

A.



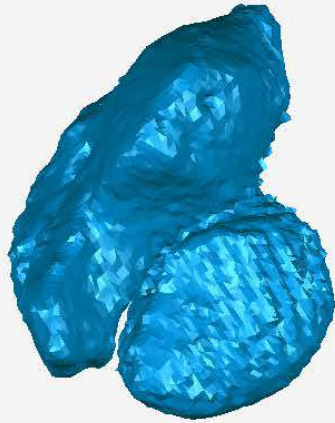
16 yo high school running back with worsening right wrist pain one year after scaphoid nonunion surgery at another hospital. Xrays demonstrate a loosened screw, persistent nonunion and instability affecting the neighboring lunate bone.

B.

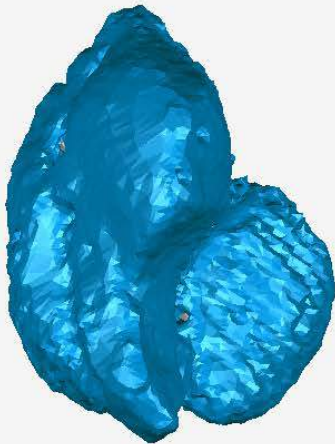
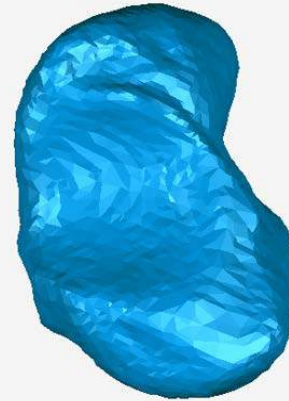


Three dimensional reformat of high resolution computed tomographic scans to enable virtual surgical reconstruction.

