



Minimally Invasive Sacroiliac Joint Fusion

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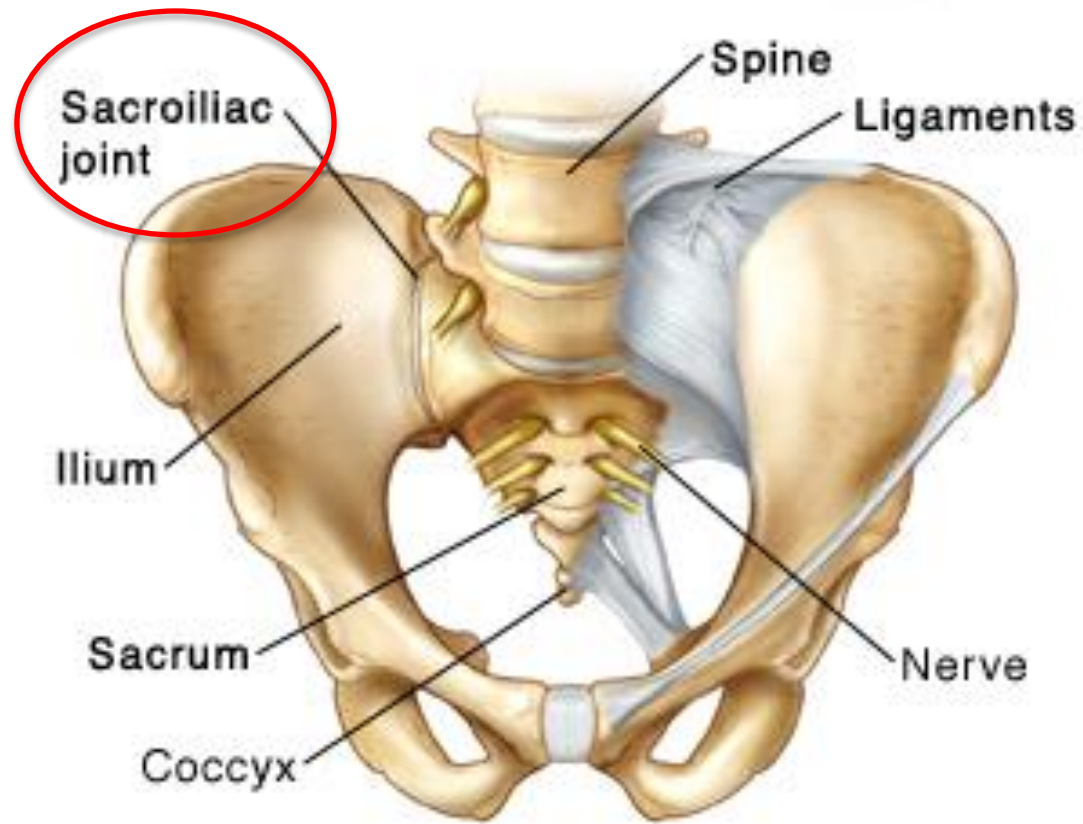
Disclosures

- Globus Medical – Consultant



Sacroiliac Joint

- Pair of large joints connecting sacrum to pelvis
- Surrounded by strong ligaments and muscles
- Very stable with very limited range of motion



Front view of pelvis (hip bone)

Sacroiliac Joint Pain

- Causes of pain
 - Trauma
 - Tumor
 - Infection
 - **Degenerative arthritis**
 - Inflammatory arthritis
 - Postpartum instability
 - Adjacent segment degeneration after lumbar fusion
 - Injury after aggressive posterior iliac crest bone graft harvesting.



Sacroiliac Joint Pain



- Degenerative sacroiliac joint pain is thought to be responsible for 10-26% of chronic low back pain^{1,2}
- It is frequently misdiagnosed or under-diagnosed.

Sacroiliac Joint Pain



- Diagnostic workup
 - Rule out instability, tumor, infection
 - Xray, MRI, Bone scan
 - In degenerative conditions imaging can be normal but often see sclerotic bone changes and osteophyte formation



Sacroiliac Joint Pain



- Rule out other common sources of pain that can mimic sacroiliac joint pain
 - Lumbar stenosis/spondylosis/spondylolisthesis
 - Hip joint arthritis
 - Muscle strain
 - Trochanteric bursitis

Sacroiliac Joint Pain



- Physical Exam
 - Pain on weightbearing – antalgic limp
 - Pain while sitting on that side
 - Tenderness to palpation
 - Pain reproduced on compression test (FABER) – **20% false positive test**



