ULTRASOUND ROLE IN INTEGRATIVE MEDICINE

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Integrative Medicine (IM)

Integrative Medicine (IM) is healing-oriented medicine that takes account of the whole person, including all aspects of lifestyle.

Practice of IM

Integrative Medicine is the practice of medicine that reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person and makes use of **all appropriate therapeutic approaches, healthcare professionals and disciplines to achieve optimal health and healing.**

Ultrasonography

more accurate and timely diagnoses.

with shorter time to treatment and

improved patient satisfaction and outcomes

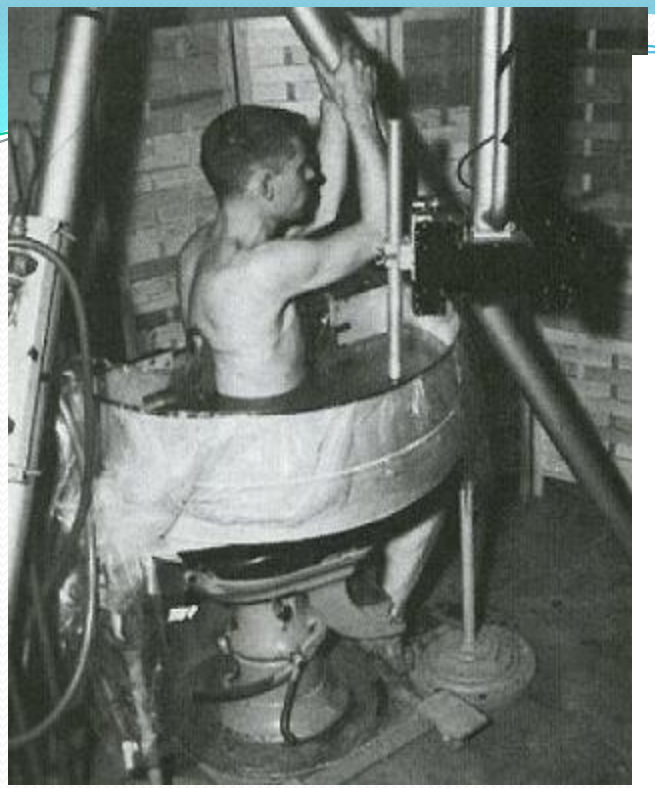
Imaging

X-Ray or X-radiation, is a penetrating form of high-energy electromagnetic radiation

MRI is a medical imaging technique that uses a magnetic field and computer-generated radio waves to create detailed images of the organs and tissues in your body

CT combination of special X-ray equipment and sophisticated computer technology to produce cross-sectional images (often called slices), both horizontally and vertically Exposure to radiation

Ultrasound is non ionizing, cost effective, real time imaging modality. It uses high frequency sound waves that travel through soft tissue and fluids, bounces back. This is how it creates an image.

