



The Whole Patient

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US-ELASTOGRAPHY FOR
SUPERFICIAL ORGANS: UPDATE
*V. CANTISANI, P. SIDHU,
D. A. CLEVERT*



US-elastography for superficial organs: update

US-elastography, introduced to clinical practice in the early 2000s, is today considered a useful additional tool to baseline ultrasound in different clinical fields.



Vito Cantisani

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Several papers, as well as the European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB) and the World Federation for Ultrasound in Medicine and Biology (WFUMB) have published guidelines reporting on clinical value, recommendations, limitations and tips and tricks for the use of US-elastography. Furthermore, this year at EUROSON 2018, held in Poznan, the joint ESR/EFSUMB session had the title “Elastography of Superficial Structures: Where are we now?”.

Elastography of superficial structures: Where are we now?

The session, moderated by EFSUMB President Prof. Paul Sidhu and Chairman of the EFSUMB Publication Committee Dr Vito Cantisani was organised into four lectures:

- Thyroid US-elastography: indications and limitations
- Elastography of the breast: when should we assess tumour stiffness?
- Is there any value in tendon and nerve assessment?
- Scrotal elastography: hype or real?

The session was very well attended and the room was crowded. The stimulating discussion was animated by several questions which enabled better audience understanding. The session facilitated full appreciation of the widespread use of elastography of superficial structures, understanding of the strengths and limitations of current applications, appreciation of the potential in many fields, and finally the ability to incorporate elastography into clinical practice.

Strain- and shear-wave elastography

Dr. Cantisani provided his personal experience and an overview of the current literature, chiefly focusing on the published recommendations by EFSUMB and WFUMB, and some further insights into the upcoming EFSUMB guidelines concerning US-elastography thyroid nodule characterisation. To date, only a few published

papers compare the accuracy of strain- and shear-wave elastographic techniques. Both the techniques appear to be useful in the multiparametric ultrasound evaluation, increasing the accuracy in this setting, explained Dr. Cantisani. Some promise has been shown by means of 2D and mechanical 3D US-elastography, postulated to be useful especially for the planning and follow-up of mini-invasive treatments. Dr. Cantisani explained that multiparametric evaluation remains warranted for the following:

- For breast tumour diagnostics it was stressed that elastography should be used in combination with B-mode examination. Both strain- and shear-wave elastography can be used, and it was discussed whether strain-wave elastography may be preferable for evaluation of stiff tumours, whilst shear-wave elastography may be more reliable in soft tumours. The ways of combining elastography with the BI-RADS classification has been the topic of many articles, and for comparative evaluations of breast elastography studies, the awareness of the different combinations used is pivotal. Dr. Jonathan Carlsen, Rigshospitalet, Copenhagen, concluded that both strain- and shear-wave elastography should mainly be used as an adjunct for assessing probably benign (BIRADS 3) and low-suspicion tumours (BIRADS 4a), where elastography can be used to either upgrade or downgrade tumours.

Musculoskeletal disorders

Despite the increased number of articles about musculoskeletal diseases in the last few years, a limited increase in evidence level is observed. For Achilles tendinopathy, ultrasound elastography increased in evidence level from D to B with an expert indication grade of 3. In addition, the use of ultrasound elastography was scored with evidence level B and an indication grade of 1 for soft-tissue tumour examination. This is understandable as ultrasound elastography is designed to distinguish tissues with different stiffness, and it is



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believed that ultrasound elastography for soft tissue masses and nerve entrapment is a promising technique.

We have to acknowledge that most published studies related to ultrasound elastography are pre-clinical or feasibility studies currently insufficient to increase the clinical evidence level. However, the progressive implementation of musculoskeletal ultrasound with ultrasound elastography should produce studies with the potential to impact clinical practice. Prof. Klauser from Medical University of Innsbruck concluded that, at the moment, elastography impacts on tendon disease with Level 1b, recommendation 1, whereas nerves show a lower level of 2b. Further longitudinal studies in order to verify impact of elastography in musculoskeletal disorders in clinical routine examination is still demanded.

Testis US-elastography

Finally, Prof. Bertolotto from University of Trieste updated the current knowledge on testis US-elastography. He concluded that testicular lesions need a multiparametric assessment, mainly based on Colour Doppler US and CEUS, reserving the application of

US-elastography to additional role. US-elastography, as reported in literature and discussed at Euroson 2018, is really an active research field, especially for superficial organs; experts should be aware of the indications, limitations and tips and tricks to increase accuracy and reduce interobserver variability. ■

KEY POINTS



- ✓ Published guidelines from WFUMB and EFSUMB were discussed, as were upcoming EFSUMB guidelines concerning US-elastography thyroid nodule characterisation
- ✓ Only few papers compare the accuracy of strain- and shear-wave elastographic techniques. The session discussed this
- ✓ The session updated the knowledge on the use of US-elastography in breast tumour diagnostics, musculoskeletal disorders and testicular lesions



REFERENCES

For full references, please email edito@healthmanagement.org or visit <https://iii.hm/or7>

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