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## A MALE PSEUDOHERMAPHRODITE WHITE-TAILED DEER RESEMBLING AN ANTLERED DOE

PATRICK F. SCANLON,<sup>1</sup> DAVID F. URBSON<sup>2</sup> and JAMES A. SULLIVAN<sup>1</sup>

**Abstract:** A male pseudohermaphrodite white-tailed deer (*Odocoileus virginianus*) is described. The animal shot in Aiken County, South Carolina on November 4, 1971, was 1.5 years old and had the external appearance of an antlered doe. The 6 point antlers were in velvet, a vulva was present, and the testes were located in the body cavity. Other male reproductive organs present were epididymides, vasa deferentia and ampullae. Female reproductive organs present were cervix, vagina and clitoris.

### INTRODUCTION

Among the *Odocoileus* species females do not normally develop antlers. Nevertheless, many reports of antlered does are available in the literature.<sup>3,4,11,12</sup> Wislocki<sup>11</sup> reviewed earlier literature on antlered *Odocoileus* does but the majority of reports did not contain data on reproductive organs of the does. The reports of Rorig<sup>7,8</sup> concerning the state of reproductive organs of antlered does of the genus *Capreolus* were also discussed by Wislocki.<sup>11</sup> Two of five conditions of the reproductive organs associated with antlered does were possession of ovatestes (true hermaphrodites) and possession of rudimentary testes (pseudohermaphrodites).

Wislocki<sup>11</sup> speculated that in some instances antlered "does" among the genus *Odocoileus* may have been true hermaphrodites or pseudohermaphrodites and a later communication<sup>12</sup> described an antlered "doe" which could have been placed in one or other of those categories. External female genitalia were present, one testis was recovered, but the other gonad was lost. Donaldson and Douth<sup>9</sup> describe several deer which were collected as antlered does. Four animals had female external genitalia with crypt-

orchid testes. There is one report of a pseudohermaphrodite white-tailed deer<sup>6</sup> though the gonads were not recovered from that animal.

This report presents a description of the reproductive organs of a male pseudohermaphrodite white-tailed deer — an animal which could have been classified as an "antlered doe."

### CASE REPORT

The animal (No. 2149) studied was shot by us on November 4, 1971 while collecting deer in Aiken County, South Carolina. The age of the animal was estimated as 1.5 years, (based on molar wear<sup>10</sup>), body weight was 50 kg, and physical condition was excellent. The reproductive organs were dissected free and photographed. The gonads were processed for histological sectioning.

The antlers were 6 point, symmetrical and were in velvet (Fig. 1). The presence of velvet was unusual for the time of year and 29 adult males shot during hunts on November 3, 1971 and November 6, 1971 had polished antlers.

The overall impression of the external genitalia was that the animal was a nor-

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FIGURE 1. Pseudohermaphrodite male white-tailed deer, note vulva and velvet antlers.

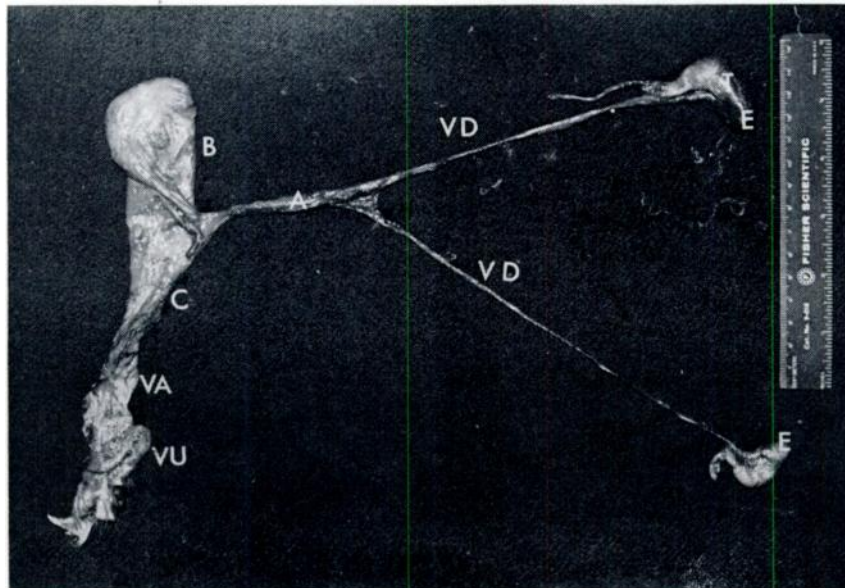


FIGURE 2. Reproductive organs of male pseudohermaphrodite white-tailed deer. (T, testis; E, epididymis; VD, vas deferens; A, ampulla; B, bladder; C, cervix; VA, vagina; and VU, vulva)

mal female (Fig. 1). The vulva and clitoris appeared to be of normal proportions for a doe deer. There was no evidence of a scrotum or other external male genitalia.

The details of the internal reproductive organs are shown in Figure 2. Histological examination indicated that both gonads were testes. The two testes were located in an internal inguinal position under some fatty tissue. They appeared much smaller than normal, the left being larger than the right. Each testis had an epididymis, which were normal in appearance though also smaller than those of a normal male. There was a great disproportion (in favor of epididymides) between testes and epididymides sizes (Fig. 3).



FIGURE 3. Testes and epididymides of male pseudohermaphrodite white-tailed deer. (T, testis; E, epididymis)

Each epididymis continued into a vas deferens. These structures were shorter than normal and continued into normal appearing ampullae which joined the cer-

vix and vagina. The cervix appeared to be relatively undeveloped. There was no evidence of male accessory organs (e.g. seminal vesicles, prostate, and Cowper's gland).

The udder had four small teats, no evidence of development, but had a small amount of fat deposited in the area.

#### DISCUSSION

The deer was classified as a male pseudohermaphrodite as it most closely fits the definition given by Biggers and McFeely,<sup>2</sup> i.e., it had male gonads and largely female external organs. The classification of "cryptorchid" preferred by Donaldson and Douth<sup>3</sup> is inadequate to describe animals with this condition as an otherwise normal male would be described as "cryptorchid" if its testes were undescended. There are records of cryptorchids for mule deer<sup>1</sup> and elk.<sup>5</sup>

All previous reports of the male pseudohermaphrodite condition in deer have indicated that the antlers of such animals were polished.<sup>3,6,12</sup> It is of interest that the antlers of the present animal were in velvet at a time of year when deer in that area normally have hardened antlers. The examination date for this animal was one month later than latest known date of velvet shedding by white-tailed deer in Virginia.<sup>6</sup> This probably was indicative of low testosterone production by the testes since velvet shedding has been shown to be induced by rising testosterone levels. However, the testes must have produced enough steroids to prime the pedicles initially and thus allowed antler growth.

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