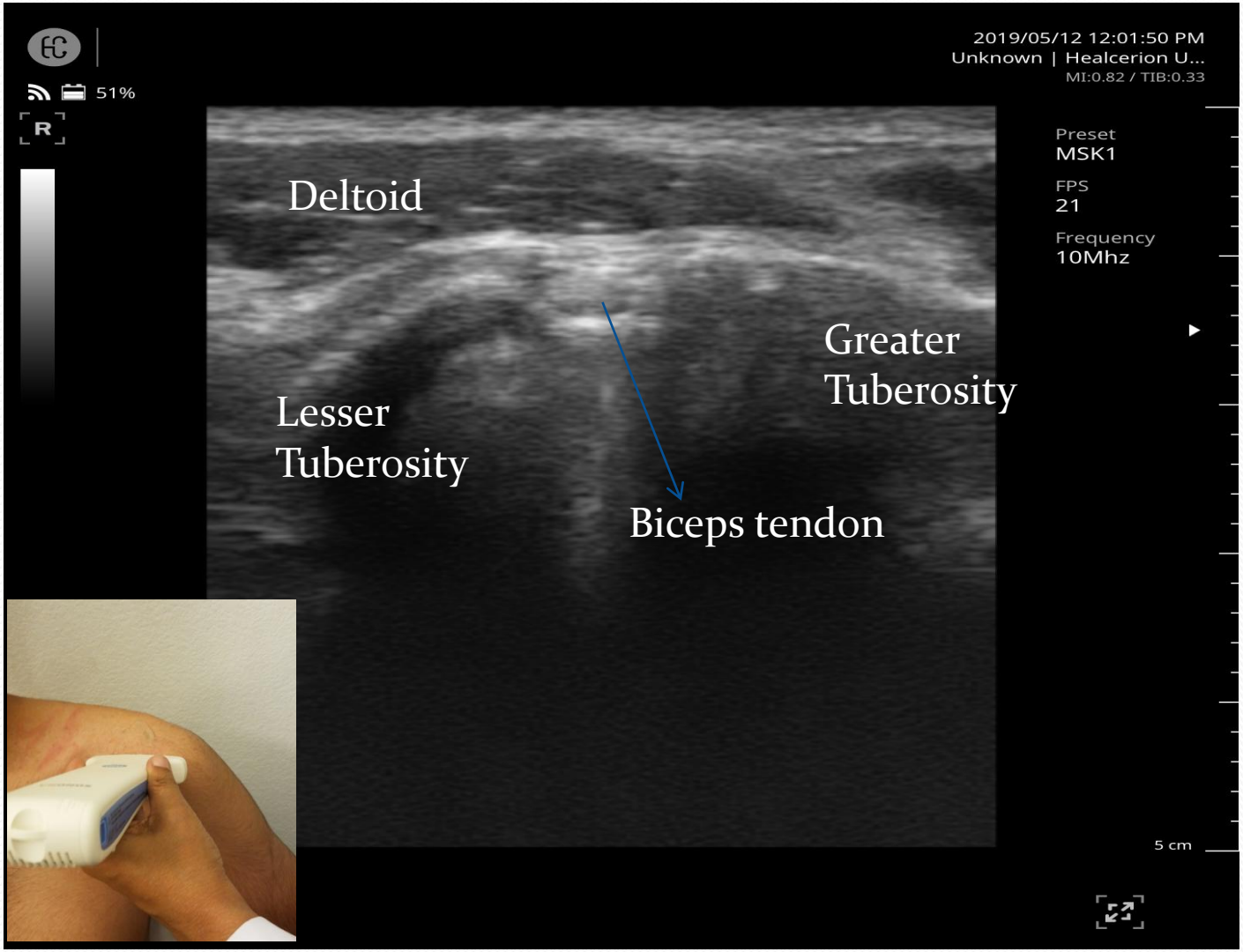


Ultrasound Evolution

Nowadays there are many handheld us machines are available in the market.

