



Incidental Tick Finding: A Case Report Advising Toscreenobese Outdoorsmen

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Abstract

After transurethral resection of bladder cancer, a male patient was scheduled for follow-up cystoscopy. Although physical examination of his genitalia at the time of the initial surgery was normal, he was observed to have a tick engorged into his scrotuma few weeks later. The patient was entirely asymptomatic and consented to have the tick removed. It was sent to the Department of Health and confirmed to be a species not known to carry Lyme disease or other pathogens. Although one of the first reports of tick engorgement on the human scrotum, we also reviewed the literature suggesting a preference of ticks for male genitalia of other domesticated mammals. Additionally, the Center for Disease Control and Prevention (CDC) tick prevention recommendations advise that obese males have their genitalia screened after a lengthy stay in the woods.

Keywords: Tick; Obesity; Lyme disease

Introduction

Ticks are blood-sucking parasites that may carry pathogens to human hosts and cause diseases such as Lyme disease, tick borne encephalitis, and Rocky Mountain spotted fever [1]. These unsolicited parasites proceed through four life stages prior to death [2]. In order to survive, they embed themselves into a host, which supplies them with the blood that they need. The thin layer of the scrotum, as well as the rich arteriovenous supply, makes it a principal target for blood-sucking parasites such as ticks. Recent trends indicate an increase in both the black legged tick [3], as well as obesity [4-6]. We present the case of an incidental finding of a tick during routine urologic cancer care, highlighting the propensity of this common organism to draw blood from the genitalia of its male host.

Case Presentation

A 64-year-old Caucasian male presented to the emergency department with a three-day history of gross, painless hematuria. He was not having any urinary symptoms including dysuria, decreased urine output, or obstructive symptoms. Physical exam, including focused genitourinary exam, did not demonstrate any genital tenderness or abnormal findings. Urinalysis revealed 20 red blood cells per high-powered field and CT scan of the abdomen and pelvis was remarkable for a bladder mass at the right ureterovesical junction with associated hydronephrosis. The patient was taken to the operating room, where he underwent cystoscopy with transurethral resection of the bladder tumor. Pathology later revealed high-grade urothelial carcinoma. He returned for cystoscopy three weeks later and was observed to have a small brown tick engorged in the right hemiscrotum (Figure 1). Even when questioned, the patient did not complain of any scrotal pain or swelling. Using surgical forceps, the tick, as well as a small portion of the patient's scrotal epithelium, was removed. The tick was then preserved in a urinalysis cup containing a moist paper towel and few blades of grass (per recommendation of the Michigan Department of Health and Human Services), and then sent overnight for identification and testing to determine the risk for Lyme disease. Two days later, the tick was identified to be an adult female American Dog Tick, *Dermacentorvariabilis*, which is a species known not to carry Lyme or other concerning diseases. The patient was informed and did not receive any additional treatment.

Discussion

Ticks are some of the most important clinical vectors because they can carry a wide variety

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Received Date: 09 Jan 2018

Accepted Date: 05 Feb 2018

Published Date: 12 Feb 2018

Citation:

Versalle DS, Noyes SL, Lane BR.
Incidental Tick Finding: A Case Report
Advising Toscreenobese Outdoorsmen.
Clin Surg. 2018; 3: 1908.

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Figure 1: Actual photograph of tick removed from patient at time of office visit.

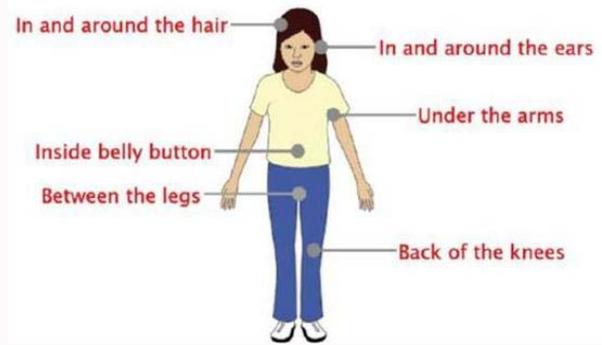


Figure 3: Diagram showing where to check for ticks after returning from tick-infested areas. Taken from the Centers for Disease Control and prevention.

