SURGICAL MALLET FOR SIMULTANEOUS POSITIONING AND IMAGING OF BIOPSY NEEDLES

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Technology description

SUMMARY
•Surgical biopsy needles are traditionally inserted by hand or with a mallet and the positioning of the needle is then verified and adjusted using periodic X-ray or CT imaging. However, imaging cannot be done through the surgical mallet or surgeon’ s hand, which means the needle must be positioned blindly. This blind needle positioning prolongs procedure times and increases patient and provider exposure to radiation.
•The inventors developed a novel surgical mallet design with a mallet head center that is translucent to X-Ray imaging. This allows for biopsy needles to simultaneously be positioned in place and imaged, eliminating the trial and error associated with biopsy needle placement. The invention also reduces patient exposure to unnecessary radiation.
•The inventors constructed a prototype of the surgical mallet using polycarbonate for the head center and simulated X-ray imaging of a target area in the spine through the translucent mallet center.
FIGURE
(A) Schematic illustration of the translucent surgical mallet showing the positioning of radiolucent material (58) through which X-ray images of the biopsy needle can be taken. (B) Simulation image of the head of a biopsy needle (204) as taken through the translucent head of the mallet.

Application area

•Surgery

•Radiology

Advantages

•Can simultaneously position and image biopsy needles

•Eliminates need for trial and error when inserting biopsy needles

•Reduces procedure times

•Reduces caregiver and provider radiation exposure

Institution

University of Chicago