ARE THERE ULTRASTRUCTURAL FEATURES DISCRIMINATING AGGRESSIVE AND NON-AGGRESSIVE SOLID TYPE OF BASAL CELL CARCINOMA?

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ABSTRACT

Basal cell carcinoma (BCC) has been reported to show either aggressive or non-aggressive clinical behaviour depending on various parameters including recurrence of the tumour. The present study has been conducted aiming at characterization of the fine structural changes in the aggressive (recurrent) and non-aggressive (non-recurrent) BCC cases of the histologic solid type. The results of this work revealed certain features that can characterize the aggressive type as: dominant dark cells, adenoid configurations of the tumour cells, irregular cell membranes, marked deficiency of desmosomes and hemidesmosomes, prominent microfilaments, and frequent mast cells detection. According to these findings, it is recommended that each BCC lesion must be considered individually and the electron microscopy might aid in predicting the possible behaviour of the tumour cells in question.

INTRODUCTION

Basal cell carcinoma (BCC) is the most common cancer of the hair-bearing skin and mostly arises on the head and neck region(10,22). It is generally slow-growing and rarely metastasizes and its prognosis is excellent(23). Nevertheless, some lesions stubbornly resist treatment and exhibit great propensity for recurrence and subsequent extensive local destruction of tissue(26). Moreover, even death may occur if left untreated due to direct tumour extension into vital structures such as blood vessels or brain(17,23).

The behaviour of BCC has been reported to be either aggressive or non-aggressive depending on various parameters as recurrence, distant metastasis and histologic type(2,9,13). Various histologic configurations of the neoplastic cells have been reported as solid, plexiform, adenoid, pigmented, cribriform, basosquamous and cystic types.

The solid type of BCC (the most common histologic one) is generally accepted as the least aggressive one(11). However, this view is now criticized as there is evidence that a small group of solid type BCC have an aggressive behaviour, independent from the surgical treatment and their histological pattern(4,12).

Cancer therapy has now achieved much progress that several therapeutic modalities are now available that can be expected to affect cure. Thus, it is of great benefit for every cancer patient to properly assess as much parameters as possible to help in predicting prognosis and consequently prescribing the best treatment plan. Various studies have been tried to aid in determining the malignant potential of BCC through enzyme histochemistry(1,6) immunologic(11,16,29) and cell kinetic studies(3).

Perusal of the available published literature revealed that little attention has been focused upon the ultrastructural features. Moreover, there is no general acceptance on which alterations in the malignant cell phenotype were correlated with invasiveness(18,24,27). Meanwhile, most of the previously reported series were of great histologic heterogeneity.

Accordingly, the present study has been carried out aiming at characterization of the fine structural changes in the aggressive and non-aggressive BCC cases of the solid histologic type.

PATIENTS AND METHOD

Patient selection and biopsies

This study has been conducted on 9 cases of BCC of the histologic solid subtype, from the archives of the Oral Pathology Department, Faculty of Dentistry, Alexandria University. The follow-up records about recurrence (within 3 years following treatment) of the selected cases were obtained from the Maxillofacial Surgery Department, and these were considered the parameter of aggressiveness(8). Accordingly, the cases were categorized into:

I. BCC 1: Non-aggressive (non-recurrent).
II. BCC 2: Aggressive (recurrent).

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