

Computer methods for detection and analysis of displacement of breast cancer lesions.

This research addresses the challenge of precisely locating breast tumors during MRI scans, which affects how surgeries are planned. It outlines a methodological process that combines pre-qualification assessments, 3D scans, MRI, and USG imaging, along with segmentation and finite element analysis. An artificial neural network helps predict tumor movement, aiding in creating detailed surgical plans and 3D-printed breast models. This comprehensive approach, utilizing techniques like image fusion and additive manufacturing, allows for precise planning of lumpectomy surgery in the supine position. The study demonstrates significant potential in enhancing surgical accuracy and effectiveness for breast cancer patients, aiding in pathomorphological justification and improving preoperative planning. Transparent 3D-printed breast models serve as valuable tools for surgeons to visualize tumors more accurately.

References

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