Sacral fixation

Secure fixation of the sacrum is technically challenging. The bone of the dorsal sacral surface is often thin, making hook fixation tenuous. The use of bone screws in the sacral pedicles has gained popularity, but rigidity is often not achieved and screw pullout is common. Solid constructs have been achieved using angled rods to stabilize the ilium, but these methods are technically difficult and time-consuming to perform. A technique is described that achieves rigid sacral fixation by adding a bone screw placed through both cortical surfaces of the ilium. This bone screw is a new type that allows attachment to a rod at variable angles. It permits easy attachment to an appropriately contoured rod, which is affixed to sacral hooks or screws. The resulting configuration of the bone-metal interface creates a tripod for load distribution. Additionally, the splayed geometry of these purchase sites provides a significant biomechanical advantage preventing the instrument from being pulled out. The technique for this fixation method, particularly for patients with complex spinal disorders, is described. Use of this new technique provides significant advantages to the spine surgeon in situations in which substantial sacral fixation integrity is necessary [1].

See S1 pedicle screw

S2 screws

1)
Baldwin NG, Benzel EC. Sacral fixation using iliac instrumentation and a variable-angle screw device. Technical note. J Neurosurg. 1994 Aug;81(2):313-6. PubMed PMID: 8027820.