

فطر الهستوبلازموزيس في عيون الحمير

دراسة بواسطة الميكروسكوب الالكترونى

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الملخص

لقد تمت دراسة الآفة المتسببة من فطر الهستوبلازموزيس في عيون الحمير بواسطة الميكروسكوب الالكترونى . وقد اشتملت الآفة على تفاعلات حبيبية ولقد تميزت نماذج التركيب فوق الدقيق بتغيرات في الميتوكوندريا الخاصة بالخلايا الاكولة والخلايا العملاقة .

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HISTOPLASMOSIS OF THE EYES OF DONKEYS II. AN ELECTRON MICROSCOPIC STUDY.

(with 2 figures)

By

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SUMMARY

Histoplasmosis of the eye of donkeys was studied by light and electron microscopy. The lesion consisted of a granulomatous reaction. The ultrastructural pattern was characterised mainly by changes in the mitochondria of macrophages and giant cells.

INTRODUCTION

Histoplasma capsulatum : was seen first by DARLING (1906) in sections of livers and spleens removed from natives of the Panama Canal Zone who had died of a disease resembling visceral leishmaniasis. He thought it was a protozoon and gave it the present name. Final proof of the mycotic nature of the infection was furnished by HANSMAN, SCHENKEN and De MANBREUN who were first to culture the organism (Quoted from SMITH *et al*, 1968) Histoplasma infection of the eye of thhe donkeys in an epizootic pattern and with production of grantllomatous lesions was described by El-Guindy *et al*. (Under publication). The authors were able to reproduce the disease by the experimental infection of healthy donkeys.

The causative organism was isolated and identified as *Histoplasma capsulatum*. It may be of interest to explore the ultrastrucure of the eye lesion in naturally diseased as well as in experimentally infected donkeys.

MATERIAL AND METHODS

Tissue specimens were collected from 13 naturally diseased donkeys as well as from 3 experimentally infected ones suffering from granuloma of the inner canthus. Samples were fixed in palade fixative, embedded in Epon of metacrylate and ultra thin sections stained with uranyl acetate (or lead hydroxide) and were examined by a Japanese electron microscope (Jem-6C) with a maximum magnification power of 70,000 and resolution power L5 A. Parallel study of the histopathology of the lesion was performed on sections of tissue specimens fixed in neutral formalin, embedded in paraffin, stained by haematoxylin and eosin and examined by light microscopy.

RESULTS AND DISCUSSION

Histopathology : The lesion consisted of a granulomatous reaction formed of macrophages and giant cells of the langhans type. These cells harboured small ovoid bodies 0.5-2 μ within cytoplasmic vacuoles. Few lymphocytes were seen scattered inbetween these cells. The reaction was diffuse with no attempt for tuberculoid formation and no foci of necrosis were observed. Capillaries were dilated engorged or presenting swollen endothelium. There was no much difference between the lesion of naturally diseased and eperimentally infected eyes.

Ultrastructure : Electron micrographs (Figs. 1-2) showed the same cellular elements reported by light microscopy. In addition, mitochondria of the macrophages and giant cells presented swelling and certain degree of destruction, while some were full with electron dense material or granular formations.

HISTOPLASMOSIS

In the cytoplasm of giant cells and histiocytes there were ovoid structures, 0.5-2 μ , of variable electron density surrounded with a halo of variable width (1-2.5 μ) limited by an outer electron light membrane of 10-50 μ which are most probably the histoplasma.

In certain instances an area of dissolution was observed in the vicinity of the organism. Similarity between the ultrastructure of naturally occuring and experimentally induced lesions was evident. Regarding the ultrastructure of the microorganism in tissue sections, no significant difference was demonstrable when compared with previous data reported by other authors (EDWARDS *et al.* 1959 and DUMONT & PICHE, 1960).