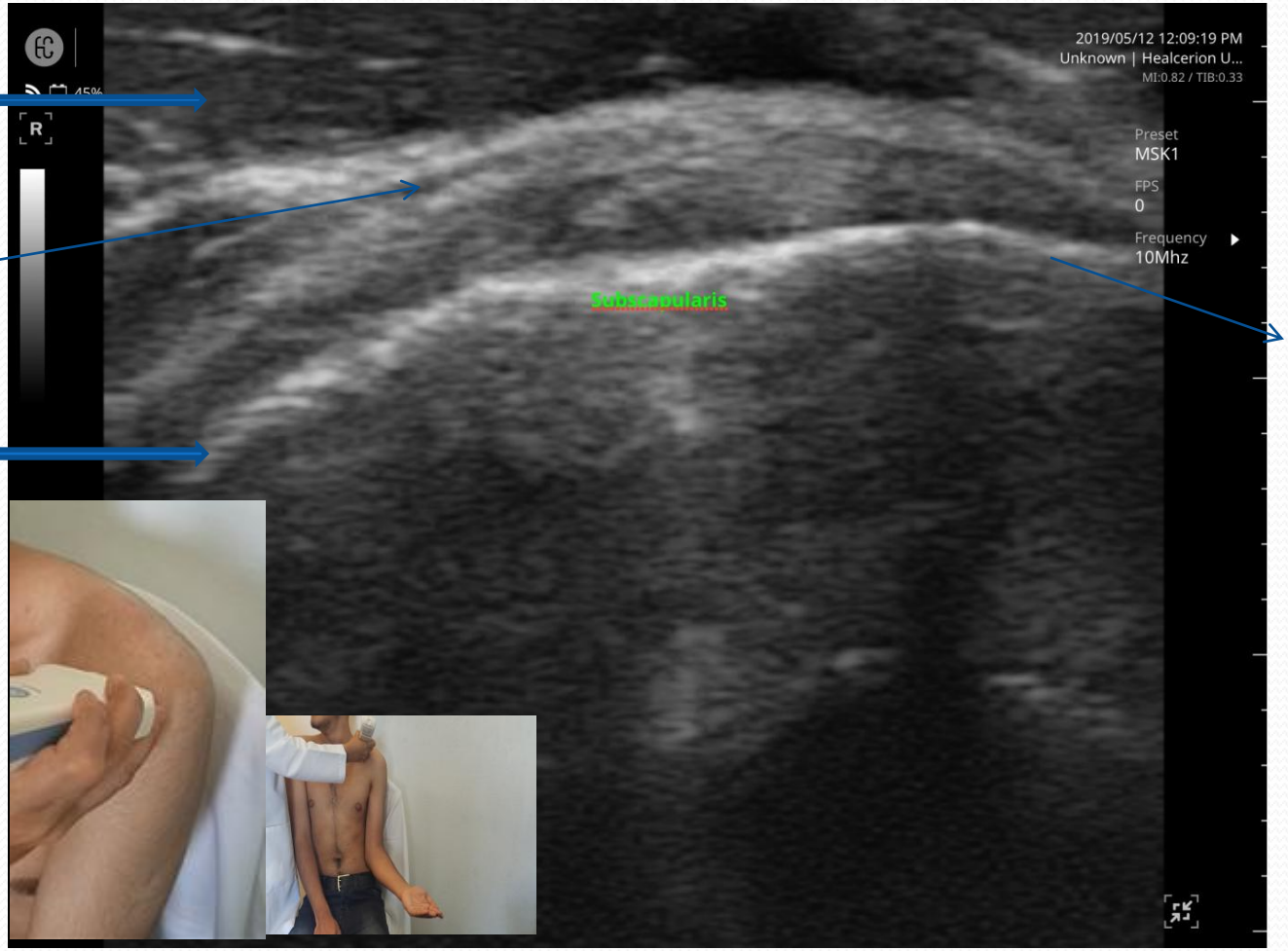
Ultrasound in Musculoskeletal Disorders

Musculoskeletal USG



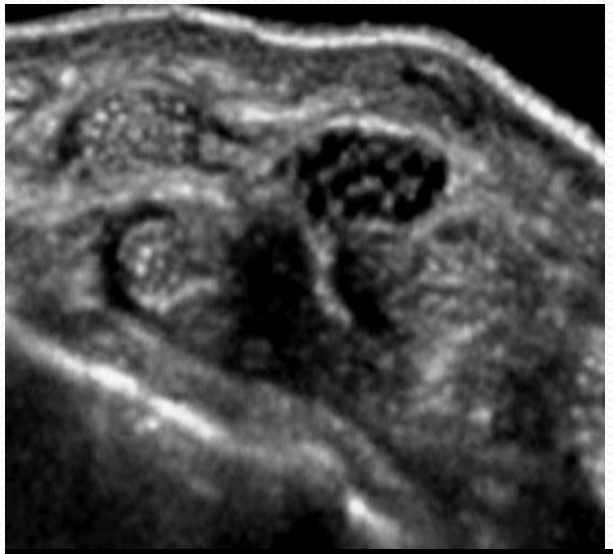
Biceps Tendon in Short axis

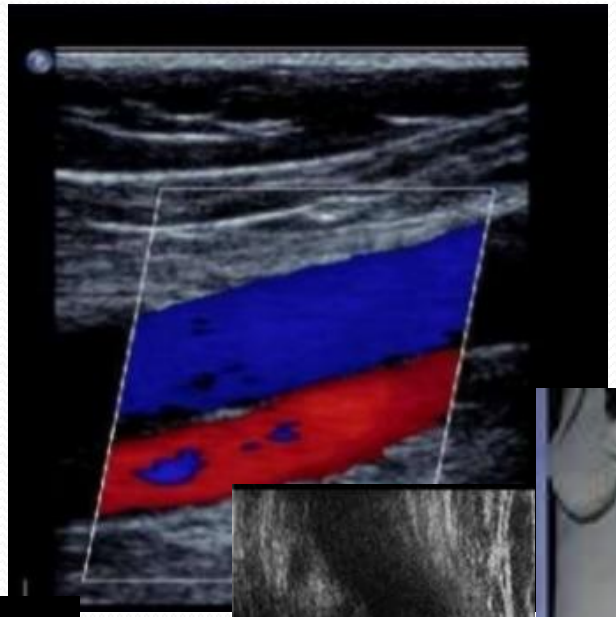
Subscapularis Dynamic Evaluation

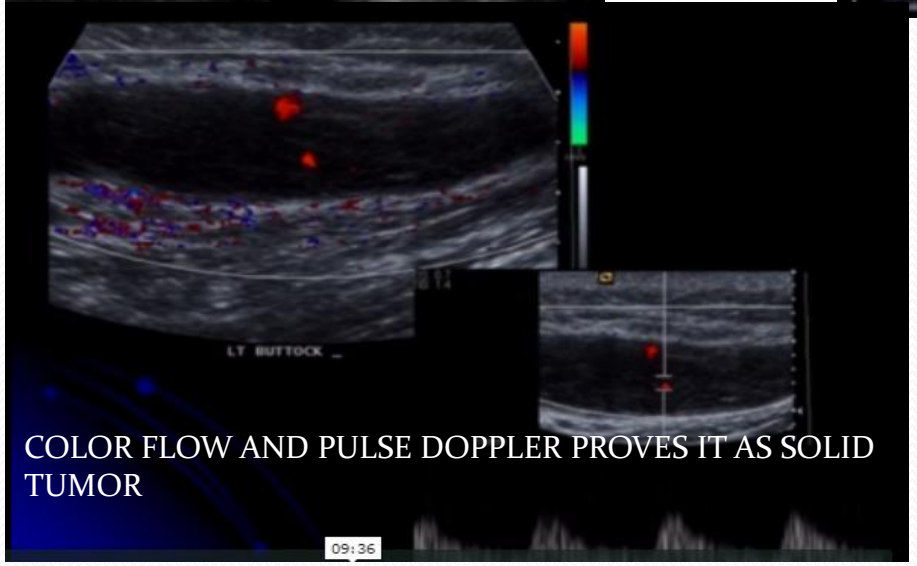


Transducer in Transverse plane

Normal Peripheral Nerves/ vessels

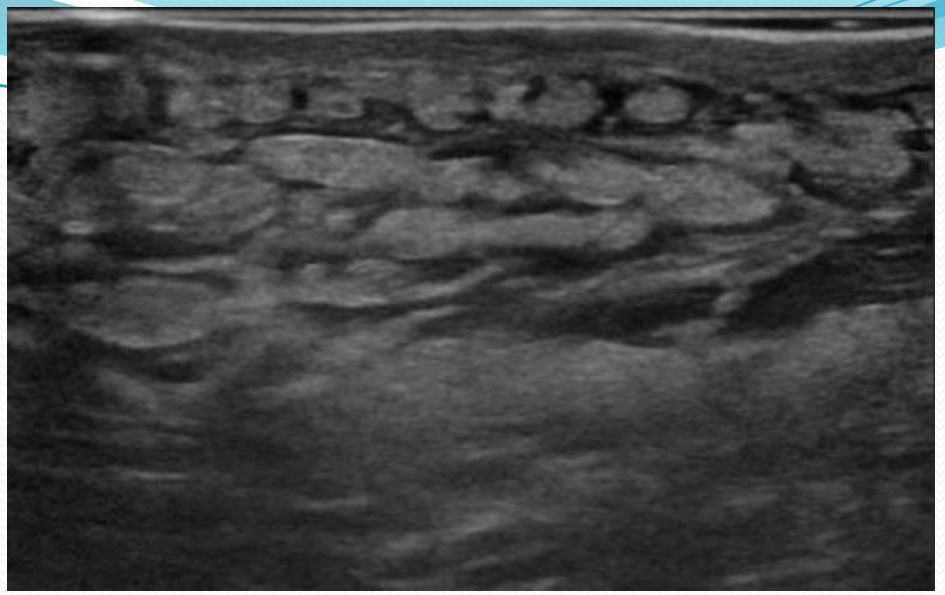






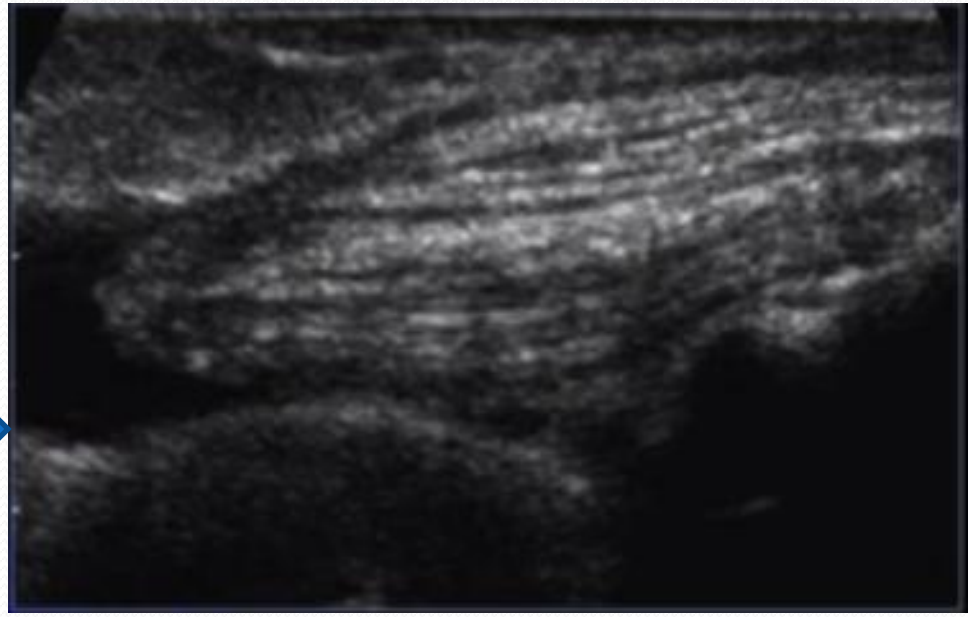
