



Multimodality advanced imaging and intervention in gland diseases

Dedicated imaging of specific body areas and anatomical structures, such as glands, requires integrated knowledge of different advanced methods (1-3). Furthermore, even for many of the gland pathologies, interventional radiology allows obtaining surgical results using advanced and minimally invasive techniques (4-6).

Given this continuous evolution of diagnostic and interventional imaging, the purpose of this special issue, entitled “Multimodality advanced imaging and intervention in gland diseases”, is to give an overview of the most recent and relevant topics on diagnostic and interventional imaging in glands.

The first article deals with the imaging study of pancreatic pathologies, which represents, in some cases, a diagnostic challenge, also considering the importance of instrumental diagnosis as an indication for surgical treatment (7-10). The contribution of Bicci *et al.*, “Pancreatic neuroendocrine tumors”, provides a comprehensive review of the imaging features and diagnostic approach to pancreatic neuroendocrine neoplasms. The article by Vacca *et al.* “MR severity index assessed by T1 weighted imaging for acute pancreatitis: correlation with clinical outcomes and grading of the revised Atlanta Classification” focuses instead on the value of imaging in the staging of inflammatory pathology of the pancreas using MRI (11,12).

In recent years, dual-energy CT technology has been one of the main innovations in sectional imaging diagnostics, with application first in the musculoskeletal and neuroradiological field, but with potential applications for various abdominal organs and pathologies (13-18). In their article “New advances in CT imaging of pancreas diseases”, Agostini *et al.* review this and other advanced CT imaging possibilities in pancreas disorders. Another interesting article dealing with the applications of dual-energy CT is the contribution by Gentili *et al.*, “Dual-energy CT in gland tumors: a comprehensive review and differential diagnosis”, that covers the various advantages and clinical benefits of the use of this advanced technique in the imaging of gland neoplasms (19,20).

Breast imaging plays a fundamental role in clinical surveillance, staging, and follow-up of both benign and malignant pathology (21-24). In addition to mammography and ultrasound, magnetic resonance imaging is the fundamental second-level diagnostic modality, thanks to the possibility of obtaining functional information through the use of contrast medium and specific MR sequences (25,26). De Cataldo *et al.* illustrate in their article “Apparent diffusion coefficient MRI (ADC-MRI) in axillary breast cancer lymph node metastases detection” the role of magnetic resonance imaging in the study of pathological lymph nodes.

The use of contrast-enhanced imaging and diffusion-weighted MR sequences are also the main features of the multiparametric MRI of the prostate (27-29). Palumbo *et al.*, in their contribution “Biparametric and multiparametric MRI approach to prostate cancer disease: a long-standing debate on dynamic contrast enhancement”, address the current and discussed issue of the diagnostic approach to prostate cancer through the use of biparametric and multiparametric MRI, reviewing the possible advantages and limitations that emerged from the literature. The multiparametric study of the prostate, together with recent developments in fusion-imaging technology, are the basis for the evolving changes in the approach to prostate biopsy; this focus is the topic of the article by Ziglioli *et al.*, “Multiparametric MRI in the management of prostate cancer: an update. A narrative review” (30,31).

Among gland diseases, salivary gland pathologies benefit from the multiparametric imaging study, mainly thanks to advanced ultrasonography techniques (32,33). The two contributions of this Issue, “Ultra-high Frequency Ultrasound (UHFU) applications in Sjogren syndrome: current concepts” by Aringhieri *et al.*, and “Multiparametric ultrasound in parotid gland evaluation” by Martino *et al.*, provide a comprehensive overview of the actual applications and available technology for the advanced US imaging of the salivary glands (34-36).

In abdominal imaging, the pathology of the adrenal glands poses important differential diagnoses for which radiology plays a fundamental role in providing valuable clinical information (37,38); Reginelli *et al.* highlight the role of multimodality imaging in adrenal lesions, along with the possible pitfalls, in their article “Pitfalls and differential diagnosis on adrenal lesions: current concepts in CT/MR imaging” (39-41).

The last contribution of the volume is the work of Tortora *et al.*, “Pituitary Magnetic Resonance Imaging *vs.* Bilateral

Inferior Petrosal Sinus Sampling: comparison between non-invasive and invasive diagnostic techniques for Cushing's Disease"; this interesting and focused topic illustrates the value of the global approach of imaging modalities, with both the diagnostic and interventional point of view (42-44).

With the articles selected in this volume, thanks to the great efforts and expertise of the Authors, we have tried to give the radiologist's point of view on the most recent innovations in the field of diagnostic and interventional imaging of gland diseases, in an era in which the integration of clinical knowledge and the multidisciplinary approach represents a fundamental strategy for patient management.

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Antonio Barile

Antonio Barile, MD

Department of Biotechnology and Applied Clinical Sciences, University of L'Aquila, L'Aquila, Italy.

(Email: antonio.barile@univaq.it)

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