S1 pedicle screws

Pedicle screws placed into the S1 vertebra remain the mainstay of direct sacral fixation in modern spine surgery. The technique for placement is familiar to the majority of spine surgeons, and the quality of fixation is quite good if placed properly; it harmoniously integrates with posterior instrumentation of the lumbar spine, provides direct sacral fixation, and is relatively safe. Several important details are required for placing S1 screws properly for both maximum fixation and safety. Placement of S1 screws is much like placement of lumbar pedicle screws, but a few anatomic factors can make placing an ideal S1 pedicle screw more difficult than screws at more cranial levels. The wide interpedicular distance at S1 and the need to medialize the tip of the screw to capture the dense bone of the promontory both necessitate a very medial projection of the S1 screw. However, the iliac crest can block the ideal path for the screw, especially in men with large iliac crests.