Human Scrotal Myiasis: Botfly Infestation

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Traveling to idyllic sites for exotic vacations has increased among a more mobile and affluent American society. As a result, potential exposure and acquisition of unique and unfamiliar tropical diseases has increased (Sweis, Griffith, & Pensler, 1997). Early recognition of unique and unusual tropical medical problems by health care providers in the United States may prevent clients from suffering unnecessary physical and psychological distress through timely and appropriate treatment. The purpose of this article is to report the case of a 48-year-old male with cutaneous infestation of the scrotum with two human Botfly larvae (Dermatobia hominis) after a vacation to Central America.

Cutaneous infestation with Botfly larva (Dermatobia hominis) is common in the tropical regions of Central and South America. Typically, various members of the order Diptera and family Cuterebridae victimize rodents and livestock. Infestation of humans is rare and is generally due to an accidental exposure (Rodriguez & Rashid, 2001). Generally, infestations have involved the head, torso, extremities, and occasionally the periorbital areas. Infestation of the human scrotum remains extremely rare. This case report describes, to the best of our knowledge, the second case of Botfly larval infestation of the scrotum.

Implications for Urology Nurses

There is a need for urology nurses to be aware of unique and unusual tropical diseases, especially among clients who have recently returned from idyllic tropical vacation spots outside the United States. As the possibility increases for rare and unusual diseases to avail themselves, urology nurses should consider less obvious disease processes when encountering unique or unusual clinical presentations.

Life Cycle of Botfly

The human botfly (Dermatobia hominis) is a nonbiting fly indigenous to Mexico, Central America, and South America. Infestation of a host does not occur directly but rather through other insect vectors, such as mosquitoes and occasionally ticks for larval transmission. Typically, a female botfly catches a mosquito in mid-flight and deposits 15 to 25 eggs onto the mosquito’s abdomen (Chandler & Read, 1962; Markell, Vogue, & John, 1992). Fully developed embryos are contained within the eggs and hatch into larvae when attached to the mosquito’s body. When the mosquito bites a human, the larva senses the increased heat of the human and migrates toward the host’s skin. The host feels no unusual sensations or pain different from a normal mosquito bite. Heat from the new host stimulates the larva to bore deeper into the subcutaneous tissues.

The larva survives by securing itself with two anal hooks into the tissues and begins secreting an antibiotic-like substance into its burrow in order to stave off bacteria and fungi. During the first week, the client may notice some pruritus and a small mass. By the second week, the mass can grow to the size of a large egg. The larva extends spiracles through the skin resulting in a central hole (punctum) for breathing and to deposit waste products. Clients report “tiny white things with black eyes” protruding from the lesion (Brewer, Wilson, Gonzalez, & Felsenstein, 1993). A client commonly notices a clear to serosanguinous exudate. By the third or fourth week, the lesion resembles

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a furuncle that is often diagnosed as cellulitis, leishmaniasis, sebaceous cyst, or a staphylococcal boil (Brewer et al., 1993). The larva continues to feed on surrounding tissue and forms a large palpable mass. The masses generally reach a size of 18 to 24 mm. If one tries to remove the larva, it extends posteriorly directed black hooklets that surround its body. This causes severe pain and prevents larva removal. Intermittent episodes of severe piercing pain occur when the larvae extend the hooklets, spontaneously. The larva continues to grow, and the episodes of pain increase in frequency. After 6 to 8 weeks, the mature larvae emerge, fall to the ground, and pupate into adult flies (Harwood & James, 1979).

Case Report

Clinical history. A 48-year-old male presented to The University of Texas Medical Branch at Galveston Urology Clinic with two palpable masses to the scrotum after a trip to Costa Rica. The client and his family had traveled to Costa Rica in late November to observe the “Volcano Arenal” eruption from the Los Lagos Observatory. Shortly after taking a shower one evening, he reported receiving two mosquito bites to his scrotum while changing clothes. Thinking nothing of a routine mosquito bite, he continued his vacation and returned to the United States. The client exhibited no ill effects of the incident except that the two mosquito bites he received to his scrotum seemed to be taking an excessive amount of time to heal. Both areas had developed small palpable masses and the client was experiencing periodic bouts of severe pain in his scrotum and perineum. He described the pain as debilitating to the point of not being able to stand. The client described a clear serous exudate extruding from the two wounds on his scrotum. The masses gradually enlarged and he was sure he could feel something moving within each.

He went to his primary care physician and received cephalexin for cellulitis. After completing the course of antibiotics, the areas failed to improve, and his personal physician referred him to an internal medicine physician who also described his condition as a skin infection. The second physician prescribed a course of antibiotics. The antibiotics did not remedy the situation, the masses continued to grow, and the intermittent bouts of pain persisted. By this time, intermittent bouts of severe debilitating pain in the patient’s perineum and scrotum were occurring more frequently. The masses were enlarging. Each revealed two small holes (punctum) with areas of induration and erythema surrounding them. The client reported a clear to serosanguinous liquid discharge seeping from the wound.