COLOR FLOW AND PULSE DOPPLER PROVES IT AS SOLID TUMOR

PARTIAL TEAR

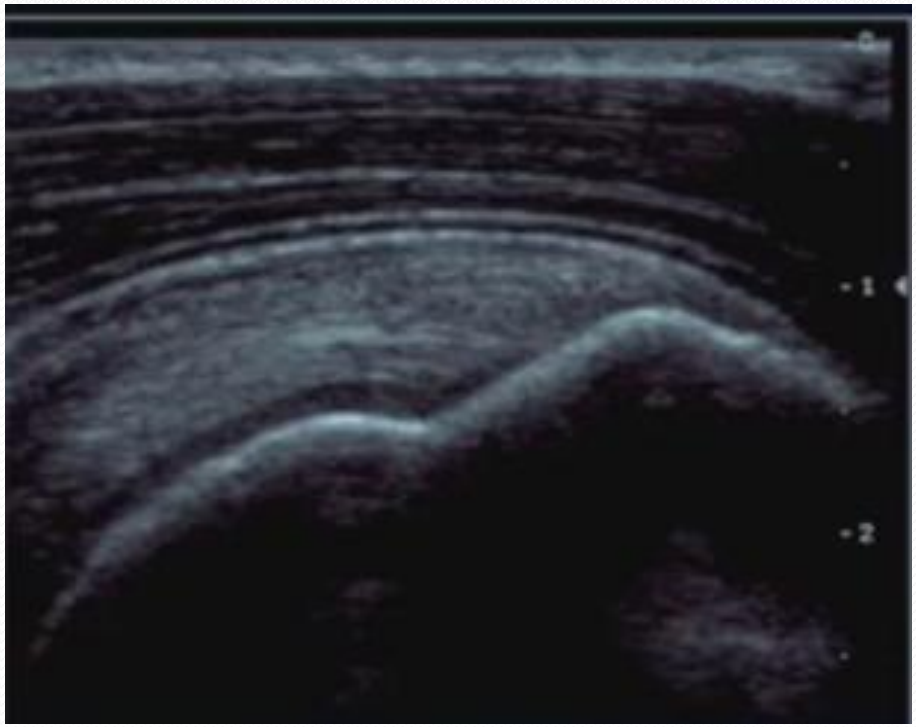


Soft Tissue Edema

MUSCLE RUPTURE-RETRACTION AND BUNCHING OF MUSCLE(Quadriceps)Complete Tear



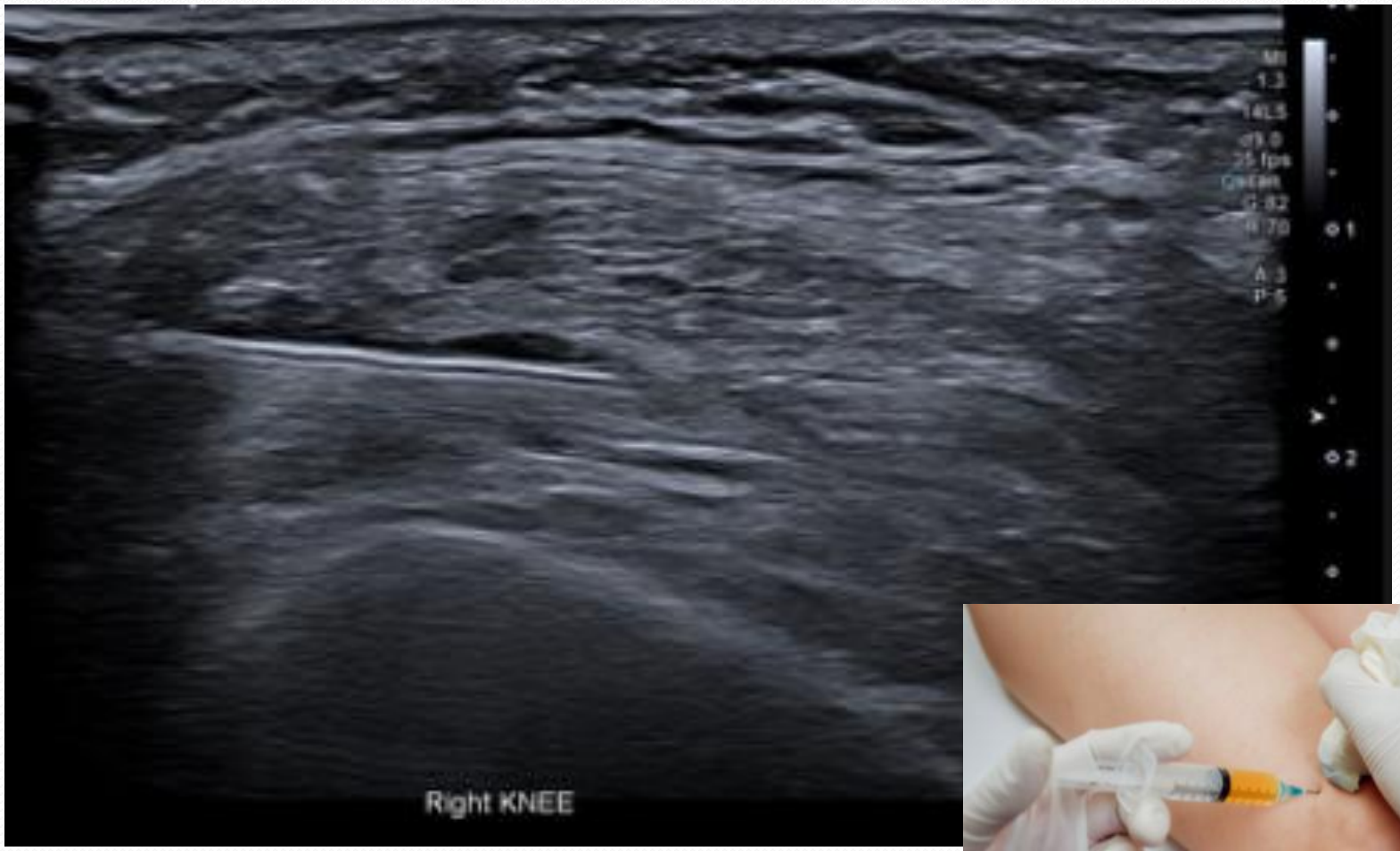
Comparison

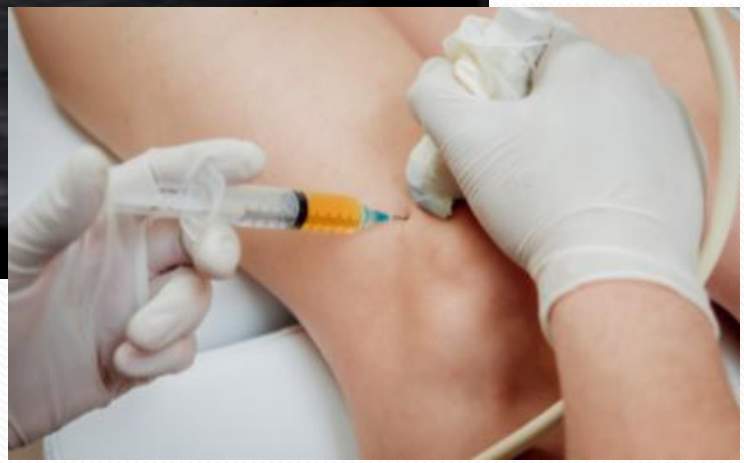


Normal

Tendinosis

Ultrasound Guided intraarticular Injection



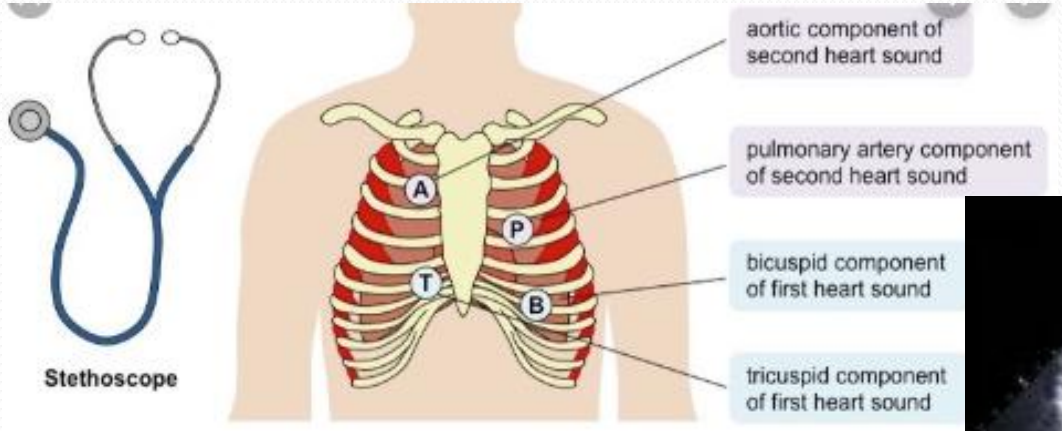


