Supplement 227:

Ultrasound Shear Wave Elastography SR

Working Group 12: Ultrasound

Overview

Scope: Ultrasound Shear Wave Elastography

- MR Elastography and Ultrasound Strain Elastography are out of scope

An SR template is proposed for elastography of organs/tissues such as liver, breast, prostate

Background

Ultrasound can measure the speed at which an induced shear wave propagates through tissue (Shear Wave Speed in m/s).

SWS depends on the stiffness of the tissue and thus can be converted into an estimated Elasticity in kPa.

SWS elastography typically involves drawing 3-12 ROIs (usually circles or squares) at differing depths on the acquired images.

A report records the mean and Standard Deviation values for SWS and Elasticity within each ROI, and then computes specific summary statistics across the ROIs.

Design Choices

Use existing SR SOP Classes

  - Follows the precedent of most other Ultrasound reports

Add a general Ultrasound Report root template

  - All existing Ultrasound roots were very application specific
  - Based on Vascular root (which several vendors already use)

Add an Ultrasound Elastography sub-Template

Strain-based Elastography will be a separate report section added in another CP/Supplement

Example Result Tables

ROI #	Shear Wave Speed (m/s)		Elasticity (kPa)		Dispersion (m/s/kHz)		ROI Depth (cm)
	ROI Mean	ROI SD	ROI Mean	ROI SD	ROI Mean	ROI SD	
1							
2							
…							
R							

Summary Statistics	Shear Wave Speed (m/s)	Elasticity (kPa)	Dispersion (m/s/kHz)
Mean			
SD			
Median			
IQR			
IQR/Median			