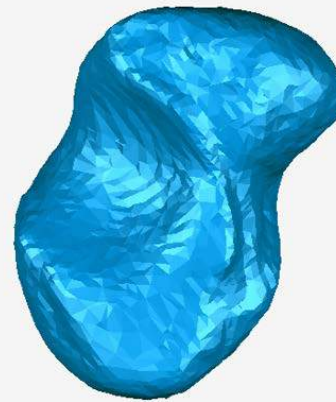
C. Right scaphoid



Normal scaphoid

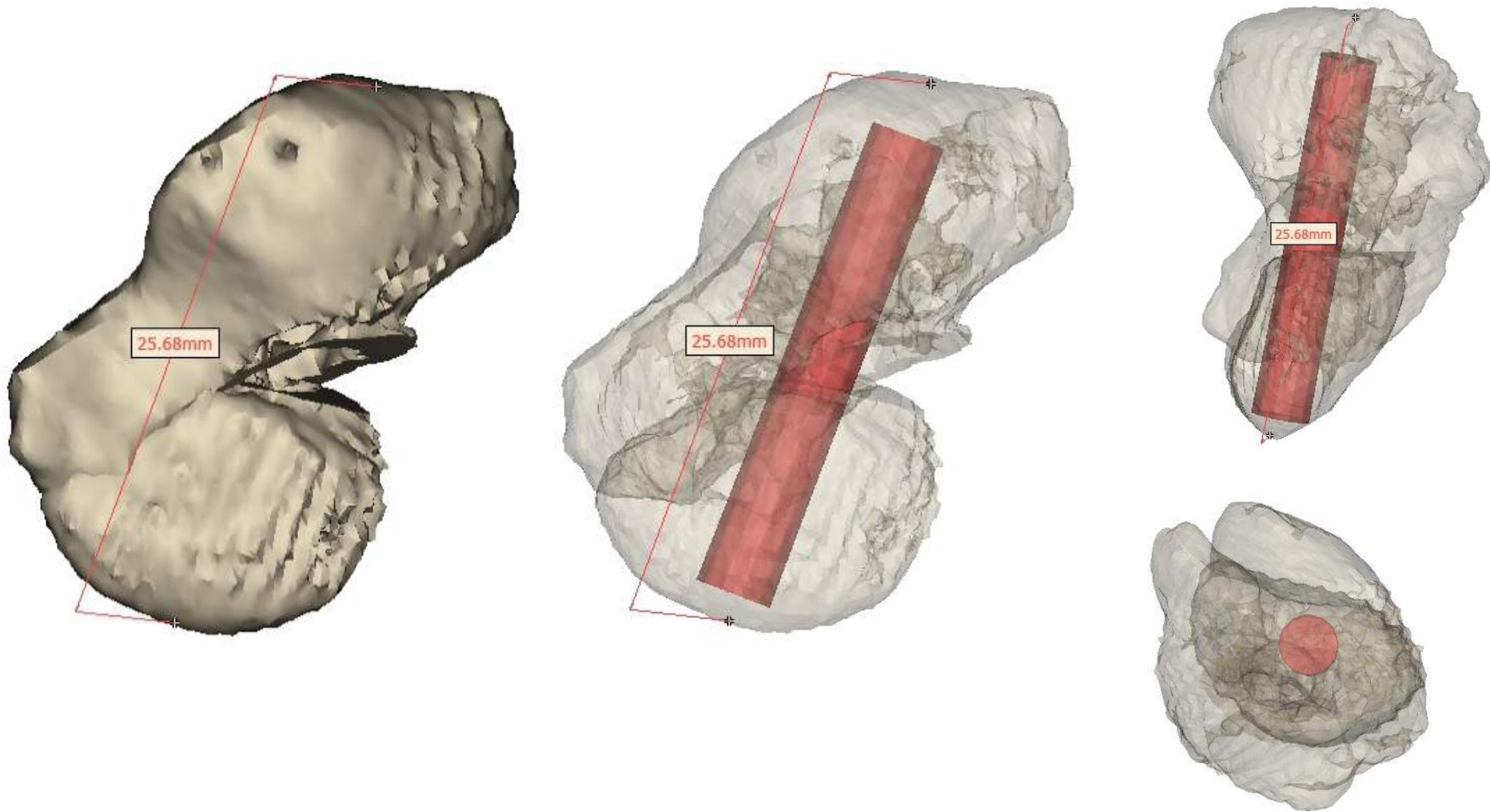


Current Triangles: 23,740
Selected Triangles: 0



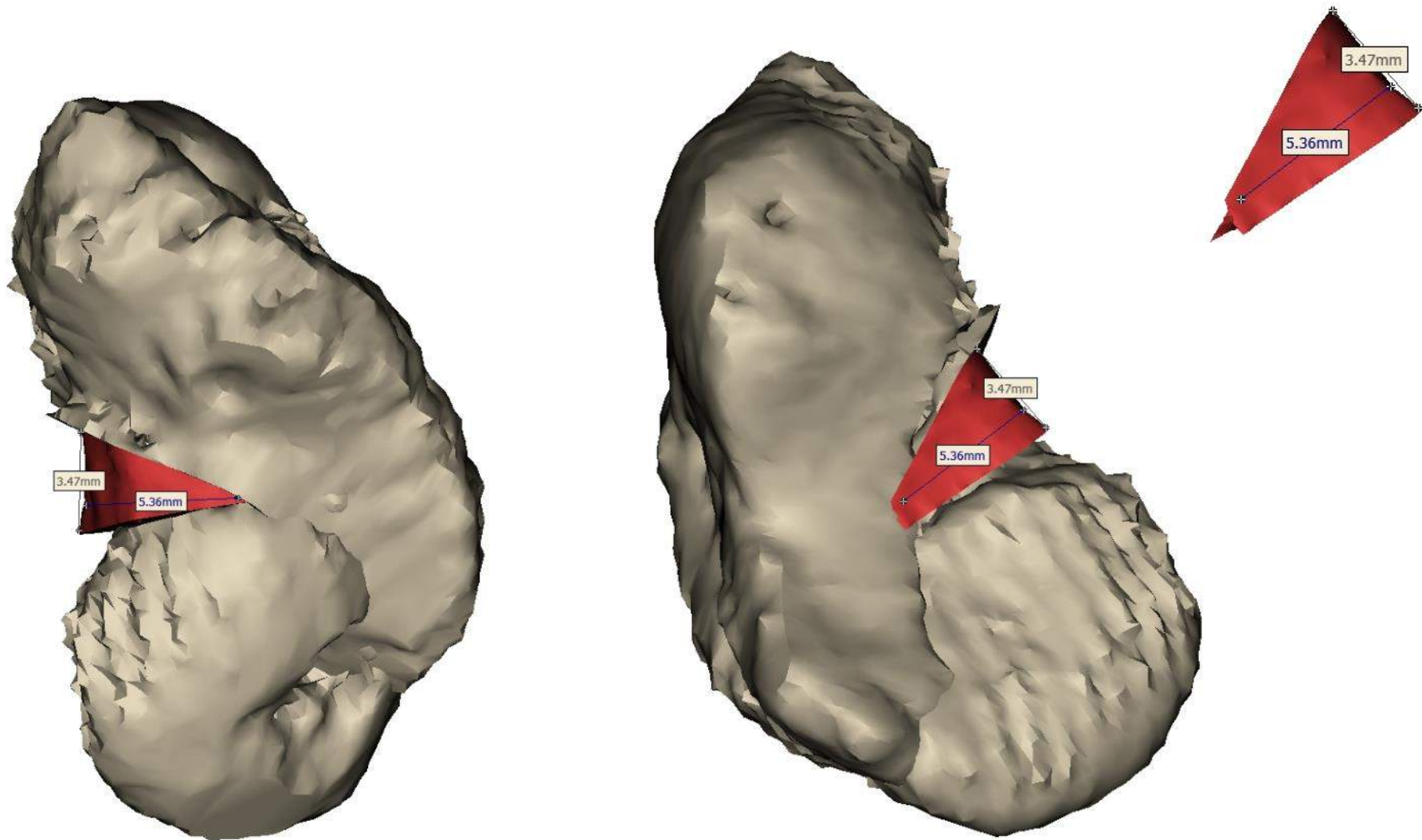
Injured 3D scaphoid compared to normal left scaphoid.