- Our pain and rehab doctors can perform injection procedures under direct visualization of the MSK ultrasound. The ultrasound is used to help guide injections into the precise area of injury. This not only increases the effectiveness of the injection, but it also makes it safer by helping to avoid adjacent structures (i.e., nerve or blood vessels) from inadvertent damage. The end result is less pain and improved function.

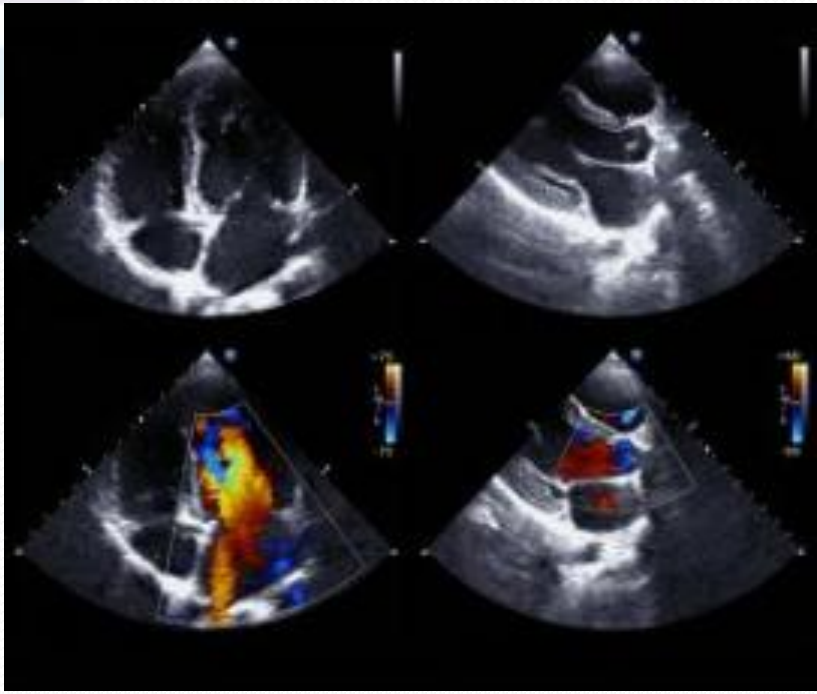
