The nested variant of the transitional cell carcinoma:
A case report and review of the literature

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The nested variant of transitional cell carcinoma is extremely rare in the bladder. In this study we reported a new case and reviewed the literature. [Turk J Cancer 2001;31(2):87-89]

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The nested variant of transitional cell carcinoma (TCC) is rarely observed in the bladder (1-4). In this current report we discussed the clinicopathologic characteristics of a nested variant of TCC of the bladder.

Case Report

A 63-year-old man applied to an urologist for a 5-month history of increasing frequency and intermittent, painless gross hematuria. He occasionally experienced dysuria and nocturia. Physical examination disclosed no abnormal findings. Bone, thorax, liver and spleen scans were normal. There was no previous history of urinary infection.

Cystoscopic examination revealed that right lateral and posterior wall of the bladder were replaced by a flat sessile mass approximately 5 cm in diameter. The surface was irregular, hyperemic, and friable. Both urethral orifices were normal. The tumor in the right lateral portion of the bladder wall was biopsied. Microscopic examination revealed a massive infiltration of the lamina propria by uniform cells, resembling proliferation of Brunn's nests (Figure 1). The cells had primarily eosinophilic cytoplasm, but few small foci of cells had pale cytoplasm. The neoplastic cells invaded the lamina propria, and the muscularis propria. The neoplastic cells were arranged in nests and cords, splitting smooth muscle fibers. Cytologically the neoplastic cells exhibited abundant clear to faintly eosinophilic cytoplasm with distinct cell membranes. The adjacent urothelium exhibited multifocal severe dysplasia. Moderate to severe cellular and architectural atypia was diffusely present, while high grade dysplasia and in situ carcinoma were focally detected.
Fig 1. Nested variant of the transitional cell bladder carcinoma. The tumor is growing as uniform round nests and cystitis cystica

Discussion

The nested variant of TCC is rarely observed in the bladder and was described only in few cases in the literature (1-4). It is a disease of the middle aged and the elderly (range 53-97 years). The most common and the earliest symptom in these patients is hematuria (75%), usually macroscopic in nature. Other signs are related to the irritation of the bladder including dysuria, frequency and nocturia (1). The nested variant of TCC is characterised by foci of nests of transitional cells infiltrating the lamina propria (1). The tumor cells are organised in nested structures resembling proliferation of Brunn's nests (1-3). The most important point of view is to distinguish histopathologically malignant nested variant of TCC from benign appearing nested tumors such as Brunn's nests and cystitis cystica. In the study of Talbert et al (2), they reported three cases who had urinary bladder carcinoma with nested structures resembling Brunn's nests, cystitis cystica and glandularis. The diagnostic problem in these cases resulted from the resemblance of foci of infiltrating carcinoma to Von Brunn's nests, cystitis glandularis, cystitis cystica and nephrogenic adenoma, alone or in combination. Useful features in recognizing this lesion as malignant are the tendency for increasing cellular anaplasia in the deeper portions of the lesion, the infiltrative nature and the presence of muscle invasion (2,4). The presence of deep invasion is most useful in distinguishing carcinoma from benign proliferations, nuclear atypia is of secondary value (2,4). Closely packed small nests and irregularly distributed nests would also favor carcinoma (2). The differential diagnosis of the nested variant of urothelial
carcinoma also includes inverted papilloma, nephrogenic adenoma and paraganglionic tissue and paraganglioma.

Nephrogenic adenoma typically has a papillary component and prominent tubular growth pattern (5,6). Paraganglioma may mimic the nested variant of carcinoma. Immunohistochemistry may be useful in distinguishing nested variant of bladder TCC from paraganglioma in such cases (7,8). Nested variant of TCC expresses cytokeratin and other epithelial markers (7). Whereas paraganglioma expresses neuroendocrine markers such as neuron-specific enolase (NSE) and chromogranin, it is non-reactive for cytokeratin (7,8).

Inverted papilloma is characterised by anastomosing islands and trabeculae of urothelium originating from the overlying mucosa and growing downward into the stroma. But inverted papilloma lacks a nested architecture (9,10).

In clinical practice, it is important to distinguish the nested variant of TCC from classic TCC, because it is an unfavourable prognostic feature in patients with TCC, according to Talbert and Murhy et al (2,4).

From this point of view, it's possible to say that the nested variant of transitional cell carcinoma should be remembered while dealing with the differential diagnosis to reach a diagnosis among the bladder tumors.

References