Abstract

Background: Demodicosis in cattle is caused by the mite Demodex bovis, mostly found in hair follicles. In general, this parasitic disease presents subclinically with small lumps on the skin; it can occur widely and cause serious economic losses owing to the resulting low quality leather. Demodicosis is relatively rare in farm animals, and data are scarce regarding epidemiological and pathological findings. Differential diagnoses for demodicosis in cattle should include sarcoptic, psoroptic, and chorioptic mange; photosensitivity; urticaria; parakeratosis from zinc deficiency and dermatophilosis. The aim of this study is to report a case of demodicosis associated with squamous cell carcinoma of the vulva of a cow in the semiarid region of Paraíba, Brazil.

Case: A 3-year-old mixed Holstein-Friesian cow was referred to the Veterinary Hospital of the University Federal of Campina Grande. The animal showed a proliferative and ulcerated sore on the vulva draining serous secretions. We performed an incisional biopsy of the affected area, and sent the tissue to the Laboratory of Animal Pathology for histological examination. The morphological diagnosis was squamous cell carcinoma. Furthermore, several mite specimens were associated with the neoplastic proliferation. Based on the poor prognosis after clinical evaluation, the animal was euthanized. At necropsy, the lesions were identified as squamous cell carcinomas; firm nodules were observed with diameters ranging from 0.3 to 1.0 cm in the perivulvar region. Mites were deep-seated in shaved areas along with cutaneous nodules; they had a small, wormlike appearance; elongated abdomens with transverse striations, four pairs of short and stunted legs, and appeared morphologically similar to D. bovis. In addition, skin fragments and other organs were collected for histopathological evaluation. Microscopic examination of the skin revealed a moderate, nonsuppurative, and nodular dermatitis-associated perifolliculitis and folliculitis. Chronic, multifocal, moderate inflammatory infiltrate predominantly consisted of lymphocytes, plasma cells, some macrophages, few eosinophils, and few perifollicular and perivascular tissues, primarily in the superficial dermis. The hair follicles were found to be filled and expanded because of numerous mites (intact or segmented), characteristic of Demodex bovis. No significant lesions were observed in other organs. Discussion: In this case study, the cow was diagnosed with demodicosis on the basis of macroscopic and microscopic findings associated with parasitological examination. Furthermore, it is suggested that the observed squamous cell carcinoma of the vulva may have supported mite infection. The mites would have contributed to stress and consequently immunosuppression, allowing the multiplication of mites, which culminated in the pathological effects on the skin. Limited data were available in literature on bovine demodicosis, perhaps due to the low clinical suspicion and/or the possibility of spontaneous regression of the lesions.
These factors may contribute to that there is clinical suspicion and, consequently, few reports of the disease. However, considering that the skin lesions can cause economic losses, understanding the epidemiology and pathology of bovine demodicosis is important to establish adequate control measures.

Keywords
Demodex bovis, mites, cattle, squamous cell carcinoma.