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European Association of Urology

Letter to the Editor

Re: Valeria Panebianco, Yoshifumi Narumi, Ersan Altun, et al. Multiparametric Magnetic Resonance Imaging for Bladder Cancer: Development of VI-RADS (Vesical Imaging-Reporting And Data System). *Eur Urol* 74, 2018, 294–306

We read with great interest the article by Panebianco et al. [1] on the development of VI-RADS (Vesical Imaging-Reporting And Data System) for the evaluation of bladder cancer by magnetic resonance imaging (MRI). It is an important article to establish the role of MRI in bladder cancer and to allow proper comparisons between patients. There is no doubt that the use of MRI and the VI-RADS scoring system may provide several clinically important information including detection of primary or recurrent tumors, their localization, and accurate staging including differentiation between non-muscle-invasive bladder cancer (NMIBC) and muscle-invasive bladder cancer (MIBC).

To meet all clinical expectations, it is necessary to perform a thorough and cautious validation of the VI-RADS scoring system by comparing MRI descriptions with the pathology of relevant tissue. It must be emphasized that conventional transurethral resection of bladder tumor (TURBT) may not be able to provide the ideal histological reference for the validation of the VI-RADS scoring system. Upon piecemeal resection, the specimens are often fragmented, disoriented, and of poor quality due to cauterization artefacts. Bladder tumor is frequently incompletely resected and understaged. For instance, in patients with T1 disease upon initial TURBT, residual disease and tumor upstaging were detected in 51% and 8% of the patients, respectively, upon repeat TURBT [2].

Transurethral en bloc resection of bladder tumor (ERBT) has been shown to yield detrusor muscle and achieve complete resection in the majority of the patients [3,4]. ERBT can preserve the architecture of the bladder tumor and provide excellent information regarding the depth of invasion. High-quality reference material can also be obtained from radical cystectomy specimen. However, radical cystectomy is mostly performed for patients with MIBC. There may not be sufficient data regarding the delineation between NMIBC and early MIBC.

Although MRI and the VI-RADS scoring system for the evaluation of MIBC are promising, radical cystectomy is a major surgery and it is difficult to justify its indication without any histological proof [5]. TURBT and potentially ERBT are likely to remain as the most important staging procedures in patients with MIBC. In patients who are indicated for re-staging TURBT, MRI and the VI-RADS scoring system are also unlikely to alter the subsequent management without any additional histological information. It has been suggested that MRI can be performed 2 wk after initial TURBT [1]. However, recent TURBT may induce postoperative changes on MRI, and it may be difficult to detect any residual disease, not to mention the differentiation between NMIBC and MIBC. Given the anticipation of the above difficulties, we believe it is critically important to determine the different clinical situations where MRI can be particularly helpful and concentrate our effort on those specific fields.

First, MRI may help delineate between Ta and T1 disease. This may help us choose the appropriate modality in performing ERBT, especially for HybridKnife water jet hydrodissection due to its theoretical risk of residual disease in patients with T1 disease upon submucosal elevation. Second, MRI may provide information regarding the probability of MIBC, which should be more helpful in patients with large bladder tumors. The knowledge about the exact location and extent of muscle invasion will facilitate more focused endoscopic surgery. For the urologist, it will be much easier to achieve material for histological proof of any muscle invasion and decide whether TURBT or ERBT can possibly achieve complete tumor resection. Third, MRI may be helpful in optimizing bladder-sparing tri-modal therapy (TMT) for MIBC. Precise imaging method will improve patient selection for TMT, facilitate targeted endoscopic surgery with the ambition to achieve complete tumor removal and provide reliable information about treatment response and detection of recurrence.

We congratulate the authors on the development of the VI-RADS scoring system, which is undoubtedly an important step in establishing the role of MRI in bladder cancer. Together with new techniques of endoscopic surgery like ERBT, it may bring a new era of bladder cancer therapy. The

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validation process, however, should be stringent enough to properly evaluate its staging performance. ERBT and radical cystectomy specimens would be the more appropriate histological references in serving this purpose. More studies are, however, warranted to identify its true significance in our clinical practice.

Conflicts of interest: The authors have nothing to declare.

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