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Periurethral swelling in a female C3H/HeNcrMTV mouse

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A breeding colony of C3H/HeNcrMTV mice (National Cancer Institute at Frederick, Frederick, MD) was maintained by a researcher investigating how arthropod salivary factors target immune cells to manipulate the host's immune response. The research, approved by the Institutional Animal Care and Use Committee of the University of Georgia, was in accordance with the *Guide for the Care and Use of Laboratory Animals*¹. The mice were housed in individually ventilated cages (Sealsafe PLUS, Tecniplast USA, Exton, PA) with corncob bedding (Bed-o' Cob Combination Bedding, The Andersons, Inc., Maumee, OH). Ambient room temperature was maintained at 18–26 °C (62–79 °F), and humidity was maintained at 30–70%. The light cycle was 12 h light:12 h dark. Environmental enrichment was provided in the form of extra nesting material (Nestlets, Ancare, Bellmore, NY). Mice were fed *ad libitum* Purina Lab Diet Rodent Chow 5001 (Purina Mills, St. Louis, MO) and provided *ad libitum* water from a reverse osmosis system (Vantage VC Series Reverse Osmosis, Siemens Water Technologies Corp., Warrendale, PA). Health surveillance for this colony consisted of testing samples taken from sentinels exposed to dirty bedding. Samples were tested at least twice annually at the Athens Veterinary Diagnostic Lab at the University of Georgia. The colony was serologically negative for mouse parvovirus, mouse minute virus, mouse hepatitis virus, Theiler's encephalitis virus, mouse rotavirus, Sendai virus, pneumonia virus of mice, reovirus type 3, lymphocytic choriomeningitis virus, mouse adenoviruses, ectromelia virus, K virus, polyoma virus, *Mycoplasma pulmonis* and *Clostridium piliforme*, as well as negative for mites and pinworms, as determined by direct examination.

While weaning a litter, a researcher noticed that one female of three in the litter had a swelling in her periurethral area. No other physical abnormalities were noted, and her activity and behavior were normal, with no suggestion of pain or distress. Her condition was monitored for a few days, during which no changes were observed; the attending veterinarian was then asked to assess her. At the time of physical examination, the mouse was 40 d old. The tissue ventral to her vaginal opening was enlarged. The skin overlaying the swollen area was normal in appearance. On palpation, the swelling was firm. Palpation did not provoke any response from the mouse. There were no other physical abnormalities, her behavior was normal, and there was no evidence of pain. The researcher decided not to use this mouse in the studies; consequently, the mouse was euthanized by asphyxiation with carbon dioxide.

Examination during gross necropsy showed that the firm swelling ventral to the vaginal opening was approximately 8 mm wide and 6 mm long. The swelling was mainly confined to the glabrous area surrounding the urethral papilla. No other external abnormalities were noted (Fig. 1). During the necropsy, the caudal abdominal skin was reflected to reveal a subcutaneous, multilobular, yellow-tinged mass (Fig. 2). The mass extended slightly towards the left inguinal area but was mainly contained below the glabrous skin swelling. The mass was encapsulated in a thin membrane, which was easily punctured to release a yellow-white opaque purulent material. No other abnormalities were noted. Clear yellow urine had been released at euthanasia. Aerobic culture of the purulent material resulted in the isolation and heavy growth of *Staphylococcus aureus*. Tissues were collected in 10% neutral-buffered formalin for histopathology.



FIGURE 1 | External genitalia of a 40-d-old C3H/HeNcrMTV female mouse, showing a periurethral swelling ventral to the vaginal opening (short arrow). The urethral papilla (long arrow) is visible in the approximate center of the swelling.



FIGURE 2 | Necropsy of female mouse shown in Figure 1. The skin is reflected to show a subcutaneous, multilobular mass (circled) contained below the swollen area.

What do you think the tissue associated with the mass is? What purpose does this tissue serve?

What's your diagnosis?

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