Gland diseases: new perspectives in diagnostic radiology

Although a systematic approach remains crucial for an accurate diagnosis of gland disease, increased attention is paid mainly to the role of diagnostic radiology on its detection. In the last few years, the clinical benefits offered by different diagnostic tools have become essential for defining a still challenging condition which includes a broad spectrum of disease. Therefore, several inflammatory disorders, partly due to autoimmune diseases, could affect gland regions, other than anomalies of the cellularity, mainly due to tumors.

This special issue of "Gland Surgery" named "Diagnostic Radiology," quite clearly focuses on the latest update of radiologic approach to gland disease; however, it has not been an easy task.

Recent radiological scanners and technologies, including US technologies, have achieved a high diagnostic accuracy, which makes them an inextricable element of the clinical setting, both in routine clinical practice and in an emergency setting.

Robust current evidence also shows how radiological accuracy goes hand in hand with a strong prognostic validity, partly yet to be defined (1,2).

Furthermore, the well-known interventional radiologist approach allows a minimally invasive treatment of different benign and malignant lesion (3).

Therefore, while radiology has become necessary, an all-encompassing understanding of the complex radiologic approaches remains quite difficult.

This issue is composed of 10 review articles and 2 original articles which is proposing to provide a comprehensive update and new evidence about the most important gland regions, including pituitary gland, thyroid, major salivary glands, thymus, breast, pancreas, adrenal gland, prostate, and testicles.

The reader can recognize these different trends in current diagnostic radiology: while some authors continue to stress the increasing accuracy of diagnostic tools in diagnosing still challenging disease, other authors successfully emphasized the new role of radiology in defining the correct risk stratification strategies and predictive validity of imaging.

The leading article belongs to the first cluster entitled "Diagnostic value of major salivary gland ultrasonography (SG-US) in primary Sjogren's syndrome: the role of grey-scale and color/power Doppler sonography" submitted by Salaffi *et al.* In this review, the Author offers a proper point of view about reliability and validity of SG-US. This is important evidence to discuss, considering the high correlation that SG-US has shown with other standard tests as minor salivary gland biopsy or unstimulated salivary flow (4,5).

This review pairs well with the article submitted by Pradella *et al.* named "Groove Pancreatitis: a challenging imaging diagnosis", a not-widely-known and often misinterpreted condition which could mimic or can mask a consistent presence of pancreatic cancer (6,7), which changes potential treatment and prognosis.

These interesting articles are not alone in accurately describing the radiological advantages in the study of gland diseases. For example, the paper titled, "High-resolution MR imaging at 3T of pituitary gland: advantages and pitfalls" submitted by Varrassi *et al.* describes advantages and pitfalls on pituitary gland study offered by the high magnetic field (8). Also, in "Update in diagnostic imaging of the thymus and anterior mediastinal masses" submitted by Gentili *et al.* it is well provided all necessary information for accurate differential diagnosis of mediastinal masses, considering the obvious clinical need in well identify the nature and aggressiveness of different conditions (9,10).

Reginelli *et al.* analyze two other interesting arguments, through its "Delayed enhancement in the differential diagnosis of salivary gland neoplasm", which explains the multi-phasic CT usefulness in parotid gland lesions (11) as well as De Filippo *et al.* in "MR Imaging of adrenal gland: state of the art", which takes up the concept of highly advantageous tissue characterization offered by MRI, especially useful in a proper differential diagnosis of adrenal gland lesions (12).

The reader, otherwise, can approach other review articles using the second key of the lecture. Beyond the accuracy, it is necessary to recognize the prognostic validity of the radiologic information. Furthermore, the clinical utility derives from both diagnostic accuracy and prognostic validity. Therefore, the use of the proper diagnostic tools could be mandatory for an appropriate therapeutic approach.

In this effort, another article titled "Neuroblastoma image-defined risk factors in adrenal neuroblastoma: the role of radiologist" submitted by Lanza *et al.*, emphasizes the role of the radiologist in providing necessary information for the proper

preoperative staging of adrenal neuroblastoma (13-15). Alternatively, in "MRI predictive role in the therapeutic response of GH-secreting pituitary adenomas" submitted by Caranci *et al.*, clearly describes that MRI information is necessary for the best treatment (e.g., previous described potential fibrous characteristic, its extension in the cavernous sinus, etc.) (16,17).

Similarly, the two other articles focus on topic of particular interest in the current radiologic scenario; on the one hand, "Correlation between ADC values and Gleason score in evaluation of prostate cancer: multicenter experience and review of the literature" submitted by Manetta *et al.*, which approaches to tumor grading, the most important factor in the predictive analysis (18,19).

On the other hand, "Ultrasound imaging classification of thyroid nodules for malignancy risk stratification and clinical management: state of the art" submitted by Floridi *et al.*, which enhances the role of the radiologist in defining a characteristic of nodule malignancy (20,21). Thyroid nodules are very common and an appropriate risk definition is mandatory (22).

At the end, two other articles deserve a particular mention: "Does multiparametric US improve diagnostic accuracy in the characterization of small testicular masses" submitted by Reginelli *et al.*, and "Hereditary breast cancer: screening and risk-reducing surgery" submitted by Clemente *et al.*; this original article could improve current knowledge on gland disease, particularly through the application of an elastography in the scrotal US (23) and through the use of MRI in high-risk breast-cancer patients for the detection of very small breast cancer (24).

To conclude, we hope that this discussed topic could be useful to radiologists as well as to another clinicians, specialists or whatnot, in defining an accurate diagnostic and management algorithm of gland disease.

We appreciate the intensive work of all authors, who have tried to provide a proper review of the latest imaging update and news on gland disease, to discuss the current "check-point."

Acknowledgments

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