

HISTOLOGIC, HISTOCHEMICAL AND MAST CELL DETECTION IN THE GINGIVA OF SCHISTOSOMIASIS MANSONI EGYPTIAN PATIENTS

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ABSTRACT

Schistosomiasis mansoni occurs principally in Africa and Western Asia. It is one of the most important endemic diseases in Egypt. Most of the histopathologic investigations of Schistosomiasis mansoni were carried out on the intestinal mucosa and it was done using H. & E. and/or alkaline phosphatase. The gingiva is considered a mirror image of what happens inside the body and as it is easy to reach and take a biopsy from, so we chose it for our investigation, specially that the patient may spend a very long time (up to 30 years) being unaware of the presence of the disease. Sixty patients of uncontrolled Schistosomiasis mansoni (from the outpatient clinic of Tudor-Belharz Institute, Cairo) as well as 15 patients from the Orthodontic Clinic of Kasr El-Einy with normal healthy gingiva to serve as controls. Every patient was subjected to thorough scaling and good oral hygiene for 30 days before taking gingival biopsies from the gingiva opposite the upper left canine and premolar. All biopsies were fixed in 10% neutral formalin, Boin, Susa and Carnoy's fixatives. The prepared sections (thickness of 5 μ m) were stained with, Harris haematoxylin and eosin stain, Weigert's method for fibers, Alkaline phosphatase by an Azo Dye reaction, Acid phosphatase dye method, and Unna's method for mast cells.

INTRODUCTION

Schistosomiasis is one of the world's most prevalent trematodal diseases, because of its high incidence of infection in many densely populated endemic areas.

Most of the histopathologic studies have been concerned with intestinal mucosa, especially in relation to alkaline phosphatase level.

Alkaline phosphatases (Aps) are widely distributed in most mammalian tissues, blood and secretions (bile, urine and milk)^(6,17,18). The main mammalian tissues with high AP activity are those concerned with active transport mechanisms⁽⁹⁾. The role of alkaline phosphatase has been ascribed to be related to the absorptive function of the cell⁽⁷⁾. Therefore, they are found on the microvillar membranes of absorbing epithelial cells of the intestinal mucosa⁽¹⁷⁾. This enzyme is concerned with the transport of glucose-6-phosphate from the intestinal lumen⁽⁷⁾. Some investigators⁽⁸⁾ found that a phosphorylation mechanism is necessary for absorption of fatty acids from the gastrointestinal tract.

Alkaline phosphatase increased significantly in the intestine of infected untreated mice⁽³⁾ and hamsters⁽⁴⁾ as well as in blood vessels⁽³⁾. Acid and alkaline phosphatase also showed variations between increase and decrease in skeletal muscles in mice experimentally infected with *Schistosoma mansoni*⁽¹⁾. The liver of infected mice also showed significant increase in its

weight with decrease of lipoprotein-cholesterol synthesis which was apparent in decrease of these parameters in the serum as well⁽⁸⁾.

Mast cells have been the object of investigation for almost a century, but still remain an enigma in terms of their function in situ. Because they contain vasoactive substances within cytoplasmic granules which can be discharged from the cell, the role of mast cells in the pathogenesis of certain inflammatory responses has been emphasized⁽⁵⁾.

Despite the great number of studies on schistosomiasis mansoni, few dealt with the gingiva. This work was done to study histologic, histochemical and mast cell distribution in the gingiva of schistosomiasis mansoni Egyptian patients.

PATIENTS AND METHOD

Sixty uncontrolled schistosomiasis mansoni patients as well as 15 healthy persons (controls) were used in this study.

- Thorough scaling as well as good oral hygiene for 30 days were done to all patients before taking the gingival biopsy (to exclude any local factors which may cause gingivitis).
- Gingival biopsies were taken from the gingiva opposite the upper left canine and premolar, then fixed in 10% neutral formalin, Boin, Susa and Carnoy's fixatives.
- Prepared sections (5 μ m thick) were stained with:

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