



Dermatology for Animals

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Solar Dermatitis



Solar dermatitis (sunburn) results from excessive direct or indirect sun exposure on white skin, light skin or damaged skin that is not sufficiently covered by hair. It most commonly affects the nose, ear tips and underside

of affected animals. Some breeds that we commonly see include Bull Terriers, Boxers and Staffordshire Bull Terriers. Dogs that like to sunbathe are particularly at risk.

KEY POINTS

Damage is caused by exposure to ultraviolet radiation (mostly UVB) in sunlight .

The white, nonpigmented areas are affected with damage to the structure of the skin, the DNA and immune system.

Signs vary with exposure amount but are progressive and include redness, scale, thickening, follicular damage, sinus tract formation, infection, thick crusts and tumours.

The best treatment is prevention of exposure. Early changes are reversible if this can be achieved.

Severe damage and tumour formation may require treatment with cryotherapy, surgical lasers or radiation therapy.

Pathogenesis – What causes it?

The ultraviolet light (UV) in sunlight causes damage to the dog's skin in the same way as it damages our own. The UV light penetrates through the outer layer of skin in the non-pigmented areas to damage the collagen fibers and cellular DNA deep in the skin. It also damages the skin's immune response, increasing the risk of tumour formation.

Normally the UV light is absorbed by pigment (melanin) produced in the skin and is spread throughout the epidermis. Hair also provides a strong protective function by absorbing the UV radiation as it hits it. Unfortunately many animals have inadequate pigment or hair or both. Paradoxically, the ones with the least amount of pigment seem to do the most amount of sunbathing!

Clinical signs – What does it look like?

Early signs of UV damage are similar to our sunburn – redness of the exposed parts of the skin. With time and more chronic exposure the non-pigmented parts of the skin thickens to protect itself. This shows as islands of soft thin pigmented skin surrounded by the thickened white skin.



Only white skin affected



Lichenification and crusts

With time there is damage to the hair follicles that leads to cystic dilation, rupture, sinus tract formation and scarring. This damaged tissue commonly becomes secondarily infected leading to abscess formation and puss discharging from sinuses. The cumulative damage to the surface skin layers causes abnormal epidermal proliferation and crusts and horns may develop. Finally the cumulative DNA damage and immune inhibition may allow tumours (squamous cell carcinoma (SCC) most commonly) to develop and invade.



Cutaneous horn



Discharging sinuses



Cutaneous horn



Invasive SCC

Diagnosis

Diagnosis is made on the basis of history of sun exposure, restriction of lesions to non-pigmented skin, characteristic clinical signs and biopsy to confirm the histological changes and identify if tumour formation has occurred (this guides treatment selection).

Treatment

The best treatment is prevention – i.e. the complete avoidance of UV exposure. This may be achieved through restriction indoors (particularly in high UV part of day), application of sunscreens, lycra body suits, or application of [NuNose or Skin²](#) which can last up to 2 weeks with a single application. Early change can be reversed with UV avoidance. If the lesions progress small tumours can be treated with [cryotherapy](#) or [surgical laser](#). Larger more aggressive tumours however require surgical removal and in cases radiation therapy



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