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Therapeutic Management of Snoaring Disease in Cattle

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Abstract

The efficacy of Praziquantel @ 20mg/kg. b. wt. orally against natural infection of *S. nasalis* in cattle was studied and was found to be 81.96%, 88.52%, 95.08% and 100% effective on 5th, 7th, 15th and 30th day post treatment respectively. The variation in egg count on 30th day post treatment between treatment and control groups were statistically significant ($p<0.05$). Clinical observations showed reduction in snoring sound on 5th day post treatment and reduction in the mucopurullant nasal discharge on 15th day post treatment onwards. The granuloma gradually reduced and significant reduction was observed on 30th day post treatment.

Keywords: Cattle; efficacy; praziquantel; nasal schistosomosis; *schistosoma nasalis*

Introduction

Schistosoma nasalis, the causative organism of nasal schistosomosis was first identified by Rao (1933) in India. This form of disease is widely prevalent in India and can be easily diagnosed by presence of nasal granuloma (cauliflower like growth) in mucosa of nasal cavity, a clear snoring sound audible from infected animals and mucopurulant nasal discharge (Biswal, 1956; Christopher and Sudarshan, 1975; Sreeramulu, 1994; Sumanth *et al.,* 2004; Sunder *et al.,* 2004; Bhaskar and Hafeez, 2005; Kolte *et al.,* 2012 and Latchumikanthan *et al.,* 2014). Nasal granuloma, though not a fatal disease, causes much inconvenience to cattle particularly when nostrils are blocked due to granulomatous growth. The affected animals suffer from respiratory distress and fail to take adequate nutrients causing other related stress conditions ultimately resulting in loss of milk production and reduction in draught power of bullocks. The flukes (*S. nasalis*) are more pathogenic for cattle whereas in buffaloes they only cause eruptions on nasal mucous membrane (Agrawal, 2005). Lithium antimony thiomalate, which is a trivalent organic antimonial compound has been widely used against nasal schistosomosis in cattle with variable therapeutic efficacy reported by different authors (Agrawal and Alwar,1992). However, the only route of administration of this drug is deep intramuscular. Therapeutic efficacy of Praziquantel against nasal schistosomosis has been reported earlier (Rahman *et al.,* 1988). The present paper describes therapeutic efficacy of Praziquantel against natural infection with *Schistosoma nasalis* in cattle.

Materials and Methods

Ten cattle, aged in the group 4-5 years of either sex belonging to private cattle owners were found to carry nasal grannuloma. The cattle were exhibiting clinical signs such as snoring, mucopurulent nasal discharge, frequent sneezing and rubbing their muzzle against walls. These animals were facing difficulty while breathing and feeding, thus visibly dull and depressed. Laboratory examination of nasal mucosal scrapings collected from these animals after digestion with 10% Potassium hydroxide (KoH) revealed high eggs count for *S. nasalis*. The selected cattle were divided into two groups comprising 2 nos. in first group and 8 nos. in second group. Cattle in first group kept as non treated control where as second group were treated with single dose of Praziquantel (Cysticide[a]) at the rate of 20mg/kg b. wt. (Rahman *et al.,* 1988). One day prior to administration and 5th, 7th, 15th and 30th day post treatment nasal scraping from all 10 animals were collected. Eggs per milliliter of scraping and /or washing were counted under 10x of compound microscope. Based on difference between pre and post medication egg count in treated and control

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a - Brand of Merck India Ltd., Pune

Fig. 1: Eggs of *Schistosoma nasalis* in nasal scraping

Fig. 2: Granuloma in nasal cavity pre-treatment

Fig. 3: Marked reduction in granuloma on 30th day post treatment

group, the efficacy of Praziquantal was assessed as per the formula (Dash *et al.*, 1988).

$$\text{Efficacy percentage} = \frac{\text{Pre treatment egg count} - \text{post treatment egg count}}{\text{Pre treatment egg count}} \times 100$$

Improvement in clinical condition was also assessed during the thirty day study period.

Results

The efficacy of Praziquantel on 5th, 7th and 15th day post treatment were 81.96%, 88.52% and 95.08% respectively, while the treated animals showed hundred percent reduction in egg count by 30th day post treatment. The control groups showed no reduction in average egg count (Fig. 1). The variation in egg count on 30th day post treatment between treatment and control groups were statistically significant ($p<0.05$). Clinical observations also showed reduction in snoring sound on 5th day post treatment and reduction in mucopurullant nasal discharge on 15th day post treatment onwards. The granuloma gradually reduced (Fig. 2 and 3) and significant reduction was observed on 30th day post treatment.

Discussion

Treatment with suitable anthelmintics is one of the effective methods in controlling any parasitic disease. Therefore, drug trials are essential to find out a suitable anthelmintic which is effective, safe, easy to administer and cost effective. Considering the same, Praziquantel was tried to evaluate its efficacy against natural infection of nasal schistosomosis in cattle. The drug trial revealed that Praziquantel was quite effective against *Schistosoma nasalis* infection in cattle when given orally @ 20mg./kg. b. wt. as a single dose. The study showed 81.96%, 88.52%, 95.08% and 100% reduction in egg counts on day 5th, 7th, 15th and 30th post treatment with complete clinical recovery. The present finding is in agreement with the findings of Bushara *et al.* (1982), Rahman *et al.* (1988), Singh *et al.* (2003) and Agrawal (2012). The cost of treatment of nasal schistosomosis with praziquantel, although little costlier than Lithium antimony thiomalate, the drug has better efficacy (Agrawal, 2012) and is easy to administer which can be done by the farmer himself. In addition, the proven cestodicidal efficacy of Praziquantel is an another advantage of this drug for treatment of mixed concurrent infection of *Schistosoma* nasalis and ruminant tape worms.

Conclusion

The efficacy of Praziquantel @ 20mg/kg b. wt. orally against natural infection of *S. nasalis* in cattle was found to be quite effective. 100 percent efficacy of Praziquantel @ 20 mg/kg. b. wt. as a single oral

dose against nasal schistosomosis in cattle as observed in the present study is very much encouraging. Thus, Praziquantel can be effectively used for treatment and control of nasal schistosomosis in cattle.

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