The lesser detection sensitivity with all investigated imaging modalities that was portrayed in Fig. 6.5 results in a greater amount of error across all imaging modalities and lesion stiffness ratios as seen in Fig. 6.6. For all but the least stiff of lesions, ARFI imaging had the greatest amount of error when attempting to detect these lesionous clusters, while shear wave speed quantification continued to generally produce the least amount of error. The overall increased error in this model is somewhat expected however, due to the nature of how the models were constructed and evaluated. In the clustered lesion models, only a portion of the lesionous region actually contains "injured" tissue—averaging out the true stiffness over the entire lesionous area would result in a less pronounced stiffness for that region, rather than the "spikes" that are seen in the clustered model. This means that if such a lesionous region were to exist, the severity of the injury may not be adequately represented by *any* of the three imaging modalities. Further work should be done to examine this problem further and investigate any alternative technologies which may be able to adequately granularize clusters of small lesions.

The final major model to be evaluated across quasi-static elastography, ARFI imaging, and shear wave speed quantification was the use of geometry obtained from MRI scans of real deep tissue injuries in pigs which were then placed in a background of tissue with geometry obtained from the Visible Human project. The purpose of these models was to place the various simulation techniques in the context of detecting "real-world" deep tissue injury lesions. The characterization curves of the three investigated modalities for a lesion with a width of 20 mm located at a depth of 6 cm are given in Fig. 6.7. A lesion depth of 6 cm was chosen in these models as in the Visible Human tissue domain this depth placed the lesion to sit immediately