**Corynebacterium pseudotuberculosis** as a cause of bilateral orchitis in a Boer buck

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Orchitis is an important cause of subfertility in small ruminants (SR). Several organisms have been implicated as a cause of non-venereal orchitis in bucks, such as *Arcanobacterium pyogenes*. *Corynebacterium pseudotuberculosis* is a highly contagious bacteria associated with caseous lymphadenitis and is characterized by chronic, focal/multifocal abscessation in various body systems of SR. Despite its widespread occurrence, there have been few reports documenting *C. pseudotuberculosis* as a cause of orchitis in bucks. Herein, we describe a non-venereal orchitis caused by *C. pseudotuberculosis* in an eight-year-old buck concomitantly suffering with chronic respiratory disease.

Upon presentation, physical examination revealed a BCS of 1.5/5 with generalized muscle atrophy, bilateral mucoid nasal discharge, and harsh lung sounds in the left chest. The left testis was firm on palpation and asymmetrically larger than the right testis which was palpably normal. The epididymides were palpably normal with no obvious adhesions. A CBC, blood chemistry, and fibrinogen were performed, which revealed a severe neutrophilia (24.3×10^3 /µL; RR: 1.2-7.2×10^3/µL), hyperfibrinogenemia (504 mg/dL; RR: 100-400 mg/dL), and hyperglobulinemia (6.0 g/dL; RR: 2.7-4.1g/dL), consistent with active infection. Semen was collected by electroejaculation using routine procedures with a handheld ram ejaculator. Gross semen assessment revealed a mildly cloudy and yellow-colored fluid, and microscopic evaluation showed obvious oligozoospermia and asthenozoospermia (subjective total motility of 10% and negligible progressive motility). Sperm morphology was 57% normal with 8% simple bent tails, 6% proximal droplets, 14% head detachment, 3% mid-piece defects, and 12% strongly folded tails. Thoracic ultrasound showed a small amount of mildly hyperechoic pleural free fluid, found to be modified transudate on cytology with no visible bacteria. Testicular ultrasound exposed a 15 cm, hypoechoic nodule with a hyperechoic rim near the craniodorsal region of the left testicle. Hyperechoic foci were dispersed throughout both the left and right testicles. Differential diagnoses included sperm granuloma, abscess, or neoplasia. A fine needle aspirate (FNA) was performed on both testicles for cytology and aerobic culture. Cytology revealed suppurative inflammation with marked necrosis within both testicles and short, rod-shaped bacteria in the left testicle. *Staphylococcus xylosus* was cultured from the left testicle, and *Corynebacterium pseudotuberculosis* was cultured from the right testicle. A semen culture was also obtained and isolated *Bacillus* sp. and *S. xylosus*. The presence of *S. xylosus* on the semen culture and left testicular FNA is most likely due to contamination, as this organism has been previously isolated from both scrotal skin and prepuce and appears not to be associated with reproductive diseases in SR. The presence of lesions in both testicles, as indicated by ultrasound, with subsequent isolation of *C. pseudotuberculosis* provided a grave prognosis for recovery of breeding ability. An interesting aspect about this case is the fact that *C. pseudotuberculosis* was only cultured using FNA from one testicle, suggesting that diagnosis of testicular orchitis due to this bacteria may not be successfully confirmed by semen culture alone and that multiple FNA sites may be required for detection. As abscesses in caseous lymphadenitis tend to be highly constricted to a specific area, we suggest that the bacteria might not be secreted in the semen unless the abscess is ruptured or that connecting ducts (efferents) were completely destroyed by the abscess.

**Keywords:** Caprine, *Corynebacterium pseudotuberculosis*, infertility, oligozoospermia, orchitis