Letter

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# Ultrasonographic criteria for the major salivary glands: a perspective for the application of new technologies

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**Abstract**

It emerges from the interesting recent article by David et al. (4) on high-resolution ultrasound is the first line examination for parotid gland diffuse disease and focal lesions, normally using grey-scale and color-Doppler ultrasound especially using contrast media. Furthermore, this working group present a review of the current literature on contrast-enhanced ultrasound for the assessment of parotid gland lesions, considering all characteristics of the technique, evidence of usefulness, future perspectives and limitations. We consider that this type of investigation will be helpful in preoperative treatment planning and reduce the cost to plan the correct treatment of diseases of the parotid glands.

I am interested in underlining this article because it shows the advantages of the use of contrast in ultrasound and opens a debate if the non-invasiveness of the ultrasound and the use of the contrast agent have reason to be compared to the use of diagnostics with heavy machines such as CT and MRI. The article is clear on this point the limits are there and it is a challenge to identify new technologies to open unexplored frontiers, to know the disease early and manage it. Making it easier for the patient throughout the diagnosis, therapy, controls and possible follow-up. ***Clin Ter 2018; 169(5):e202-203. doi: 10.7417/CT.2018.2079***

**Key words**: *Contrast-enhanced ultrasound, parotid gland, salivary neoplasm*

Sir,

the beginning of the ultrasound use, the clinicians had hailed this innovation as the phonendoscope of the new medicine. This concept has recently been reaffirmed by use of the ultrasound also in the Emergency department facilities (7). Some American authors have reiterated that the study of the Ultrasonography must systematically enter modern programs of schools of Medicine and Surgery, as an easily accessible, repeatable and economic training tool. Also, in many European Universities, in recent years experimental courses based on direct teaching by Medical Radiologists to a small group of students close to graduation have started. The study of salivary glands is certainly neglected compared to other anatomical districts and this often constitutes a clinical difficulty in its management.

The article notes that there are many limitations of studies in the literature. Current studies have above all limitations on the number of patients examined and on the limited number of articles in the literature, which are based on selected populations. The results should consequently be interpreted with caution. Newer studies, based on larger numbers of patients, are warranted. A further limitation of the studies is the use of a wide range of equipment, but this may be mitigated by the standard of modern-day equipment and the more uniform examination processes (2).

High-resolution US, safe technique, low cost-effective and easily repeatable and is the first line examination for salivary gland lesions as US provides detailed information regarding lesion size, shape, echogenicity, relation to the surrounding tissue, and acoustic effects (8). Color Doppler US well depicts lesion macro-vascularity and lymph node evolvement (1,6). Unfortunately, the interpretation of ultrasonographic findings depends on personal clinical expertise rather than measurable evidence.

US imaging yet, and the its non-panoramic nature does not allow to cannot replace other imaging procedures such as CT or MR imaging because of its well-known limitations.

Meanwhile, the new frontiers of the US open: elastosonography, which is a recent imaging technique, can provide useful information on tissue stiffness. The Technical principle on which elastosonography is based is precisely that for which a fabric subjected to an external force undergoes a deformation inversely proportional to its degree of rigidity. There are two types of elastosonography: Strain Elastography (SE), which allows a qualitative or semi-quantitative evaluation of the stiffness or deformability of a lesion, and Shear Wave Elastography (SWE), which provides a quantitative assessment. Also, these new information on glandular tissues, on their elasticity and correlation with parotid pathologies, are being integrated into the baggage of knowledge to diagnose and treat early onset of the pathologies of these

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sites (1,5). This new information is already codified by the EFSUMB guidelines (European Federation of Societies for Ultrasound in Medicine and Biology), and their dissemination opens the path to multiparametric ultrasound for the evaluation of superficial and deep organs (3,9,10).

So not too far in the future, ultrasound could show us further evolution. It remains that in the article that this research group has summarized a clear and comprehensive point from which to move further steps. The data retrospective study enumerates numerous experiences in the management of the parotid pathology imaging and in my opinion constitutes a good platform to integrate it in the future with the new emerging elastosonographic methods. Although ideas and research often give new solutions. Real growth can only be achieved in the comparison and in their applicability to daily diagnostics: new ideas for less daily pathologies thanks to colleagues.

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