

Anatomical Landmarks for Volar Percutaneous Scaphoid Screw Fixation: A Cadaveric Study

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Background: Percutaneous screw fixation of non/minimally displaced scaphoid fracture is becoming more popular due to improved instrumentation, low morbidity and excellent outcome.

Objective: To determine surface landmarks for the insertion of guide wire to minimize radiation exposure.

Design: Cadaveric anatomical experimental study.

Setting: Fresh frozen cadaveric upper limbs obtained from the anatomy laboratory, Singapore General Hospital.

Method: Twelve cadaveric upper limbs were used for this study. The first five specimens were used in a pilot study to identify surface landmarks and possible trajectory for guide wire placement. The remaining seven specimens had the scaphoid guide wire inserted using the newly identified surface landmarks and trajectory. In the last set of specimens, it was done using the identified landmarks and trajectory technique without the use any image intensifier. All the last seven specimens were then X-rayed and dissected to determine the position of the guide wire within the scaphoid bone.

Result: We found that an entry point of 1cm distal to the midpoint of the scaphoid tubercle and a trajectory in the direction of the thumb metacarpal in the coronal plane and at 45 degrees in the sagittal plane, all the wires were in satisfactory axial intraosseous position by X-ray and confirmed with subsequent dissection.

Conclusion: Passing the guide wire using our anatomical landmarks and technique was very reliable and reproducible. It is safe and easy percutaneous screw fixation of scaphoid fractures via the volar approach.

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