POCUS in Clinical Practice

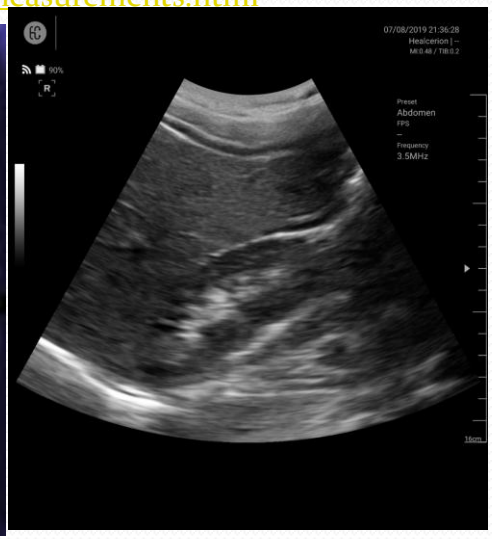
Stem cells in Systemic diseases

- USG: Dynamically assess cardiac valves • Detect early-stage aortic and mitral valve insufficiency• Accurately measure thickness of myocardium. Screen for asymptomatic hypertrophic cardiomyopathy in young athletes.



https://ib.bioninja.com.au/options/option-d-human-physiology/d4-the-heart/heart-measurements.html