The client and his wife began to investigate via the Internet possible causes of the enlarging, painful masses in his scrotum, and eventually concluded it must be botfly larva infestation. They took their discovery to the emergency department at The University of Texas Medical Branch at Galveston. After initial evaluation in the emergency department, the couple’s hypothesis was dismissed. However, a referral to the urology department ensued. He presented to the urology clinic with information gained from the Internet. Both he and his wife were sure that he had a case of scrotal myiasis due to infestation with human botfly larvae. A resident and staff urologist evaluated the client.

Physical examination. Physical examination revealed the client was a healthy male with no past or current medical conditions noted. There were two palpable masses on the right scrotum. Each mass had small punctate holes that expressed a clear, and at times, a serosanguinous liquid. The masses were approximately 2.0 cm in diameter.

Treatment. After discussion with the client and his wife, the most obvious way to ensure a diagnosis was to surgically explore the sites. Informed consent was obtained and surgical exploration of the sites revealed two larvae measuring 0.9 cm x 0.3 cm x 0.2 cm. Pathological evaluation determined the larvae were botfly larva of the species Dioptera (Dioptera hominis). The client suffered no further complication after removal of the larvae. Both wounds healed without further complications.

History of Scrotal Myiasis

Review of the literature reveals only one other case of “scrotal” myiasis, which occurred in Ankara, Turkey (Yildiz, Basar, Hokelek, Basar, & Akalin, 1997). A 21-year-old man presented with a mass to the right scrotum of 20 days duration. Exploration of the 2 x 3 cm mass revealed a larva 1 cm long and 0.4 cm wide. After removal of the larva, the client’s wound healed and he recovered without further complications. Most reported cases of myiasis involve other areas of the body.

A recent case of a 46-year-old woman returning from an archeologic dig in southern Mexico revealed an enlarging, tender, draining nodule on her upper extremity to contain a human botfly larva (Dermatobia hominis) (Lemon & Aeling, 2000). Surgical excision was not required due to the larva’s spontaneous emergence. Traditional practice of placing pork fat over the punctum was not necessary or tried. The placing of pork fat over the punctum is a common practice in Mexico and South America (Brewer et al., 1993; Lemon & Aeling, 2000). The larva attaches to the pork and is gently removed if it releases its black, backward pointing spiracles that anchor it inside the host wound, or it suffocates and dies. However, this treatment and other poultics used generally do not succeed because the larva protrudes spiracles that inhibit removal when attempted extraction occurs.

Sweis et al. (1997) reported other examples of botfly infestation after tropical vacations. A woman noticed an enlarging mass in the parietal area of her scalp after a trip to a rain forest in Belize, Central America. A 64-year-old male noticed multiple small puncture wounds to his left leg 1 month after returning from Belize,
Central America. He had been swimming and sustained multiple mosquito bites to his leg and thigh. Four of the bite areas continued to enlarge and the client noticed a serosanguinous exudate seeping from four puncture wounds. Exploration revealed botfly larva in each wound (Sweis et al., 1997). A 5-year-old girl had a painful mass in her left temporal area that contained a botfly larva after sustaing an insect bite in Belize, Central America.

Wound myiasis in the United States is generally not associated with the botfly. In Sherman’s (2000) review, 42 cases of U.S. acquired wound myiasis were identified; none were due to the botfly. The majority of reported cases suggested noninvasive blowflies, laying eggs in pre-existing wounds that caused most cases of human myiasis in the United States. Sherman did identify three cases of botfly infestation and was able to localize the source of infections to Mexico or Central America. Obligate parasites in North America include the rodent, sheep, and horse botflies (Cuterebridae and Oestridae), occasionally laying their eggs in the eyes, nose, sinuses, or skin of humans. However, occurrences are relatively rare. There were no reported cases of Dermatobia hominis or human botfly infestations reported in the United States in Sherman’s study.

**Conclusion**

The second known case of infestation of the scrotum with Dermatobia hominis or human botfly was reported in a 48-year-old male after a vacation to Central America. As more and more Americans travel to exotic vacation spots, urological nurses should be aware of potential tropical disease presentations involving the genitourinary system. Both generalist and advance practice urology nurses are very likely to be the first to encounter clients during telephne triage or initial clinical visits. As part of the initial nursing assessment for unusual clinical presentations of the genitourinary system, determination of recent travel to exotic vacation spots may provide assistance in determining the disease process that has evolved. Knowledge of unique or unusual tropical disease processes will ensure that the client receives timely diagnosis and appropriate treatment, reducing undue physical and psychological duress.

**References**


