

## Editorial

# Special Issue on Clinical Applications of Magnetic Resonance Imaging in Genitourinary Cancers

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In the field of oncologic imaging, MRI represents one of the most powerful diagnostic tools at physicians’ disposal, with its superb contrast resolution and its capability to assess both the morphological and functional features of neoplasms. By no means do genitourinary cancers represent an exception, with MRI being increasingly recognized as a cornerstone in patient management. Nevertheless, there are many open research questions worthy of investigation.

The present Special Issue aimed to gather articles exploring the clinical applications of MRI in genitourinary cancers, to deepen our understanding and explore future possible applications of this complex imaging modality.

With two systematic reviews, two research papers and one review, the Special Issue collected a total of five contributions; it covers topics ranging from the urinary bladder to the adrenal glands, as well as from diagnosis to tumor characterization and treatment planning. Regarding the latter, Merten and colleagues [1] examined the feasibility of merging CT and MRI images for brachytherapy planning in uterine cancer patients; they found that despite the better tumor visualization, brachytherapy might not be reliably planned in fusion images without a vaginal applicator. Galatola et al. [2] focused on the MRI features of atypical pheochromocytomas and found that cystic degeneration may occur, making the diagnosis particularly challenging; in this setting, planar/hybrid radionuclide imaging might provide the necessary diagnostic information, complementary to that obtained via MRI. Kobayashi and colleagues [3] systematically reviewed the literature and retrieved six studies whose findings support the hypothesis that ADC values are related to bladder cancer aggressiveness. In particular, ADC values were significantly lower in both high-grade and muscle-invasive tumors. Thus, the authors speculated that ADC may be used as a non-invasive MRI biomarker to further increase the value of MRI for bladder cancer characterization. Flammia et al. [4] performed a systematic review and meta-analysis of the literature to assess the diagnostic accuracy of MRI in the local staging of penile cancer; the pooled metrics obtained for tunica albuginea invasion, urethra invasion, and the prediction of pT  $\geq 2$  were promising, indicating that MRI might represent a comprehensive diagnostic tool for penile cancer staging; moreover, it could help in the identification of those patients eligible for conservative surgical management. Finally, Caruso and colleagues [5] reviewed the current role and future perspectives of both MRI and CT in the assessment of and response to advanced medical treatment in metastatic renal-cell carcinoma; they provide readers with an overview of the RECIST criteria and their limitations in this specific setting, and the alternative tools that might allow researchers to overcome them.

While this Special Issue no longer accepts submissions, it offers interesting insights into the field. Nevertheless, we advocate for further research endeavors in the scientific community to confront the many still-standing challenges and pave the way for an even greater role of MRI in the management of genitourinary cancers.



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## References

1. Merten, R.; Fischer, M.; Christiansen, H.; Ringe, K.I.; Klapdor, R.; Wichmann, J. The Fusion of MRI and CT in the Planning of Brachytherapy for Cancer of the Uterine Cervix. *Appl. Sci.* **2022**, *12*, 634. [[CrossRef](#)]
2. Galatola, R.; Attanasio, L.; Romeo, V.; Mainolfi, C.; Klain, M.; Simeoli, C.; Modica, R.; Guadagno, E.; Aprea, G.; Basso, L.; et al. Characterization of Atypical Pheochromocytomas with Correlative MRI and Planar/Hybrid Radionuclide Imaging: A Preliminary Study. *Appl. Sci.* **2021**, *11*, 9666. [[CrossRef](#)]
3. Kobayashi, S.; Takemura, K.; Koga, F. Apparent Diffusion Coefficient Value as a Biomarker for Detecting Muscle-Invasive and High-Grade Bladder Cancer: A Systematic Review. *Appl. Sci.* **2022**, *12*, 1278. [[CrossRef](#)]
4. Flammia, R.S.; Tufano, A.; Antonelli, L.; Bernardotto, A.; Castro Bigalli, A.A.; Tian, Z.; Smaldone, M.C.; Karakiewicz, P.I.; Panebianco, V.; Leonardo, C. Diagnostic Performance of Magnetic Resonance Imaging for Preoperative Local Staging of Penile Cancer: A Systematic Review and Meta-Analysis. *Appl. Sci.* **2021**, *11*, 7090. [[CrossRef](#)]
5. Caruso, M.; Romeo, V.; Stanzione, A.; Buonerba, C.; Di Lorenzo, G.; Maurea, S. Current Imaging Evaluation of Tumor Response to Advanced Medical Treatment in Metastatic Renal-Cell Carcinoma: Clinical Implications. *Appl. Sci.* **2021**, *11*, 6930. [[CrossRef](#)]