Involucrin expression in urinary bladder carcinoma

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Accepted: November 15, 1988

Summary. Expression of involucrin was investigated immunohistochemically in 27 cases of urinary bladder carcinoma. Although no keratinization was observed in the transitional cell carcinomas examined all displayed involucrin staining to various degrees. Involucrin expression in foci of G-I transitional cell carcinomas was classified into 3 types: type 1, a mixture of intensely stained and slightly positive cells; type 2, highly positive cells intermingled with negative tumour cells; and type 3, all tumour cells slightly positive. Undifferentiated cell carcinomas demonstrated an irregular distribution of involucrin of varying staining intensity while deposition in squamous cell carcinomas was limited to keratinized areas.

Key words: Bladder carcinoma – Involucrin – Immunoperoxidase technique

Introduction

It has been reported that involucrin is a marker of terminal keratinization in skin epidermis and other squamous cell epithelia [3, 9, 14, 18–21]. Keratin proteins are also specific markers of normal epithelial tissues and of epithelial tumours [12, 13, 15]; patterns of keratin deposition in different types of urinary bladder carcinomas have been described [1, 2]. Urothelial tumours are usually classified into papilloma, transitional cell carcinoma, squamous cell carcinoma with varying degrees of keratinization, adenocarcinomas, and undifferentiated carcinomas [4–6, 8, 10, 11, 16] and the histologic features of those carcinoma cells do not include marked keratinization except in the case of squamous cell carcinoma. The present study was concerned with immunohistochemical identification of involucrin in urinary bladder carcinomas, and comparison of its expression with that of keratins reported previously [1, 2].
Transitional cell carcinoma

G-I carcinoma. The tumour epithelium was typically composed of numerous layers of high columnar or long-spindle shaped cells (Fig. 1a). Involucrin expression in G-I carcinoma was divided into the following 3 types: type 1, tumours in which the cells were positively stained and the basal layers of the neoplastic epithelium were usually negative, with the upper strata showing a mixture of highly and very highly stained cells (Fig. 1c); type 2, in which highly reactive tumour cells were scattered throughout neoplastic epithelium where involucrin staining was negative or very slight (Fig. 1d); and type 3, in which all of the tumour cells were uniformly, but only slightly stained (Fig. 1e).

G-II carcinoma. Intensely stained tumour cells were intermingled with slightly stained ones in tumour foci (Fig. 3b), the former type corresponding to cells of clear morphology in H&E sections. Another type of G-II carcinoma displayed foci containing strongly positive tumour cells within neoplastic areas whose involucrin staining was otherwise trace or negative (Fig. 2c and d).

G-III carcinoma. There was only irregular, slight staining for involucrin in undifferentiated tumour cells. No conspicuously reactive cells were found in G-III carcinomas (Fig. 3c and d).

Squamous cell carcinoma

Involucrin staining in the squamous cell carcinoma was dependent on the degree of keratinization, the highest deposition being detected in the hornified cells. In contrast, non-keratinized squamous tumour cells were devoid of involucrin staining (Fig. 3e and f).