TREATMENT OF BOVINE ACTINOMYCOSIS WITH ISONIAZID

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Introduction

Actinomycosis, or lumpy jaw, is a significant cause of economic loss in Western Canadian livestock. Losses occur directly from debilitation of affected cattle and indirectly from the slaughter of animals with many years of future reproductive life.

Nusbaum (9) has reported a clinical cure with incomplete regression of the lesion in a limited number of animals using intravenous sodium iodide and phenyl mercuric nitrate.

Traditional therapy for actinomycosis has included systemic iodides and/or antibiotics such as penicillin and streptomycin but none has provided satisfactory results (2, 5). In most cases, only a temporary arrest of the progressive lesion occurs. In some other cases treatment does not significantly alter the course of the disease.

Isoniazid was initially used in the treatment of human tuberculosis following the discovery of the tuberculostatic properties of nicotinamide and its related compounds (4). This drug is now considered to be one of the most effective tuberculostatic agents available (6). Because of the similarities between tuberculosis and actinomycosis it was subsequently employed with favorable results in human actinomycosis (8).

There are only a few reports in the literature on the use of isoniazid to treat bovine actinomycosis (1, 3). While these reports were favorable, it was felt that additional clinical data would be beneficial.

The purpose of this report is to evaluate the use of isoniazid in the treatment of actinomycosis in cattle brought to the Western College of Veterinary Medicine from January 1969 to July 1972.

Methods

A search through our medical records revealed a total of 19 cases of actinomycosis had been examined in our clinic from January 1969 to July 1972. The records were reviewed and the data categorized on the basis of type of animal affected and the treatment used. The owners were contacted for information on the current status of each animal treated.

Most of the cases were confirmed to have actinomycotic lesions on the basis of radiological and microbiological examination. The others were diagnosed on the basis of clinical findings only.

The dosage schedule was 5 to 10 mg isoniazid[1] per pound of body weight daily for 28–31 days. The drug was usually prepared in gelatin capsules for daily oral administration by the owner. In other cases it was added daily to the animal's grain ration.

The parameters used to evaluate the response to treatment were:

1. Arrest of growth and cessation of discharge.
2. Regression of the size of the lesion.

Results and Discussion

Table I lists the cases of bovine actinomycosis that were examined in the clinic during a four year period. The first eight animals were slaughtered because their future value did not justify the time and expense involved in treatment.

Anorexia and depression were noted in one pregnant cow which accidentally received a daily dosage of 20 mg/lb body weight. These toxic signs were alleviated by the total withdrawal of the drug for 28 days and then lowering the dosage to 5 mg/lb. There was no apparent effect on the fetus when this higher level was used.

Of the nine cases in which a follow-up was possible, growth of the lesion was arrested in eight animals. In no instance was there a relapse of the characteristic progressive actinomycotic lesion.

Conclusions

1. Isoniazid arrested the growth and controlled the activity of actinomycotic lesions in cattle.
2. In some cases a significant regression in the size of the lesion occurred.
3. Toxic signs of depression and anorexia

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[1]INH Powder, Winley-Morris Co. Ltd., 2795 Bates Road, Montreal, Quebec.

TABLE I

THE CLINICAL MANAGEMENT AND OUTCOME OF 19 CASES OF BOVINE ACTINOMYCOSIS

Case Number	Age (Years)	Sex	Treatment	Response
1	3	F	Slaughter	
3	1.5	M	Slaughter	
8	1	MC	Slaughter	
10	3	F	Slaughter	
15	2	M	Slaughter	
17	3	F	Slaughter	
19	5	F	Slaughter	
4	4	F	Sodium iodide (intravenously)	Slaughter before response could be assessed
6	1.5	M	Isoniazid + [a]	Growth arrested. Partial regression of the lesion
14	3	F	Isoniazid + [b]	Growth arrested. No regression
16	5	F	Isoniazid + [c]	Growth arrested. Partial regression
2	3	F	Isoniazid	Slaughter before treatment could be evaluated
5	2	F	Isoniazid	Failed to respond
7	2	F	Isoniazid	Growth arrested. Partial regression
9	1.5	F	Isoniazid	Follow-up evaluation not possible
11	4	M	Isoniazid	Growth arrested. Complete regression
12	3	F	Isoniazid	Growth arrested. Partial regression
13	5	M	Isoniazid	Growth arrested. No regression
18	3	F	Isoniazid	Growth arrested. Partial regression

[a]Unknown amount of intramuscular procaine penicillin administered by owner.
[b]Single dose 150 cc. 20% sodium iodide I.V.
[c]5 gm. streptomycin injected into the lesion.

occurred in only one animal which received a higher dosage of the drug.

4. Relapses did not occur in any of the cases treated with isoniazid.

5. Because the drug is inexpensive, easy to administer and effective it can be recommended for use in the treatment of actinomycosis in cattle.

SUMMARY

Isoniazid was used successfully in the treatment of actinomycosis in cattle. It arrested the progressive activity of the lesion and in some cases a significant reduction in the size of the lesion occurred.

RÉSUMÉ

L'isoniazide s'est avéré efficace pour le traitement de l'actinomycose bovine. Ce médicament arrêta l'activité progressive de la lésion dont les dimensions diminuèrent de façon appréciable, dans certains cas.

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