DERMATOLOGY

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HEREDITARY OR NOT? FIRST STEP FROM GENETICS TO THERAPEUTICS

Congenital and hereditary skin disorders occur on a regular base. Dogs and cats can be born with different kinds of clinical skin abnormalities or with tardive disorders having a more gradual onset. Some occur with greater frequency in particular breeds. Disorders of the skin can be found in the epithelial layers, hairs, pigmentation, collagen and blood vessels. Examples of congenital skin disorders present at birth are ectodermal dysplasia and epitheliogenesis imperfecta. Tardive alopecia's or hypotrichosis, can be generalized or develop in patterns that spare the extremities or correlate with hair color. Examples are color dilution alopecia, black hair follicle dysplasia, pattern baldness and seasonal flank alopecia. Hereditary keratinization disorders involve the epidermis, follicular epithelium, hair cuticle and the claws. Clinical symptoms are hyperkeratosis, seborrhea, generalized skin flakes and comedones. Examples are primary seborrhea, ichthyosis and nasal hyperkeratosis.

A large portion of these diseases are inherited in a recessive pattern, which means affected puppies can be born to seemingly normal parents. Evidence for an autosomal dominant mode of inheritance with variable expressivity has been found in collies with dermatomyositis, in which immunologic abnormalities are causing skin and muscle damage. Furthermore, the genetic base of very common skin diseases as canine atopic dermatitis and demodicosis, has been investigated in the last decennia.

In general, once the mutations are known, carrier tests can be developed and the mutant allele eliminated from the breeding population. However, for many of these skin disorders, this is not yet available.

The importance for the veterinarian to recognize clinical symptoms in an early stage should be clear. Further knowledge of the pathogenesis of these particular disorders is necessary to provide in correct therapy.

In this lecture various hereditary skin diseases will be discussed, with the emphasis on translation of the genetic etiopathology into therapy.