in his urethra. A description of his presentation and management, along with a review of the literature, is also presented.

CASE REPORT

A 13-year-old boy, felt something entering his penis while fishing in a pond. He grabbed his penis immediately and saw a leech entering his urethra. He was then

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brought to the ED. He persistently squeezed the shaft of his penis to prevent the leech from going deeper into the urinary bladder. He was restless and afraid, holding on tight to his penis despite severe pain. The tail of the leech was seen at the penile meatus (Fig 1).

We grabbed the leech by its tail using a pair of forceps but it managed to slip off and entered his urethra completely. He continued pinching his penis, now even harder. We asked the boy to micturate forcefully hoping that the leech would be expelled. He was reluctant to follow our advice because of severe pain.

The patient was then referred to the urology team on-call for cystoscopy. In the mean time, we performed a penile block with plain 1% lidocaine to relieve the pain. Suggestions for the boy to release his grip on his penis was futile. In fact, he squeezed it even harder, now that the pain was reduced. The tail of the leech suddenly appeared in the meatus while we were calming the patient down and persuading him to release his penis. We managed to remove the leech with forceps this time as the tail was further out of the meatus (Fig 2). Inspection revealed a 4 cm x 2 cm partially bloated leech with blood still oozing from it (Fig 3).

Bleeding from the urethra was quite heavy afterward (Fig 4). In the supine position, we applied direct pressure to the meatus with a clean gauze for 20 minutes. The bleeding finally stopped after 20 minutes. We observed the patient over 2 hours in the observation ward. His vital signs were normal and there were no further complaints.

The patient was then discharged after a review by the urology team. He was prescribed oral cloxacillin 500 mg 4 hourly and oral paracetamol 500 mg 6 hourly. He was also advised to come back to the hospital if there was urethral bleeding or signs of infection.

A telephone follow-up was done 3 days after discharge. The boy had minimal dysuria



Fig 1—The boy squeezed his penis to prevent the leech from encroaching deeper into his urethra.



Fig 2—As he squeezed his penis harder, the leech appeared from the meatus.

initially but it had resolved. He also reported passing blood clots off and on during the first two days after discharge. His urine was clear and he was passing urine normally. He denied any occurrence of fever, penile discoloration or swelling.

DISCUSSION

The leech is a sanguivorous hermaphrodite. The body is soft, elongated, vermiform, dorsoventrally flattened, slippery and difficult to grasp because of a wide distribution of slime glands. Their anterior and posterior suckers



Fig 3—Partially bloated leech.



Fig 4—Hematuria secondary to urethral leishmaniasis.

serve as organs of locomotion and provide firm adhesion to the host's body at the time of feeding. This parasite has the habit of entering into anatomical orifices, such as the urethra, anus, vagina, nose and throat (Ghosh *et al*, 2002). It has been observed that hungry leeches rest at the edge of ponds and swim with amazing accuracy toward sources of waves (Mory *et al*, 2000). A single neurotransmitter, serotonin, seems to control feeding behavior; and it is abundant in the leech's largest neurons, the Retzius cells. Leech feeding is stimulated by mammalian temperature and by sodium and arginine in the blood (Mory *et al*, 2000).

The host is usually oblivious to its attack since the leech secretes anesthetic chemicals during movement. Fortunately, this boy felt its movement and pinched the shaft of his penis to prevent further invasion of the leech.

Removing the leech from the skin is easier than from the urethra. Removal of a leech from skin can be facilitated by applying salt, alcohol or vinegar to it. If necessary, a burning cigarette may be held near the parasite. Rapid removal may cause the jaws to remain behind. Therefore, this should be avoided. Leeches can be loosened by local application of cocaine or lidocaine (Adams, 1989).