D.



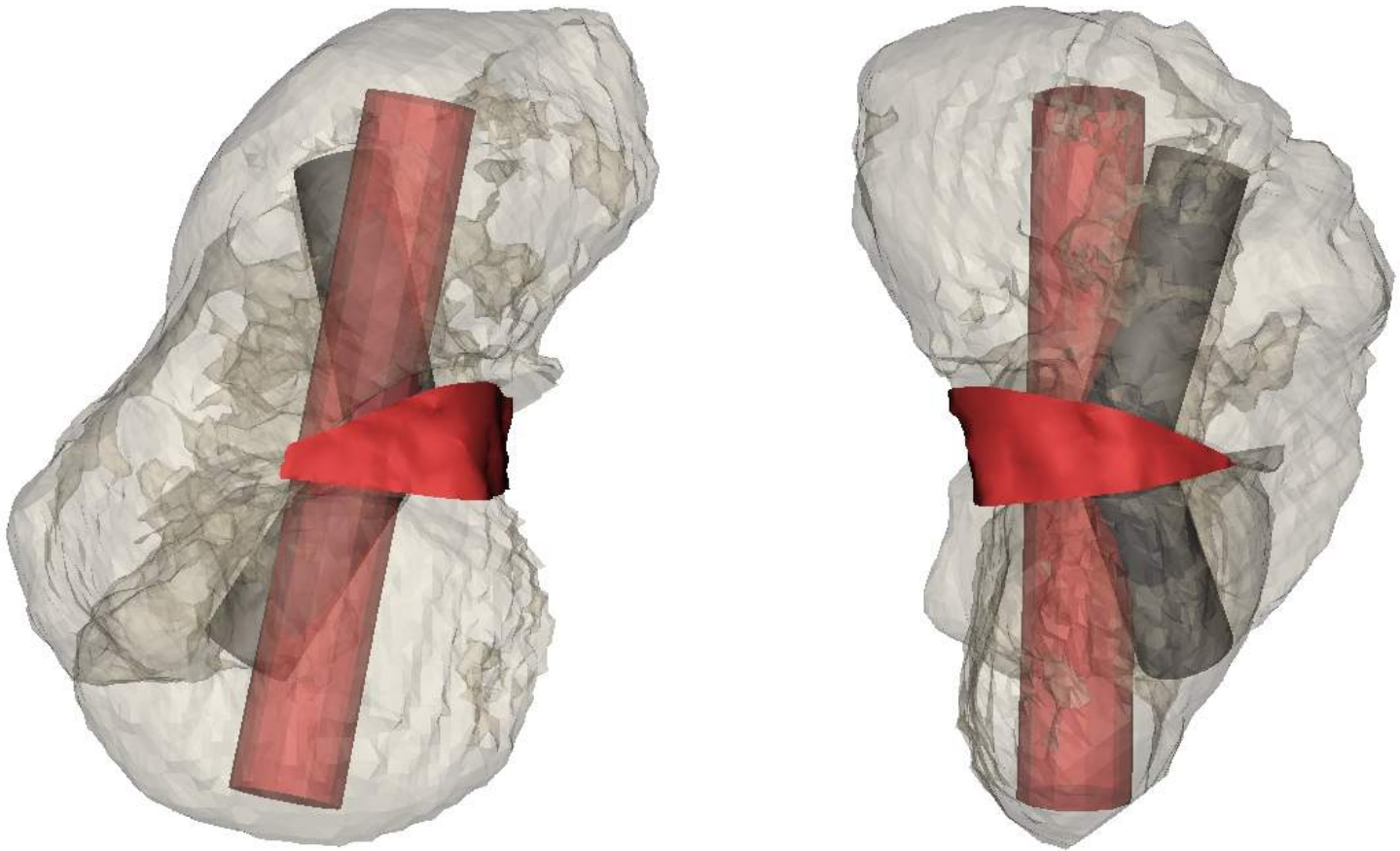
Virtual surgical repositioning of fracture fragments, demonstrating need for bone graft to fill wedge defect in central scaphoid, and sized for appropriate screw length and position.

