

Periradicular infiltration of the L5 root with an angulated access route

Summary

CT-guided periradicular infiltration of the L5 root. A double angulated route was required due to anatomical considerations.



Figure 2: Red arrow indicating the L5 root. Anatomy requiring a double-angulated access route is visible

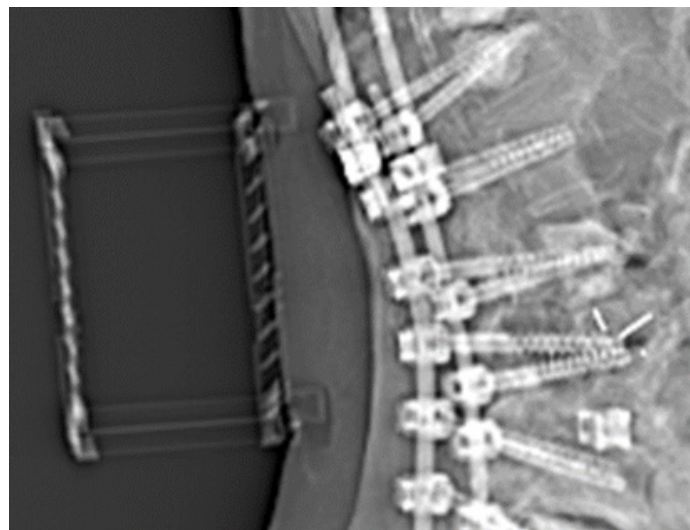


Figure 1: Access Cube placed above the L5/S1 level to enable a secure route to the L5 route

Patient Profile

75 y old female patient presenting with radicular pain (L5 dermatoma) after lumbar fusion/spondylodesis.



Figure 3: Based on a previous CT examination and information from the topogram, the cube was placed onto the patient and the position confirmed with a second topogram

Procedure

The Cube Navigation System was used to support an optimal access route in this postoperative lumbar infiltration (Fig. 1). Due to degenerative and postoperative changes, no in-plane access was possible (Fig. 2, orange arrow L5 root).

The Access Cube was applied to the right of the spine. Degenerative changes required an extremely angulated access route, with the target notably extending outside of the bounds of the Access Cube (See blue box, page 2). A second topogram was performed to confirm the placement of the Cube (Fig. 3)

A suitable trajectory was planned in the navigation software (Fig. 4, next page). The needle was inserted and the upper plate of the cube removed. The needle was then advanced to the L5 root without need for correction (Fig. 5 & 6) and an infiltration of cortison and local anaesthesia was administered.

Result

Target was successfully reached. Patient experienced a near immediate reduction in pain which was reported at the next follow up visit.

