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With 4 figures in the text *www.sudanjvr.net*

Epizootic Lymphangitis: A Report on a New Endemicity among Equines in the south of Gezira State, Sudan

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ملخص البحث

تم التقصي عن مرض السراجه في عدد 17 راس من الخيل و 9 من الحمير في منطقة جنوب الجزيرة وذلك خلال الفترة من 1997 – 2000 ، اعتمد التشخيص الأولى على الأعراض الاكلينيكيه و الآفات أخذت عينات من الآفات و صبغت بصبغة الليشمان حيث تم معاينة المسبب (*Histoplasma farciminosum*) في كل الشرائح التي أعدت . محاولة استزراع المسبب في وسط سابرود (Sabouraud agar) مضافا اليه المضاد الحيوى الكلورامفينيكول (Chloramphenicol) لم تكن ناجحة . محاولة علاج الحالات بواسطة الحقن الوريدي بمادة يوديد الصوديوم (sodium iodine) أعطت نتائج متوسطة .كان معدل النفوق اكبر في الخيل عنه في الحمير و التي بقيت عليها الآفات لفترة أطول .

Summary

Seventeen horses and nine donkeys with epizootic lympphangitis at the south of Gezira State, were observed and studied during the period 1997-2000. Tentative diagnosis was made on the basis of the clinical picture and lesions notably the presence of the characteristic cord-like nodular ulcerative and granulomatous lesions on the skin. The causal agent, *Histoplasma farciminosum*, was demonstrated in all smears made from the purulent materials and stained with Lieshman stain. Growth of the causal agent on Sabouraud agar supplemented with chloramphenicol and actidione was not successful. Treatment of affected animals with intravenous injection of sodium iodide gave indication of an average success. The disease was found to be fatal to horses but not so among donkeys though lesions in the latter tended to persist for long period.

Introduction

Epizootic lymphangitis is a chronic infectious disease of equine caused by the yeast-like fungus *Histoplasma farciminosum* (Timoney *et al*., 1988). The disease was first reported in the Sudan in 1906 among a group of mules purchased from Ethiopia (Anon, 1906-1914). Apart from the initial work by Awad (1960) followed by detailed studies of Fawi (1969, 1971), there has hardly been any evidence of a recent systematic course of research to tackle the problem. The disease is believed to be still catching in some parts of

the Gedarif and the Blue Nile States. This can be supported by a recent single report of an infection caused by *H. farciminosum* in a donkey at Sennar (Sulieman and Fadl Elmulla, 1995).

The aim of this study was to report the emergence of epizootic lymphangitis among equines in some parts of the Gezira State.

Materials and methods

Area of investigations:

The observations made in this report were collected from cases in and around villages and local markets at the south of Gezira State.

Some data were collected from the records on cases admitted to the Veterinary Clinics at Hag Abdulla, El Hosh and Wad El Hadad.

Clinical examination:

Each case included in this study was given a number and the clinical and therapeutic progress was monitored from time to time with the help of the owners.

Mycological examination:

Smears were made from purulent materials of each case. They were then stained using Lieshman stain and examined for the presence of the dimorphic fungi; oval cyst-like or the mouldy mycelial form. This microscopic method has proved to be very useful for the diagnosis of histoplasmosis (Murry *et al*., 1995). Aliquots from the purulent materials were cultured aerobically onto slants of Sabouraud dextrose agar supplemented with chloramphenicol (10 µg/ml) and actidione (cyclohexamide; 10 µg/ml). The slants were incubated for up to six weeks at both 37^{o}C and 30 ºC.

Treatment:

Four affected horses were treated according to Radostits *et al*. (1984) with 10% aqueous solution of sodium iodide at a dose of 1g /14-kg body weight administered intravenously The dose was repeated once after 20 days.

Results and Discussion

The first sign of the epizootic lymphangitis infection observed among horses was the development of painless swellings mostly along the lymphatics of the fore-and hindquarters. The lesions mostly consisted of nodules that tended to enlarge in size and increase in number starting on the inner parts of the limbs, abdomen, then head and neck (Fig.1). At latter stages, the lesions reached the nasal cavities resulting in persistent sneezing and discharges. In donkey the lesions

were restricted to the limbs especially the forelimbs (Fig.2) and have a tendency to spread slowly.

The lesions took the chronic form only among the 17 horses monitored. The lesions developed slowly in the beginning but tended to spread rapidly occupying multiple sites in the body assuming a generalized form that eventually led to death.

