Update on urinary bladder pathology

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SOUHRN

The clinical significance of different histological subtypes of bladder cancer is challenging. The presence of variant architecture identifies mostly a high-risk population with a worse prognosis and suited for complementary treatment. This review outlines the histological variants of bladder cancer and the diagnostic problems.

Keywords: urothelial carcinoma - histology - variant histology - nested carcinoma - micropapillary carcinoma - inverted growth

Novinky v patologii močového měchýře

SUMMARY

Různé histologické podtypy karcinomu močového měchýře mají výrazně rozdílný klinický význam. Identifikací rozdílné architektoniky nádorového růstu lze označit vysoce rizikové pacienty s horší prognózou onemocnění, kteří vyžadují odpovídající léčbu. Tento přehledový článek se věnuje jednotlivým histologickým variantám karcinomu močového měchýře a problémům s jejich diagnostikou.

Klíčová slova: uroteliální karcinom - histologie - histologické varianty - „nested" karcinom - mikropapilární karcinom - invertovaný růst

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Urothelial carcinomas (UC) present in numerous and very different aspects. Therefore, it is exceedingly important to remain familiar not only with the WHO classification, but also to keep updated with newly described entities (1). Furthermore, several studies have demonstrated that specific tumor subtypes show different clinical outcomes and might also respond differently to treatment (i.e. squamous cell carcinomas or small cell carcinomas). However, this fact is often hard to prove, as many of those subtypes are rare, some variants are difficult to diagnose and confirm, especially when there is no muscle invasive bladder cancer (MIBC). In these cases it is important to recognize and interpret the histological features correctly. The most challenging and probably the most difficult are the nested UC and the large nested variant. But also other entities might be problematic such as the micropapillary variant or the inverted growth pattern as well as poorly differentiated variants such as the plasmacytoid variant or the lymphoepithelial one.

The first part of the paper will briefly describe the well know entities and the difficulties in their diagnosis, the second part will treat the newly described or less known entities, and the last part will handle immunohistochemistry and the issue of the metastatic poorly differentiated lesions. This review will not consider the small cell and neuroendocrine bladder carcinomas.

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WELL KNOWN SUBTYPES OF UROTHELIAL CARCINOMAS

Invasive micropapillary carcinoma

Invasive micropapillary carcinoma (IMPC), as described by Amin in 1994, is now a well know entity, and it is globally agreed that this subtype shows an aggressive behavior. There is a propensity for lymphovascular invasion and lymph node metastasis. A high stage presentation at the time of diagnosis is frequent. Nevertheless, there still exist several points, which have not been explored adequately. One major problem is the cut-off, when pathologists have to consider an UC as an IMPC. Amin did not specify in his first description a clear cut-off and several reports have suggested different percentages as a cut-off since then (2-5). Johanson, Samaratunga and Compérat suggested diagnosing IMPC even if the micropapillary component is less than 10 %. Similarly, Kamat et al. proposed rendering the diagnosis even when a minor component less than 5 % is present (6). Recent studies demonstrated that the clinical outcome of IMPC is related to the percentage. Most of these tumors are muscle invasive at the time of diagnosis. In case of TURB (transurethral resection and biopsy) with IMPC and no detrusor muscle present, a new TURB has to be perform. Kamat et al. reported upstaging in 52.7 % of cases, Compérat et al. in 79 % of cases after cystectomy (5,6). Vascular invasion (VI) might be difficult to establish, because of the hollow spaces around the nests, nevertheless VI is very common in the IMPC and one of the reasons for its aggressiveness (Fig. 1). VI can easily be confirmed by immunohistochemistry (IHC). The main problem is to distinguish IMPC of the bladder from other micropapillary adenocarcinomas such as carcinomas from the ovary, colon, pancreas, peritoneum or breast. The imaging studies to exclude any other distant primary lesion is a key to confirm the diagnosis.

Furthermore, there is a spectrum of heterogeneity in morphology, and the difference between invasive UC with stromal