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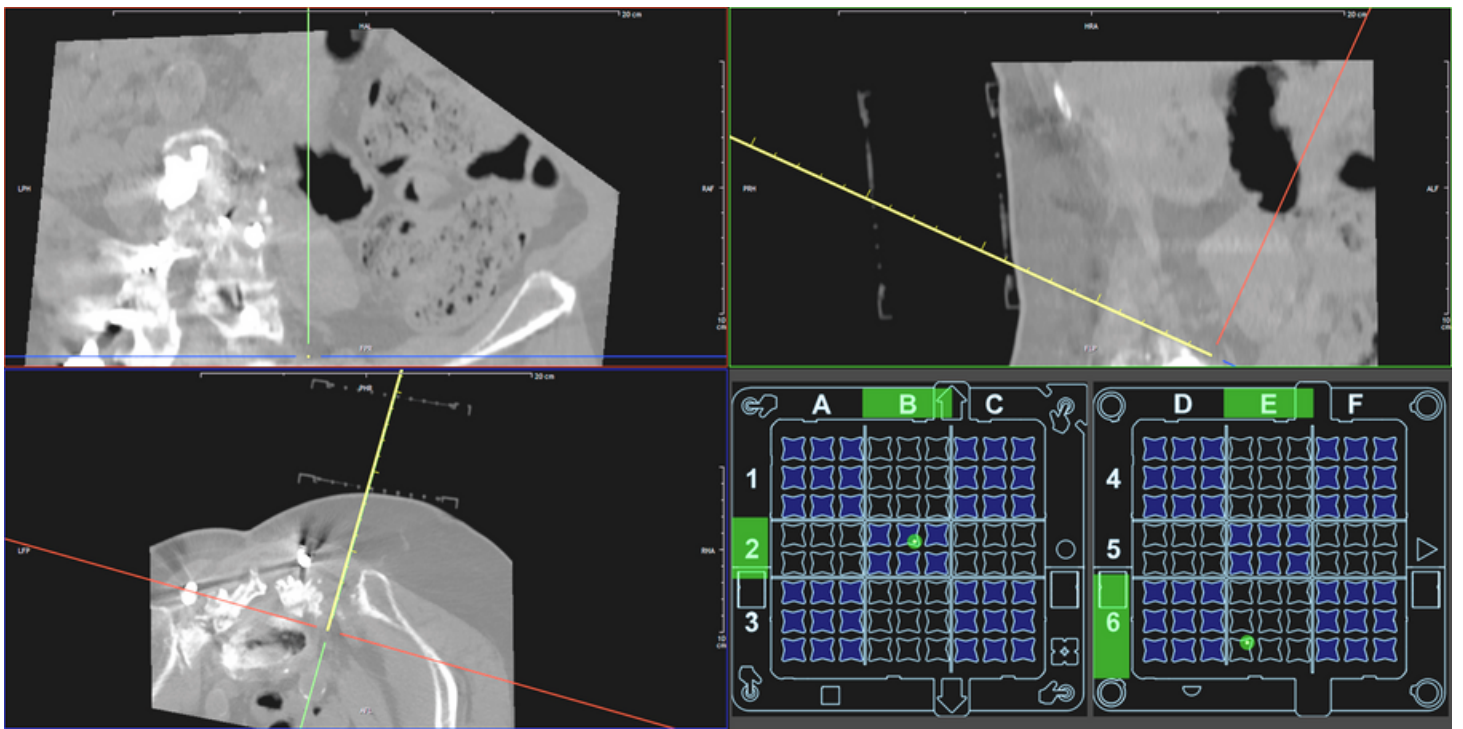
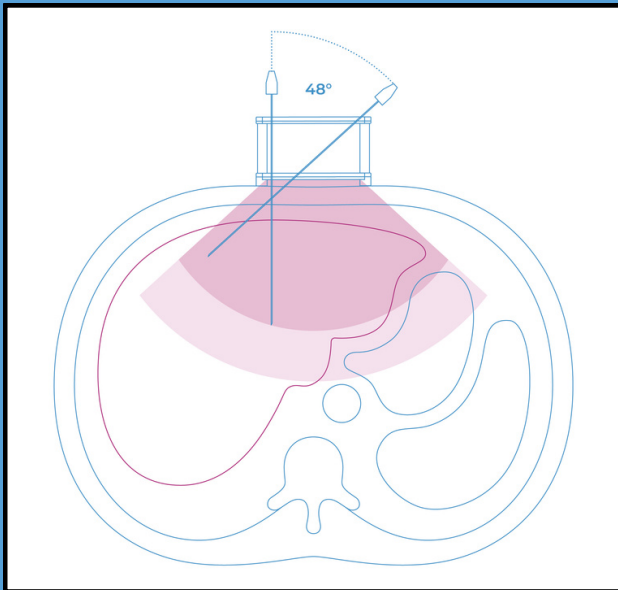


Figure 4: Trajectory planning in the Cube Navigation System planning software based on 2 mm slices in a superior-inferior double oblique orientation



Due to the steep insertion angle possible with the Access Cube, it is feasible to hit targets outside of the border of the Cube, as shown in this case study.

in the diagram above, the red cone indicates the maximum trajectory of a 20cm needle inserted into the Cube, while the pink border indicates the additional depth obtainable by collapsing the Cube and fully inserting the needle.

Needles and thin instruments can be inserted at least 48 degrees relative to the skin.

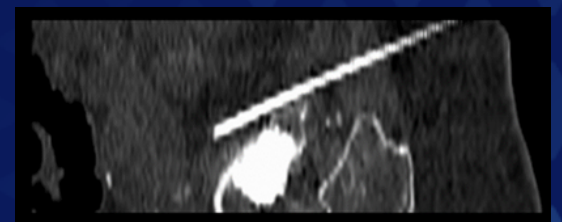


Figure 6: Second control scan with needle in the target. Stairstep artifacts on the sagittal view are due to slice thickness of 2mm



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