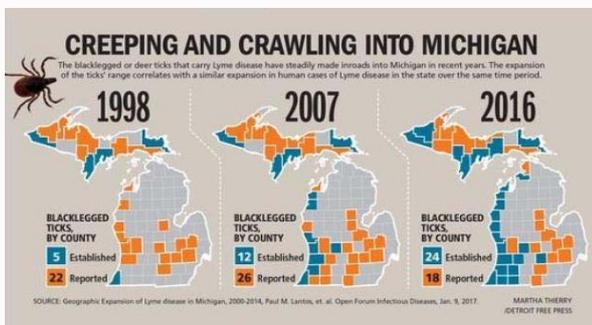


Figure 2: Graphical depiction of the number of Michigan counties in which Lyme disease carrying ticks have been established or reported from 1998 to 2016. Modified from Lantos PM et al., [14] and Martha Thierry, Detroit Free Press.

of pathogenic material to humans and animals [7,8]. Furthermore, tick bites may result in localized infections that can persist for as long as two years before resolving spontaneously [9]. Although many treatments for Tick-Borne Illnesses (TBIs) have been developed, there are some TBIs, such as tick-borne encephalitis, which have no cure. In many instances, ticks embed themselves into their host without causing any pain. Therefore, a tick bite may go unnoticed for an extended period of time until the tick becomes dislodged or the patient becomes symptomatic [9]. The scrotum is a thin layer that protects the testis, epididymis, and vas deferens and contains multiple blood vessels, including the testicular arteries and veins and the anterior and posterior scrotal arteries. Amongst mammalian species, the dependent, suspensory location of the scrotal anatomy remains consistent. Given this anatomy, as well as its rich arteriovenous supply, the scrotum seems a particularly attractive location for ticks to thrive. To our knowledge, there are limited studies regarding tick bites to human genitalia. However, researchers in Cameroon found that *Haemaphysilis leachi*, a common tick of domestic dogs and other wild animals, was prevalent in the scrota of goats and sheep [10]. In addition, a Nigerian tick-rearing study found that approximately 98% of tick larvae embedded themselves into the scrotum of sheep as opposed to only 43% into the ears, suggesting that the high volume of scrotal vasculature may result in higher efficacy [11]. Lastly, a study in the Arbegona district of southern Ethiopia found that of 384 male and female cattle, 291 cattle (76%) were infested with ticks [12]. The most commonly affected site was the dewlap. However, the scrotum

accounted for 10% of infestations overall. Therefore, the literature supports the notion that the scrotum is an advantageous location for tick infestation. Arguably, the scrotum may constitute the area of highest importance in its male possessors, and the possible outcomes of a tick bite in this region significantly increase the degree of concern, especially in obese males. BMI's have shown a significant increase in the early 21st century [13], which often leads to obesity and increased risk for many health conditions, such as heart disease and diabetes. While obese men should concern themselves with these co-morbidities, the restricted visualization secondary to a bulging midriff may cause their genitalia to go unnoticed for prolonged periods of time. Apart from the everyday urological struggles that obese men often endure, the lack of visualizing their genitalia augments the risk of disease by losing the ability to detect ticks on the scrotal tissue. *Ixodes scapularis*, undesirably known as the blacklegged tick, is the primary vector of Lyme disease to humans [3]. In a recent report conducted by Rebecca Eisen and her colleagues at the U.S. Centers for Disease Control and Prevention, the blacklegged tick, which was previously established in 30% of U.S. counties in 1998, has now expanded its dwelling in approximately 45.7% of U.S. counties across 37 states [3]. In 2016, the tick has become established in 24 counties in Michigan alone, which is up from only 5 counties in 1998 [14] (Figure 2). Similarly the number of cases of Lyme Disease has increased 5-fold from less than 30 cases between 2000 and 2004 to 166 cases in 2013 [14]. According to the standards of the U.S. National Institute of Health, our patient, who resided in a rural area of Michigan, is considered obese [15]. The prevalence of obesity neared 35.0% amongst men and 40.4% amongst women in 2013-2014 [16]. This, in combination with the upward trend Lyme disease and its clinical vectors, proposes that obese males who often find themselves outdoors may benefit from regular genital screenings for the detection of ticks (Figure 3).

Conclusion

In summary, ticks favor thin-skinned areas to facilitate engorgement. Regardless of whether the host is a goat, sheep, cow, or human, the scrotum appears to be a first-rate target for the continuance of their lifecycle. The CDC recommends that individuals check their groin for tick infestation after spending time in the woods. With the increased prevalence of obesity, we reiterate that males would be wise to have their genitalia screened after a long stay in the woods, as they may be more prone to unnoticed tick bites. Not only might this increase tick detection, it may reduce the chance for these parasites to spread disease. Patients should be aware of this possibility after venturing outdoors.

Acknowledgment

The corresponding author would like to thank the Betz Family Endowment for Cancer Research for their support (RG0813-1036). Funding was provided in part by the Spectrum Health Foundation.

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