E.



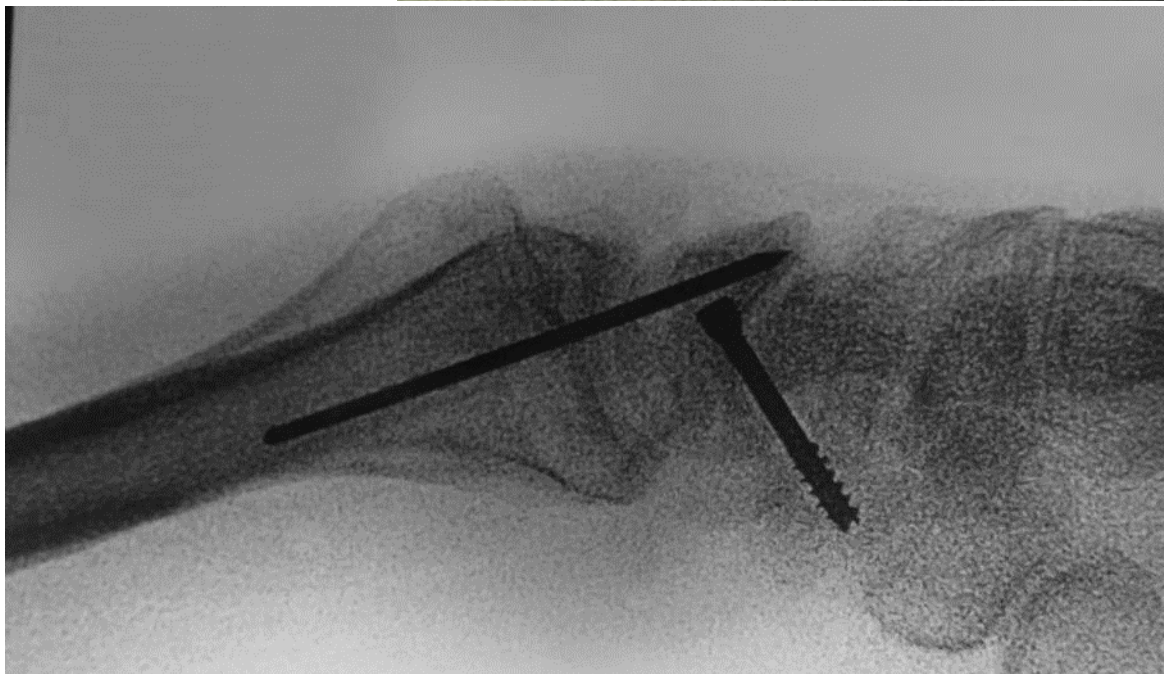
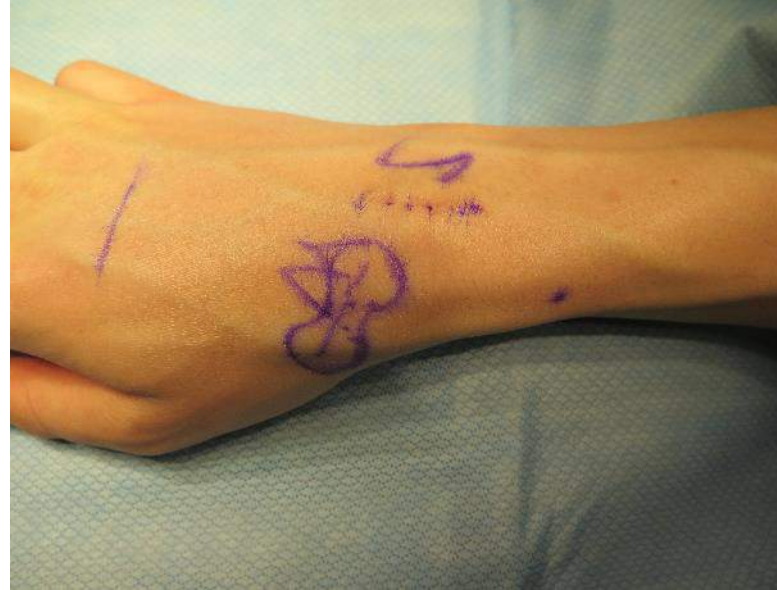
Exact size and dimensions of bone graft calculated.