We failed to remove the leech manually using a pair of forceps. The next option was cystoscopic removal, which can only be done by a urologist. A few articles describe various invasive methods of leech removal using an endoscope, laryngoscope, suprapubic exploration or cystoscopy (Hamid and Mohd Nor, 1996; Kaygusuz *et al*, 2001). In the case of vesical hiriduniasis, Alam *et al* (2008) recommended 50 ml of normal saline be infused into the catheterized urinary bladder as treatment. The saline should be kept in the bladder for 2 to 3 hours, and then released. The catheter is then removed. After a period of 2 to 12 hours the leech should be expelled spontaneously. He found this procedure to be simple, safe, inexpensive, and can be practiced by medical personnel anywhere, in rural or urban areas (Alam *et al*, 2008). For hospitals without cystoscopic facilities the above method is feasible and effective. We were pleased to be able to remove the leech manually and avoid cystoscopy. In the future, if manual removal fails we recommend injecting local anesthetic (4% lidocaine gel) into the urethra. If the leech slips into the bladder, then injecting 50 ml of normal saline is an option.

Leech bites causing bleeding are a common manifestation. Bleeding may be intense. Hamid and Mohd Nor (1996) reported two cases of severe urologic bleeding. One young

man had a leech enter his urinary bladder with clot retention from an arterial bleed proximal to the bladder neck. Another paddy planter had urethral bleeding and subsequently went into shock needing transfusion of three units of blood. Ibrahim *et al* (2003) presented a case of a 9-year-old girl with a vaginal leech causing significant bleeding (hemoglobin level: 7.3 g/dl). She required a transfusion of 250 ml of packed red blood cells.

Leech saliva contains many chemicals including hirudin (a 65-amino-acid peptide that functions as a potent anticoagulant), hyaluronidase, collagenase, fibrinase, hementin, plasminogen activators, bdellins, eglins, elastase, cathepsin B, antihistamines, and apyrase. These secretions serve to maintain access to blood and prevent clotting. Hirudin, the most potent natural anticoagulant known, inhibits thrombincatalyzed conversion of fibrinogen to fibrin (Heldt, 1961). Our patient had hematuria for two days before it stopped spontaneously. It is expected that the bite site on the host may bleed for 24 to 48 hours (Mory *et al*, 2000; Ibrahim *et al*, 2003, Alam *et al*, 2007).

Infection is a known complication of leech bite. Organisms related to leech infection are known based on medicinal leech (*Hirudo medicinalis*) studies. De Chalain (1996) reported that the incidence of infection associated with leech application therapy ranged from 2.4% to 20%. Gram-negative infection from the leeches originated from surface flora and colonized gut bacteria, therefore, treatment of the host with third-generation cephalosporins or trimethoprim/sulfamethoxazole is effective (Nonomura *et al*, 1996).

A recent study (Bauters *et al*, 2007) of infection risk related to the use of medicinal leeches isolated 27 microorganisms in 17 samples from 47 patients who were treated with leeches. Both gram-positive and gram-negative organisms were isolated and *Aeromonas* spp was one of the major pathogens. *Aeromonas* may cause severe cellulitis,

septicemia or meningitis (Fennolar *et al*, 1999; Ouderkerk *et al*, 2004). According one study (Bauters *et al*, 2007) most of the isolated organisms (including *Staphylococcus aureus* and *Pseudomonas aeruginosa*) were sensitive to fluoroquinolones and trimethoprim/sulfamethoxazole. However, trimethoprim/sulfamethoxazole has limitations due to possible liver damage and severe allergic reactions. Based on that study, cefuroxime should not be used for prophylaxis since the sensitivity of the isolate was low. Our patient was discharged with oral cloxacillin for a week and he did not exhibit any signs or symptoms of infection.

In conclusion, urethral hiriduniasis is an emergency that needs attention and early removal. It causes penile pain. Manual removal using forceps with local anesthetic application or vigorous squeezing after penile block should be tried before invasive procedures. Post-leech-bite bleeding and infection is potentially fatal. Patients should be discharged on oral fluoroquinolones and need to be followed up for at least two weeks.

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