Title: Chlamydial conjunctivitis in a koala (*Phascolarctos cinereus*).

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**Gross and Microscopic Findings:**

**Gross Findings:** The cornea is diffusely opaque and there is periocular mucopurulent discharge and marked conjunctival thickening and hyperemia.
Microscopic Findings: Expanding the lamina propria and underlying stroma of the conjunctiva there is moderate to severe infiltration of lymphocytes, plasma cells and a few macrophages. Small blood vessels are seen within the lamina propria (neovascularization). Diffusely, the conjunctival epithelium is thickened and distorted due to increase in size and marked proliferation of the epithelial cells (hypertrophy and villous hyperplasia). Multifocally neutrophils are seen transmigrating the epithelium. The corneal stroma is diffusely edematous, and mildly replaced by fibrous connective tissue (not shown).

Morphologic Diagnosis: Keratoconjunctivitis, lymphoplasmacytic and histiocytic, moderate to severe, chronic, with neovascularization and marked conjunctival epithelial hypertrophy and villous hyperplasia.

Etiology: Chlamydia sp. (likely C. pneumoniae and less probable C. pecorum).

Comments: Chlamydial conjunctivitis is one of the most prevalent diseases of koalas. It is caused by Chlamydia spp., a group of obligate intracytoplasmic coccoid gram-negative bacteria. Two species may be involved in ocular disease of koalas, Chlamydia pecorum (generally considered more pathogenic) and Chlamydia pneumoniae. C. pecorum has been found only in livestock and several species of wild mammals, while C. pneumoniae has been isolated mostly from mammals, including humans, and reptiles. Transmission can occur by direct contact or aerosol. Main routes of infection are from mother to offspring via pap feeding, direct contact with ocular discharge, urogenital tract, or via sperm in venereal transmission. The infection can be clinical or subclinical and lead to keratoconjunctivitis, urinary tract and/or reproductive infection.

Chlamydial conjunctivitis in koalas begins with a serous discharge that becomes mucopurulent. It is generally associated with hyperemia of the conjunctival tissue, which can proliferate over time, projecting over the eye and covering it completely. Secondary keratitis may ensue, as in this case. Other complications that can occur with or without ocular disease include urinary tract infections characterized by cystitis, nephritis, or obstructive nephropathies. Reproductive disease is often subclinical, but can result in infertility or in the spread of infection via latent histiocytic spread.
References and Recommended Literature:


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