F.



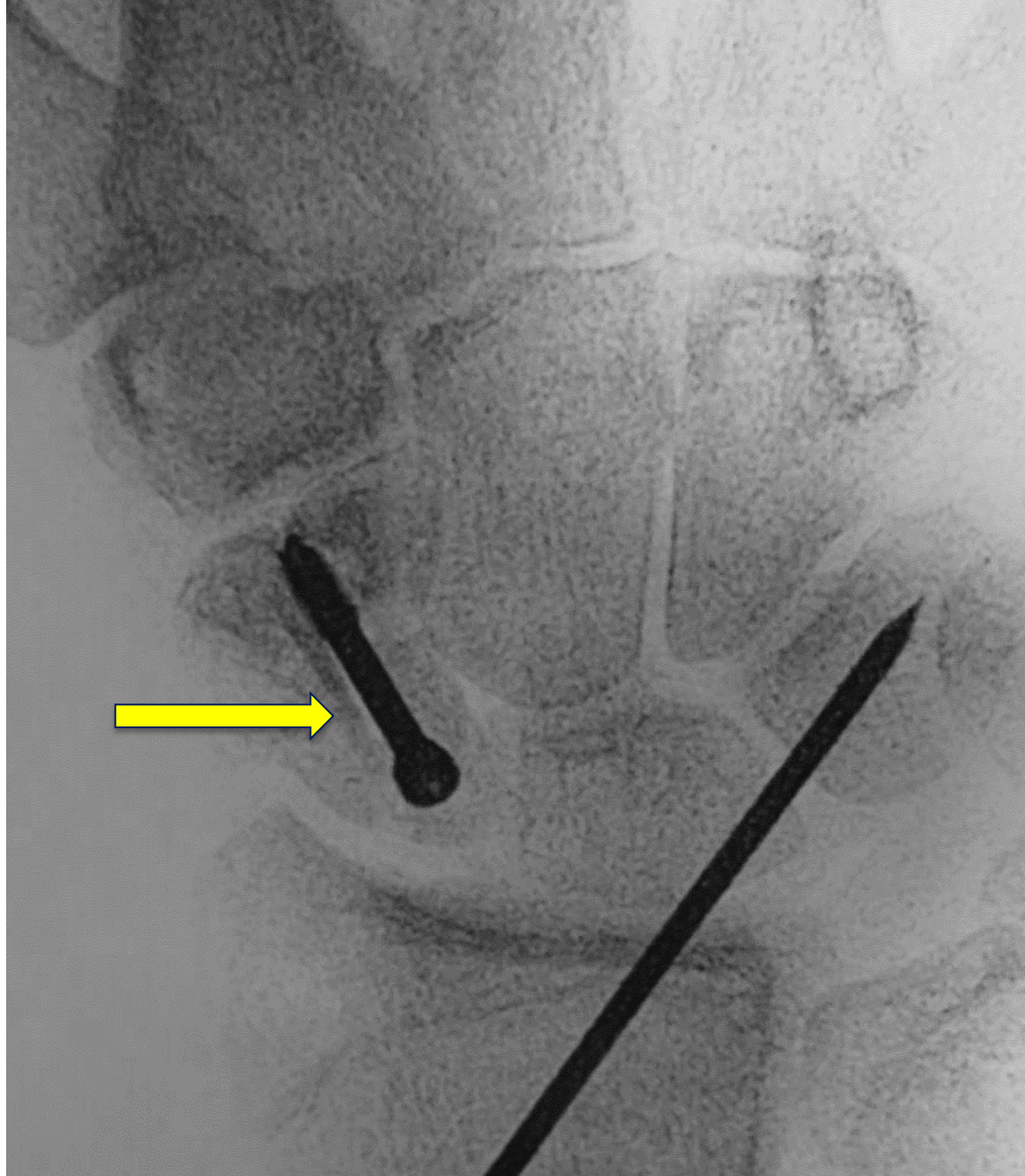
Overlay of virtual reconstructed scaphoid on current scaphoid nonunion.

G.



Surgical markings and operative fluoroscopy views of completed reconstruction and internal fixation of scaphoid and lunate.

H.



Yellow arrow identifies strut of bone graft bridging nonunion site.



Healed scaphoid at 9 weeks postoperatively.

AC: s/p right scaphoid ORIF for non-union on 2/26/19
Radiographs from 6/7/19





7 months postop