

CORRESPONDENCE

THE CAUSATIVE AGENT OF JORGE LOBO'S DISEASE, THE FUNGUS *P. LOBOI* (= *LOBOA LOBOI*) MAY BE SEEN EXTRACELLULARLY TIGHTLY ENCIRCLED BY HISTIOCYTES. OBSERVATIONS AT THE TRANSMISSION AND SCANNING ELECTRON MICROSCOPES.

Lesioned skin tissues of patients with Jorge Lobo's disease (also known as lobomycosis) exhibit granulomata formed by closely adjoined histiocytes and some multinucleate, giant cells. Both the histiocytes and the giant cells contain intracytoplasmic forms of the causative agent of the disease, the fungus *P. loboi* (= *Loboa loboi*) (ref. in BARUZZI et al., 1982¹; LACAZ et al., 1986² and SESSO & BARUZZI, 1988³). In the previous light microscopical studies, the parasites were consistently seen inside phagocytic cells. However, electron microscopical observations showed that restricted sectors of the outer region of the thickened cell wall of the fungus are in direct contact with the extracellular matrix either through exocytic-like openings or microchannel-like spaces delimited on both sides by host cell cytoplasm(s) (SESSO & BARUZZI, 1988³ and SESSO et al., 1988⁴). It was not possible to decide whether these cytoplasmic portions bordering the putative microchannel belonged or not to the same histiocytic cell. Should this last possibility prevail, then the parasite would be situated extracellularly (SESSO & BARUZZI, 1988³ and SESSO et al., 1988⁴) and the space resembling a microchannel would actually be the intercellular space between two histiocytes that tightly encircle the fungus.

In this report we show in sections and under the scanning electron microscope that the fungus may be found extracellularly tightly shrouded by histiocytes.

Skin fragments from a Caiabi adult male indian with lobomycosis were processed for observations under the transmission and the scanning electron microscopes. Ultrathin sections were obtained as indicated previously (SESSO & BARUZZI, 1988³). For examination with the scanning electron microscope (SEM) processing was carried out according to the protocol of TANAKA & MITSUSHIMA (1983)⁵. In this procedure, after fixation in aldehydes the organ fragment before being exposed to osmium tetroxide is cracked at li-



Figs. 1 and 2 - Show empty cell walls of the fungi. It is unclear whether the cytoplasm and nuclei of the parasites were removed during processing for microscopic examination. Fig. 1 - Arrows indicate irregular lamellated projections of the parasite cell wall; Cy, cleaved cytoplasm of the histiocyte (3900x).

quid nitrogen (-196°C) temperature. When the cytoplasm of parasited cells is sectioned by the freeze-fracture procedure the intracellular form of the fungus is exposed for eventual observation with the SEM (Fig. 1).

The SEM used was the Stereoscan 240 (Cambridge) operated at 15 KV. Fig. 2 shows an empty cell wall of the fungus, encircled by the profiles of at least 3 histiocytes. Fig. 3 reveals that the parasitic form marked by C is encircled by 3 different histiocytes. The cell membranes of these histiocytes adhere to the irregularities of the outer surface of the parasite cell wall leaving no free extracellular space at the surface of the fungus.

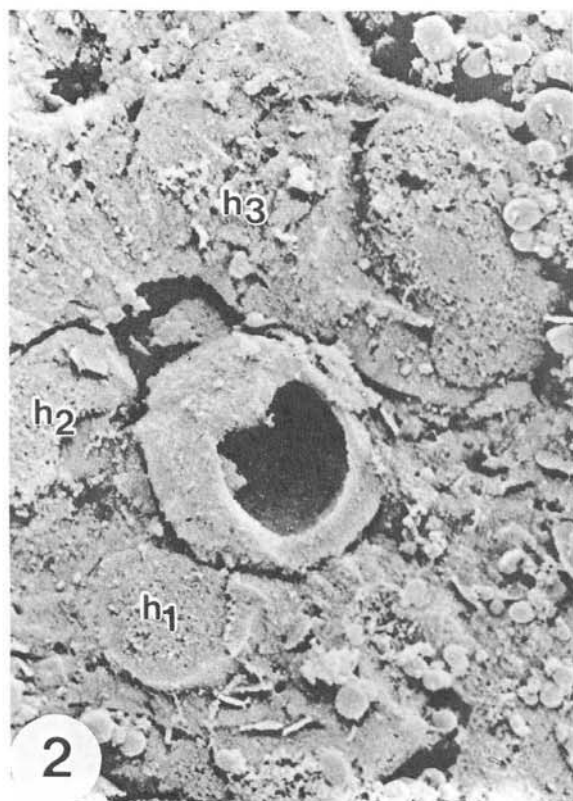


Fig. 2 - This fungus cell wall is apparently encircled by the cell body of various histiocytes; we have indicated some of them by *h1*, *h2* and *h3* (3600x).

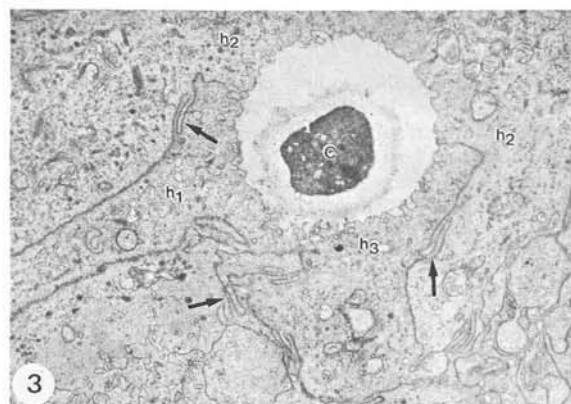


Fig. 3 - The presence of cytoplasmic structures in the fungus (C) indicates that it is a living parasitic form. In the granulomata of lobomycosis it is extremely frequent that adjoining histiocytes exhibit interdigitating cell surfaces (arrows). Cytoplasmic portions of the 3 histiocytes involving the fungus are indicated by *h1*, *h2* and *h3* (10.800x).

It is as yet undetermined how frequently this type of interaction between fungus and histiocytic cells occurs in the granulomata of lobomycosis. To the extent of our knowledge, this arrangement through which phagocytic cells literally isolate (and apparently attempt to immobilize) a foreign parasitic element by the mechanical use of the cell bodies has no parallel in the literature.

One can not rule out the possibility that these histiocytes encircling the fungus will eventually fuse to form a multinucleated giant cell.

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Recebido para publicação em 18/02/1993
 Aceito para publicação em 26/02/1993