Editorial

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Improving lymph nodes ultrasonographic characterization – the role of elastography

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Ultrasonographic (US) assessment of the peripheral lymph nodes, especially for the differentiation between benign and malignant pathology, has a long history. From the first paper published about 40 years ago [1] in which, only qualitative description of malignant cervical lymph nodes was made, hundreds of studies and papers had been printed. After the introduction of high-resolution linear transducer, US proved to be more sensitive than clinical examination in lymph nodes detection. The improvement in equipment, the definition of normal lymph node US, and the development of new US techniques increased the utility of this imaging method for superficial lymphadenopathy examination. Today, US is considered to be the imaging method of choice for peripheral lymph node evaluation [2].

B-mode criteria for evaluating peripheral lymph node are size (transverse and longitudinal diameters together with the cortical width), shape (oval, round, and Solbiati index), the presence or the absence of the hilum, the echogenicity and homogeneity of internal structures (focal cortical nodules, intranodal necrosis, reticulation, or calcification), borders, and the distribution pattern of lymphadenopathy. A complete evaluation of the lymph node always includes Doppler study: presence of the intranodal flow, analysis of vessel distribution (central or peripheral), number of vascular pedicles, vascular pattern, and impedance index measurements (resistive and pulsatility indexes) [2-4]. In this issue of Medical Ultrasonography Dudea et al [5] published a comprehensive review about the US criteria for the differentiation of benign from malignant lymph nodes. The authors underline the utility of B mode and Doppler US in characterizing the inflammatory (non-specific and specific), lymphomatous, and metastatic lymph nodes, making a pertinent and critical analysis of recent studies published in the field. They conclude that "no single US sign is absolutely accurate in diagnosing peripheral lymph node malignancy", emphasizing the necessity of associating US signs to increase the sensibility and specificity of the method.

Recent development in US (elastography, contrast enhance US) brought new perspective in differentiating the benign lesions from malignant ones.

In 1991 Ophir et al [6] described the principles of elastography for measuring the tissue compliance by "quantitative imaging of strain and elastic modulus distributions in soft tissues". This technique was applied for thyroid, breast, prostate, liver, and pancreas with significant results concerning the differences in hardness between normal and pathological tissues. Application of elastography for lymph nodes examination is one of the current concerns in research. A recent study [7] showed that analysis of elastography data combined with B-mode US findings proved to have a 92% sensitivity, a 94% specificity, and 93% accuracy, in interpretation of the cervical lymph nodes. Until now few patterns in tissue elasticity for differentiation between benign and malignant lymph nodes were described [7-9]. A study performed by Lenghel et al [10] and published in this issue of the journal, proposed an 8 pattern score for lymph node analysis and calculated the interobserver agreement for the investigated score. They found a good interobserver agreement (Kappa = 0.687), value of great importance, taking into account the operator-dependence character of US. Moreover, it is encouraging that the conclusion that the score had also

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provided a very good specificity and a good sensitivity in differentiating cervical benign and malignant lymph nodes. In this moment it will be very interesting to compare all the scoring systems and to analyze which one is the most useful for daily clinical application.

Elastography seems to be a promising tool for lymph node evaluation, especially for differentiation of benign and malignant lymphadenopathy. This will be important also in the selection of suspicious cervical lymph nodes that have to be further examined by the histopathologist. The follow up during medical or oncologic treatment can be another important application of elastography. All these will improve the diagnosis and the prognosis in the pathologies associated to superficial lymph nodes enlargement.

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