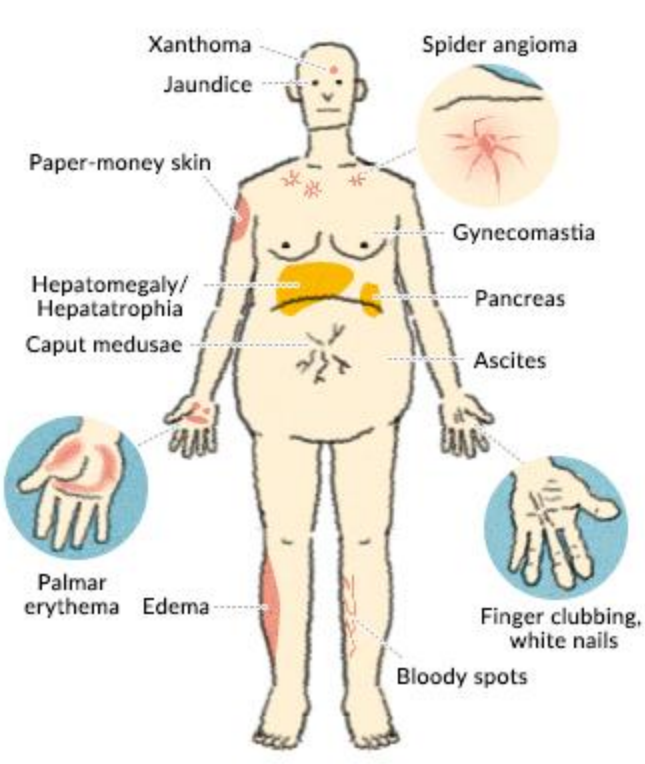


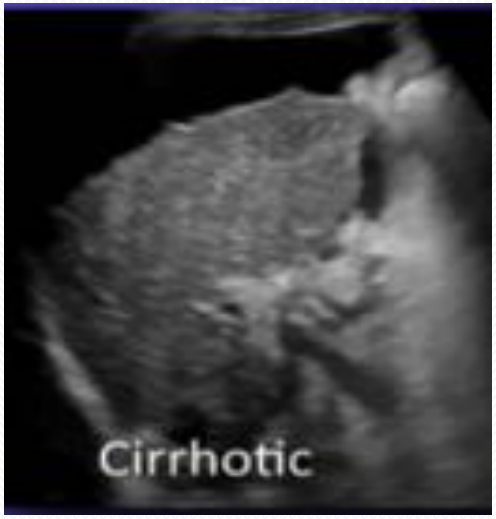
https://www.impella.com/blog/is-an-echocardiogram-right-for-me/

P/E vs P/E+US:

PE: Observe signs of liver dysfunction outside of abdomen.

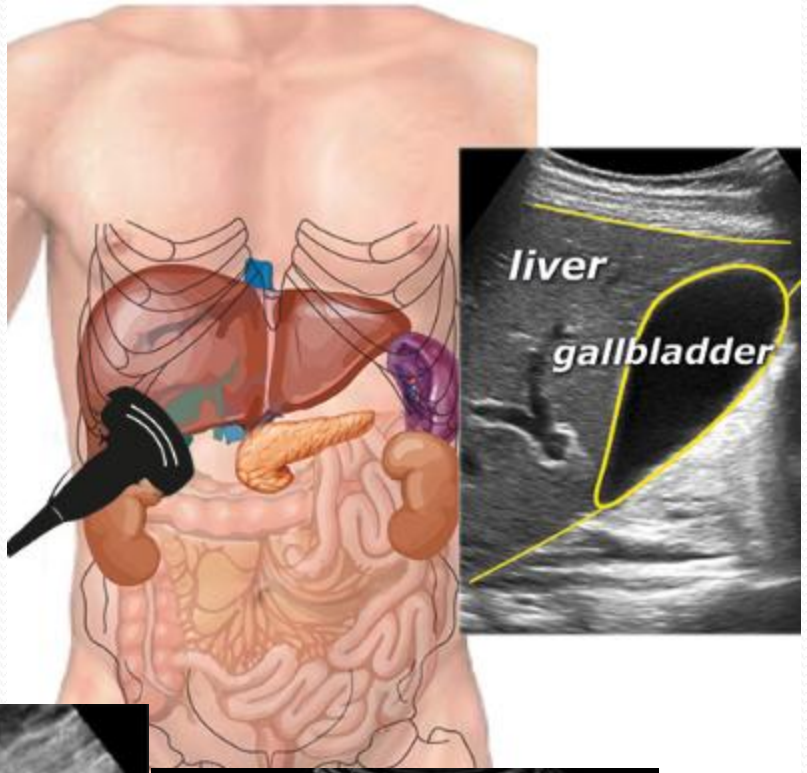
Liver US: diseases are detected before becoming observable on physical exam.

