

Photosensitization: A Case Report

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Photosensitization is a major problem in the southern United States and in some foreign countries. It is known to occur in all species of farm animals although in the northern United States it is probably seen most frequently in cattle. Photosensitization is not a major problem in this area of the country, but when encountered should be differentiated from other skin conditions.

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History

The cow in question was a four-year old Holstein showing severe skin problems for ten days before presentation. She was on pasture with approximately forty other cows, but was the only animal in the herd showing any problem.

Clinical Examination

Examination revealed a superficial necrosis of the non-pigmented areas of the skin. This necrosis and exfoliation was especially severe over the dorsum of the body

and diminished in severity over the sides and ventral body wall. A notable exception was scabbing of the teats and udder. The marginal areas were showing redness and there was some serum oozing adjacent to the crusted lesions.

The nose and muzzle were showing some encrustation, however, the lesions here were not severe, probably due to the predominance of black pigments in these areas. Although showing some depression and pain the cow was definitely hyperexcitable and nervous.

The teeth of this animal were showing no abnormal pigments and other aspects of the clinical examination were normal. A diagnosis of photosensitization was made and a blood sample was taken to check the white count, differential white count, and SGOT. It was hoped that with the above information the type of photosensitization could be determined. The laboratory results are listed below:

White blood count	12,000
eosinophils	1%
segmented neutrophils	72%
lymphocytes	22%
monocytes	2%
stab cells	3%
SGOT	180

Discussion

Before proceeding with this specific case a general discussion might be helpful. Photosensitizing agents, if present in sufficient quantities, will react with light of certain wave lengths to cause dermatitis. quantities of the photodynamic agents can arise in three ways: 1) primary photosensitization due to ingestion of exogenous photodynamic agents, 2) icterogenic photosensitization due to obstruction of bile secretion and, 3) congenital photosensitization in which the body produces excessive porphyrins which are photodynamic. The primary photosensitizations are most often caused by ingesting clovers and members of the Saint-John's wort family. It can also be caused by a number of other plants and several chemical substances such as phenothiazine. Icterogenic photosensitiza-

tion is usually due to ingestion of toxic plants such as Bermuda grass after freezing. Since this is a single case report, I will not attempt to cover all plants which can cause photosensitization but will say there are many such plants and they are listed in most textbooks of large animal medicine.

The exact way that light interacts with these photodynamic substances is not understood. However, the light must reach these pigments in the skin to cause any problem. The dark haired areas absorb the light before it reaches the skin and consequently are not affected.

In discussion of this particular case the first thing of interest is the elevated white count. This count with its lymphopenia is probably due to the fact that the cow had exudate in some of the deeper exfoliated areas. Also this cow was under a great deal of stress at this time.

The SGOT of 180 is at least three times the normal count. This would strongly suggest liver damage, however, the exact cause of the liver damage in this particular cow could not be determined.

Treatment

The first thing to consider in treatment is the immediate removal from sunlight. This should be accompanied by changing the diet and possibly the administration of laxatives to eliminate toxic materials already eaten. The extent of any further treatment depends on the severity of the particular case, but usually should include local application of ointments to soften the crusted areas and prevent secondary bacterial infection, systemic antibiotics to prevent septicemia and steroids or antihistamines to prevent pruritus. This particular case was kept indoors and had the feed changed. She was given steroids for three days, systemic antibiotics for five days, and a germicidal ointment was applied to the lesions for ten days. At this time she was markedly improved and was discharged with instructions that she be kept out of direct sunlight until completely healed. The client was also warned that when she was again exposed to sunlight the syndrome could recur.