TRANSFERRIN RECEPTOR EXPRESSION IN SOME SALIVARY GLAND TUMOURS

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ABSTRACT

Nineteen cases of salivary gland tumours were included in the present study; seven pleomorphic adenomas, four carcinomas ex-pleomorphic adenoma, five adenoid cystic carcinomas and three mucoepidermoid carcinomas. They were investigated morphologically and immunohistochemically for an iron-binding protein using polyclonal antibody for TR receptor by immunoperoxidase method. The staining intensities varied among the studied types as well as among various cellular components of individual cases. The different proliferative activities might shed some light on salivary gland tumour histogenesis.

INTRODUCTION

Cells of all tissues have an essential requirement for iron. Iron metabolism is highly regulated and iron is usually in the free state only transiently and is otherwise found highly complexed with either iron binding or iron storage proteins. Iron is stored predominantly in the liver and is supplied to other tissues through the circulation by an iron transport protein. Transferrin (TR) is one of three major iron-binding proteins in man and has been shown to be an obligate factor for cell growth, binding to a receptor on cell surface membranes.

The majority of human cells absorb serum iron during their development. The first step in cellular iron uptake is binding of TR iron complexes to the cell surface membrane. This appears to be mediated by a specific molecule known as the TR receptor. The distribution of TR receptors has been studied in a range of normal and neoplastic tissues using different antibodies and immuno-peroxidase staining of formalin-fixed paraffin-embedded tissues.

In normal tissues, TR was found in a limited pattern of distribution, notably basal epidermis, basal layer and some prickle cell layers of squamous epithelium, myoepithelial cells of uterus, histiocytes, renal tubular cells, periductal cells of mammary glands and muscular tissue.

In contrast to this limited expression of TR in normal tissues, the receptors showed wide distribution in the reported studied neoplasms as squamous cell carcinomas, non-Hodgkin's disease and ductal in-situ carcinoma of the breast.

Lotfy and El-Sissy showed that TR expression exhibited an inverse relationship to grade of differentiation of oral squamous cell carcinoma. Moreover, the authors reported that the used marker for TR could be helpful in identifying neoplastic proliferating undifferentiated cells.

As salivary gland neoplasms constitute a relatively heterogeneous subgroup of tumours, numerous classification systems exist based upon morphology and cytologic features. However, morphologic features alone do not fully satisfy the evaluation of biologic activity. Moreover, no universal opinion exists relative to cell of origin for many tumours.

Thus, the main goal of the present work was to shed some light on salivary gland tumour histogenesis through evaluation of the proliferative and biological activities among various cellular components of some salivary gland neoplasms by direct visualisation of TR receptor expression using the immunoperoxidase technique.

MATERIAL AND METHOD

Nineteen cases of benign and malignant salivary gland tumours of both major and minor salivary glands were collected from the files of the Oral Pathology Departments of Faculties of Dentistry of Mansoura and Alexandria Universities.

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