The subcutaneous tissues around the nodules became oedematous and swollen, while the nodules softened gradually to open thereafter into to the exterior discharging thick yellow cream pus. Sometimes the pus was bloodstained or greenish to gray in colour. The variation in colour might be attributed to secondary infections (Timoney *et al*., 1988).

Most of the ulcers remained opened with little or no discharges but ulceration continued and eventually a granulomatous surface was formed underneath. New nodules developed along the lymph vessels became enlarged and predominant. The primary lesions continued to increase with increase in flow of pus and the granulating ulcers became the most common sight in 10 out of the 17 horses.

General body condition and appetite of affected horses remained unaffected. Following generalization of the lesions and involvement of the upper respiratory tracts, the animal's health deteriorated rapidly. At this stage, putrefaction of the lesions emitted a nasty odour, especially with the expiration. Flies and secondary bacterial infections seemed to complicate the condition and accelerate the fatality of the animals. The causal agent, *H. farciminosum*, was demonstrated in all smears made from the purulent materials and stained with Giemsa stain. Using lieshman stain, smears revealed the yeast-like form of *H. farciminosum*, which was oval in shape and did not take the stains, thus appears as empty spheres (Fig.3). The mycelial phase was observed in some cases (Fig.4). This microscopic approach is preached to provide an easy method for the diagnosis of histoplasmosis especially *H. capsulatum* (Murry *et al*., 1995; Quinnn *et al*., 1994).

Growth of the causal agent on Sabouraud dextrose agar supplemented with chloramphenicol and actidione was not successful following incubation for up to six weeks at both 37°C and 30°C. Improved method of isolation is needed to isolate and identify the causal agent.

Fig. 1: Nodules in the inner parts of the forelimbs, neck and abdomen.

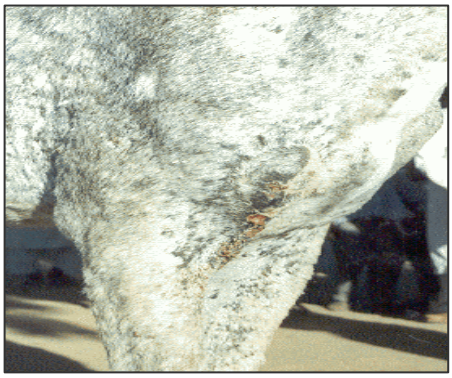

Fig. 2: Nodules in a donkey restricted to the forelimbs.

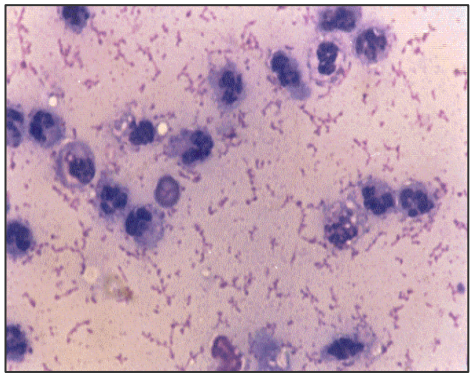

Fig. 3: Smear with Lieshman stain showing the yeast-like form of *H. farciminosum*

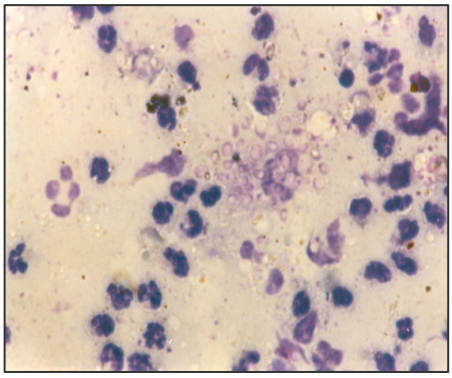

Fig. 4: Smear showing mycelial phase of *H. farciminosum*

Treatment with intravenous injection of sodium iodide gave average results. Two of the three horses showed improvement but died after 12 days post treatment. Some donkeys were told to have recovered spontaneously. Cauterization which is practised by the locals to control the spread of the lesions was not successful with horses, but it showed good results with donkeys (authors personal contacts). The failure in treatment matched well with the established fact that epizootic lymphangitis is an untreatable disease (Radostits *et al*., 1984).

Increasing the dose of the sodium iodide to the degree of intoxication and furthering the repetition of the dose to a third one would have produced good results (Abbas, B. personal communication). In human, histoplasmosis is treated with new anti-fungal drugs such as ketonazol and ictonazol, such regiments might worth a trial in animals.

This report emphasizes the economical importance of epizootic lymphangitis as it causes continuous hazard to horses. The reportage of the disease in Gezira State, which known to have no cases before, represents a new dimension to the disease map in the Sudan.

Acknowledgement

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