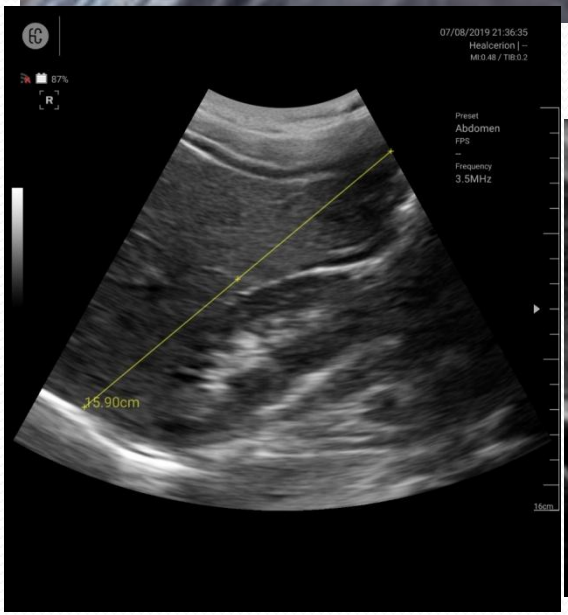




https://www.otsuka.co.jp/en/health-and-illness/liver-cirrhosis-nutritional-therapy/early-detection/

how the use of this inexpensive, safe, and noninvasive tool enhances the ability of a physician conducting a standard physical exam to confirm suspected findings and uncover other suspected pathology at a reasonable cost





Pericardial Fluid

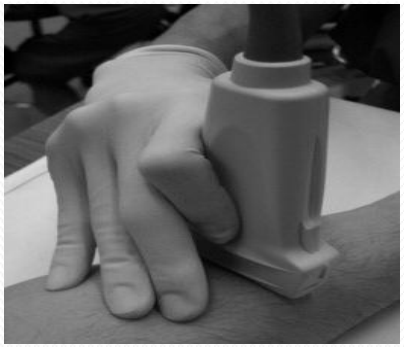
A healthcare provider with his POCUS training during med school years guided us to the correct diagnosis and management.

So what i learnt that by using HHUS I can reach to correct diagnosis by reaching out to my pocket and take out my pocket US. I dot need to call radiology for STAT exam or waste time in transportation of patient or machine.
I carry it just like my stethoscope.

The findings indicate that using FoCUS with clinical assessment allows for greater detection of disease that might otherwise be missed by clinical assessment alone.

Ultrasound Training

- Correct patient position, correct probe holding,
- Image Optimization
- Artifacts
- Sonoanatomy
- Know your machine
- 4-5 hours training
- Practice



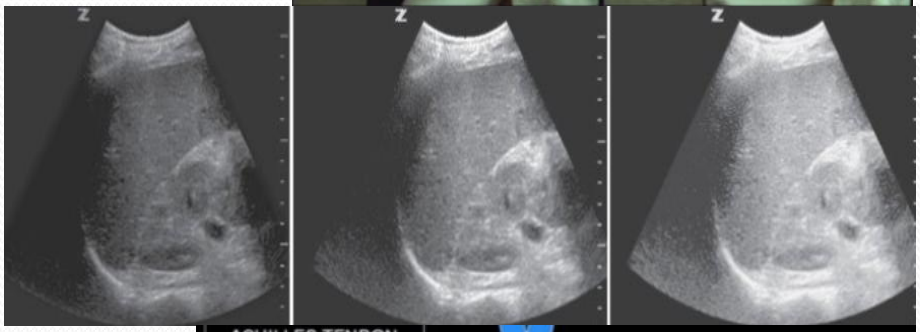
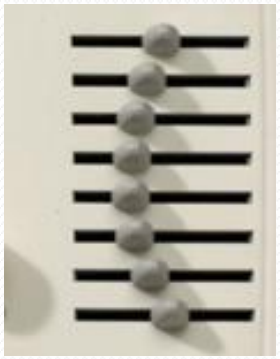


Image Optimization/Knobology



TGC

Therapeutic ultrasound

- Ultrasound has emerged as a novel tool for clinical applications also
- is often used for **treating chronic pain and promoting tissue healing**.
- Due to its unique physico-mechanical properties, low-intensity ultrasound (LIUS) has been approved for accelerated healing
- LIUS induces tissue regeneration
- Angiogenic Effects
- Anti-Degenerative Effects

Conclusion:

- Use of ultrasound or therapeutic appears to be an Ultrasound (US) is an excellent tool whether used in diagnostic or intervention or used for the treatment of various forms of musculoskeletal disorders.
- It increases in patient satisfaction
- Shorter test-to-treatment time and improved patient outcomes.

Resources:

- Artifacts in Musculoskeletal Ultrasonography
- Mihra S. Taljanovic, MD, PhD, FACR1 David M. Melville, MD1 Luke R. Scalcione, MD1 Lana H. Gimber, MD1 Eileen J. Lorenz, MD1 Russell S. Witte, PhD1,2
- Google
- Overview of Musculoskeletal Ultrasound - Nirvikar Dahiya, MD #180 Released On : 09/06/2010/Sonoworld.com
- Pearls and Pitfalls in Musculoskeletal Ultrasound - Sandra J. Allison, MD #445 Released On : 06/07/2015
- Artifacts in Musculoskeletal Ultrasonography
- Mihra S. Taljanovic, MD, PhD, FACR1 David M. Melville, MD1 Luke R. Scalcione, MD1 Lana H. Gimber, MD1 Eileen J. Lorenz, MD1 Russell S. Witte, PhD1,2
- Ultrasound imaging and guidance in the management of knee osteoarthritis in regenerative medicine field
- Alper Murat Ulasli, Levent Ozcakar, William D. Murrel
- J Clin Orthop Trauma. 2019 Jan-Feb; 10(1): 24–31. Published online 2018 Nov 30. doi: 10.1016/j.jcot.2018.11.015
- PMCID: PMC6349666
- https://www.accessrn.net/ultrasound-guided-vascular-access-standard-of-care/

Mission :
to bring this powerful technology to the entire healthcare world .