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A Case Report of Atypic Chronic Superficial Keratitis (Pannus) in a Sheepdog

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Abstract: A three year-old male sheepdog was referred to a private veterinary clinic. Conjunctivitis, epiphora and a special kind of keratitis were seen in both eyes. In the microscopic examination, plasma cells and lymphocytes were presented. Atypic Chronic Superficial Keratitis (Pannus) was diagnosed and appropriate treatment protocol was implemented.

Key words: Chronic superficial keratitis, pannus, sheepdog

INTRODUCTION

Pannus, or chronic superficial keratitis, is a condition of ongoing inflammation of the cornea (the surface of the eyelid) (Helper, 1989; Long, 1992; Williams, 1999). Gradually blood vessels and pigmented cells move into the normally transparent cornea (Barnett, 2002). Disease generally manifests itself in dogs between three to five years of age. It first appears in the outer regions of the cornea and, in almost all cases and affects both eyes simultaneously (Helper, 1989; Williams, 1999; Barnett, 2002). Vascular granules and connective tissue establish themselves at the border of the sclera and the cornea, which is often variously pigmented and grow into the top-most layer of the cornea (Helper, 1989; Barnett, 2002; Gilger, 2006). This results in the formation of an opaque, cherry-colored spot with an uneven surface often ringed by a fatty, grayish-white band. Pannus is seen most often in German shepherds (Stanley, 1988), although less common, it also occurs in other breeds including Greyhounds, Huskies and Dachshunds (Helper, 1989; Barnett, 2002; Gwendolyn, 2007). The causes of pannus are not well understood, but several factors are involved. The breed incidence suggests a heritable predisposition, but UV (ultraviolet) radiation plays an important role as an inciting and propagating factor (Campbell, 1975; Helper, 1989; Chavkin *et al.*, 1994; Williams, 1999; Barnett, 2002). Dogs living at high altitudes are more severely affected. Also, auto immunity and possibly genetics play a role (Helper, 1989; Barnett, 2002).

CASE HISTORY

A three year-old male Sheepdog was examined in private sector. According to the owner, this dog suffered from discharge and redness of both eyes. In clinical examinations conjunctivitis, epiphora and a special kind of keratitis were observed in both eyes (Fig. 1, 2). The lesion looked like a protruding zone with a gray to brown color that covering most parts of cornea. A biopsy specimen was prepared from left eye for histopathologic examination.

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Fig 1: Redness, conjunctivitis and keratitis in the left eye



Fig 2: Redness, conjunctivitis and keratitis in the right eye

RESULTS AND DISCUSSION

Considering the clinical signs, an atypical chronic superficial keratitis (panus) was proposed as the primary diagnosis. A biopsy specimen was prepared from the left eye and the presence of plasma cells and lymphocytes confirmed the primary diagnosis.

Dog was treated with the following therapeutic regimen:

- Subconjunctival injection of Methyl Prednisolone Acetate (0.5 mL) as a single dose (Fig 3)
- Topical Betamethasone 3-4 times daily
- Prednisolone tablet (2 mg kg^{-1}) for 10 days

The dog was examined again 10 days after the treatment was started. About 70% of the lesion had been cured. Then Betamethasone was used as ophthalmic drop until the lesion disappeared completely (days 20). Betamethasone was used for another 7 days. In the final examination which performed in day 45, post-treatment, lesions had been cured completely in both eyes (Fig 4).



Fig. 3: Sub-conjunctival injection



Fig. 4: Treatment was completed after 45 days

Pannus is a progressive, inflammatory and potentially blinding disease (Helper, 1989; Long, 1992). Two forms of pannus have been reported including typical pannus in German shepherds and atypical pannus in other breeds (Helper, 1989; Barnett, 2002). Ueberreiter's syndrome and degenerative pannus are synonyms of pannus (Helper, 1989). It is a bilateral disease (Helper, 1989; Barnett, 2002) and manifested initially at the temporal limbus as a red, vascularized, conjunctival lesion (Barnett, 2002). As the disease progresses, it spreads as a fleshy, well vascularized lesion toward the central cornea (Helper, 1989; Barnett, 2002). Etiology of the disease has not been established, but it might be an immune mediated disease (cell mediated immunity) (Helper, 1989; Barnett, 2002). Epidemiologic evidence suggests that ultraviolet radiation is important in the pathogenesis of the disease (Campbell, 1975; Helper, 1989; Barnett, 2002). UV may alter the antigenicity of the tissue and makes cornea susceptible (Helper, 1989; Barnett, 2002).

The incidence and severity of the disease increase at higher altitudes (above 1300 m) (Helper, 1989). In early stages, corneal epithelial cells proliferate and lymphocytes and plasma cells infiltrated in to stroma (Campbell, 1975; Gwin *et al.*, 1982; Barnett, 2002). In advanced stages epithelium and

stroma are heavily pigmented and vascularized. Pannus must be differentiated from chronic irritation, keratoconjunctivitis sicca and corneal granulation tissue (Campbell, 1975; Barnett, 2002). It can be controlled by varieties of medical and surgical methods (Gwin *et al.*, 1982; Holmberg *et al.*, 1986; Helper, 1989; Mueller and Formston, 1996; Barnett, 2002). Application of BETA radiation (Strontium 90) has been suggested (Helper, 1989; Barnett, 2002).

In the presented case, all clinical signs and histopathologic features suggested the presence of an atypical chronic superficial keratitis. Although atypical chronic superficial keratitis was reported in other studies to the best of our knowledge, this case is the first detailed report of an atypical chronic superficial keratitis in the eyes of a Sheepdog in Iran and it was concluded that Prednisolone tablet and Betamethasone ophthalmic drop are good choices for the treatment of pannus.

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