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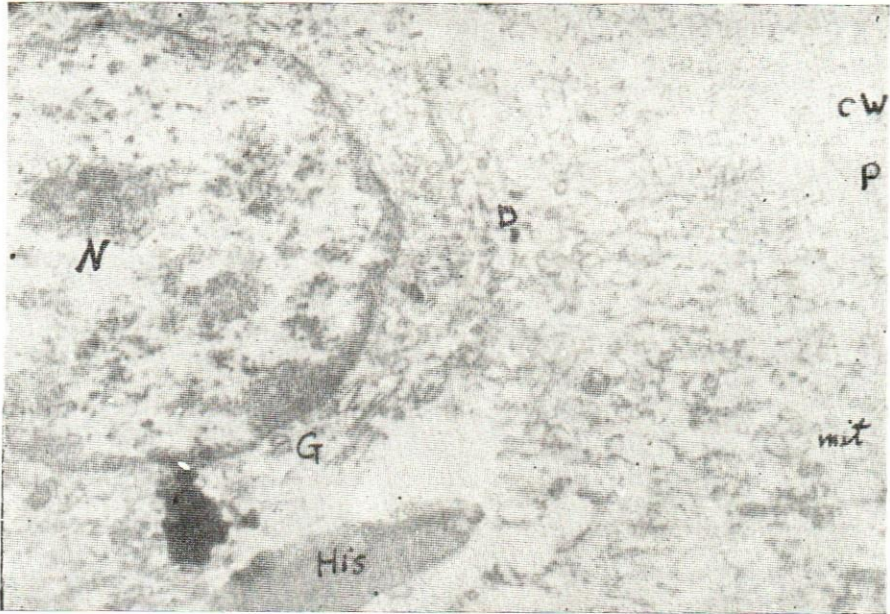


Fig.—1. Electron micrograph of the lesion of a naturally infected animal, macrophage with Histoplasma (His), nucleus (N), mitochondria (mit) with destroyed internal structure and fused inner and outer membrane, cell wall(Cw), X 20.000.

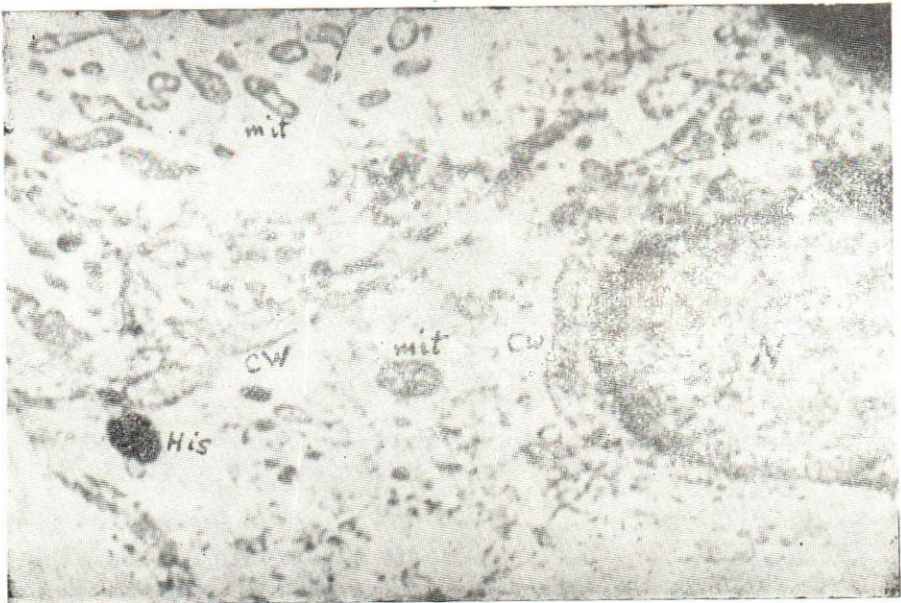


Fig. 2.—Electron micrograph of the lesion of a naturally affected animal, macrophage with Histoplasma (His), Golgi apparatus (G), nucleus (N), pseudopodia (P), dense bodies (DB), cell wall (Cwp), X 20.000.