

## Sacral alar iliac fixation: An update

Lumbosacral junction fusion itself represents unique challenges for a spine surgeon to achieve a solid fusion across the sacroiliac (SI) joint and hold the fusion against proximally fused lumbar spine. In adults, the sacral alar iliac (SAI) screw technique is indicated in a variety of conditions, including fusion for degenerative spinal conditions, deformity correction, and long lumbar fusions (all lumbar level). Other indications of SAI screw are spondylolisthesis with rigid lumbosacral kyphosis, sacro-pelvic fractures, and sacral fractures with spinopelvic dissociation. In children with various neuromuscular conditions, SAI technique is frequently used for the deformity correction of the spine and pelvic obliquity. In addition, SAI technique may also be used to fusion in high-grade lumbosacral spondylolisthesis.

Surgical technique involves starting point between dorsum of the S1 and S2 foramina with a blunt probe down across the SI joint in the substance of ilium superior to sciatic notch, pointing toward the tip of the ipsilateral trochanter. The probe can be advanced in gearshift manner toward the SI joint directing approximately 20° angulation caudally in the sagittal plane and 30° angulation horizontally in the coronal plane connecting the posterior superior iliac spine (PSIS). Solid or cannulated screw over the guidewire can be placed across the joint toward suprasciatic notch bone substance. The longest possible screws, generally between 65 and 120 mm, can be safely placed in most children and adults whereas the widest possible screws, generally those with an outer diameter of between 6.5 and 9 mm, are recommended. The most common cortical breach is laterally along the outer table of the

ilium which can be avoided by changing trajectory in accordance with the use of curved probe.

SAI screws are instrumental in treating deformity, trauma, and congenital spino-pelvic deformity and have lower implant failure and revision surgery rate.


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