Treatment

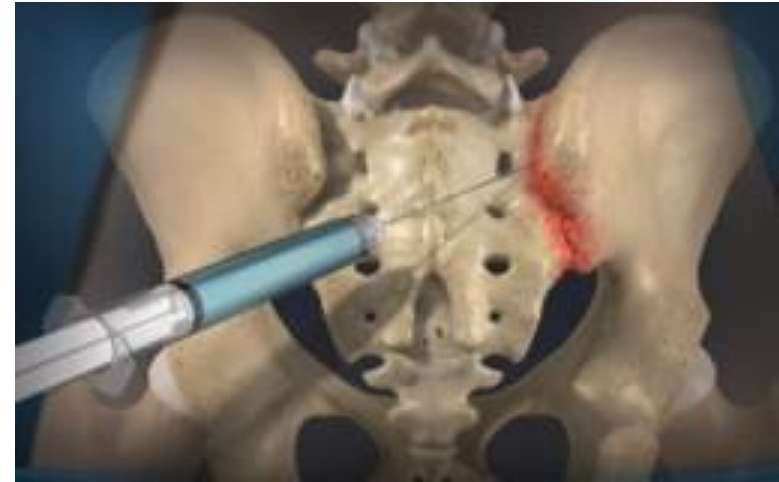


- Physical therapy
 - Main treatment, very effective
 - Stabilizes the joint by strengthening the muscles around it
 - Manipulation can “relocate” if subluxation occurred

Treatment



- Injections
 - Can be therapeutic and diagnostic
 - Must be done under fluoroscopic guidance
 - 50% miss rate if no imaging used
- Radiofrequency ablation
 - Somewhat controversial, not always successful



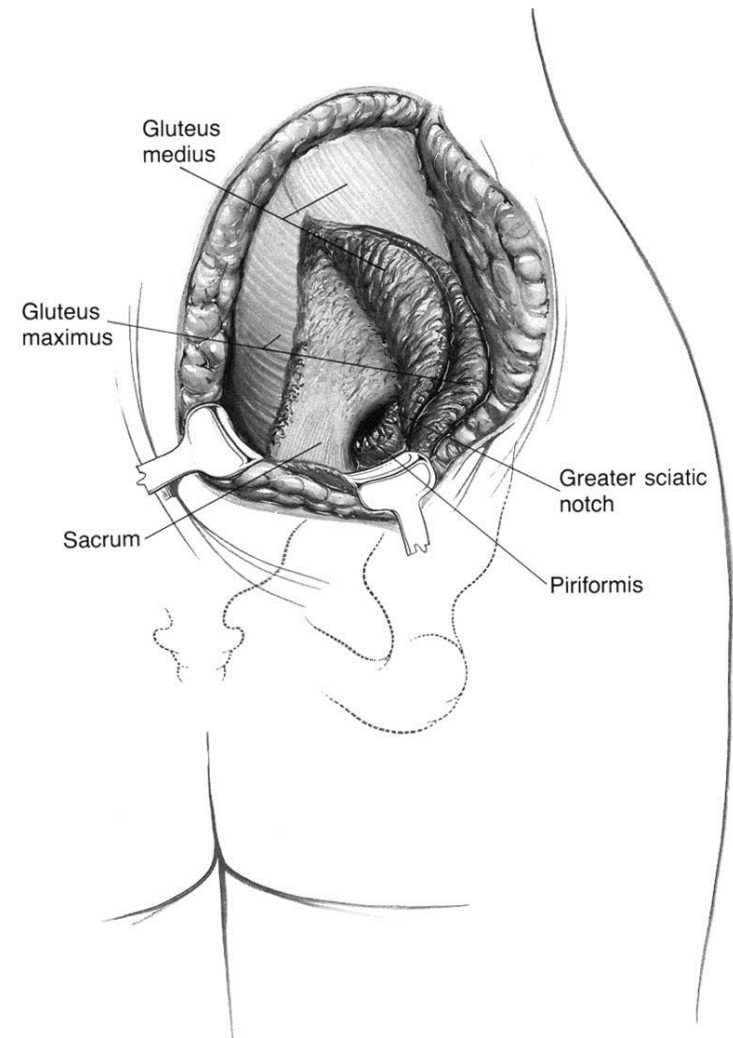
Treatment



- Surgery is considered ONLY after failure of all non-operative options.
- The goal is to eliminate motion through the joint
- Was initially preformed through an open posterior approach

Treatment

- Smith-Peterson approach
 - Initially described in 1925
 - Significant muscle dissection required
 - Lengthy recovery
 - Shown to be effective in eliminating SIJ pain³

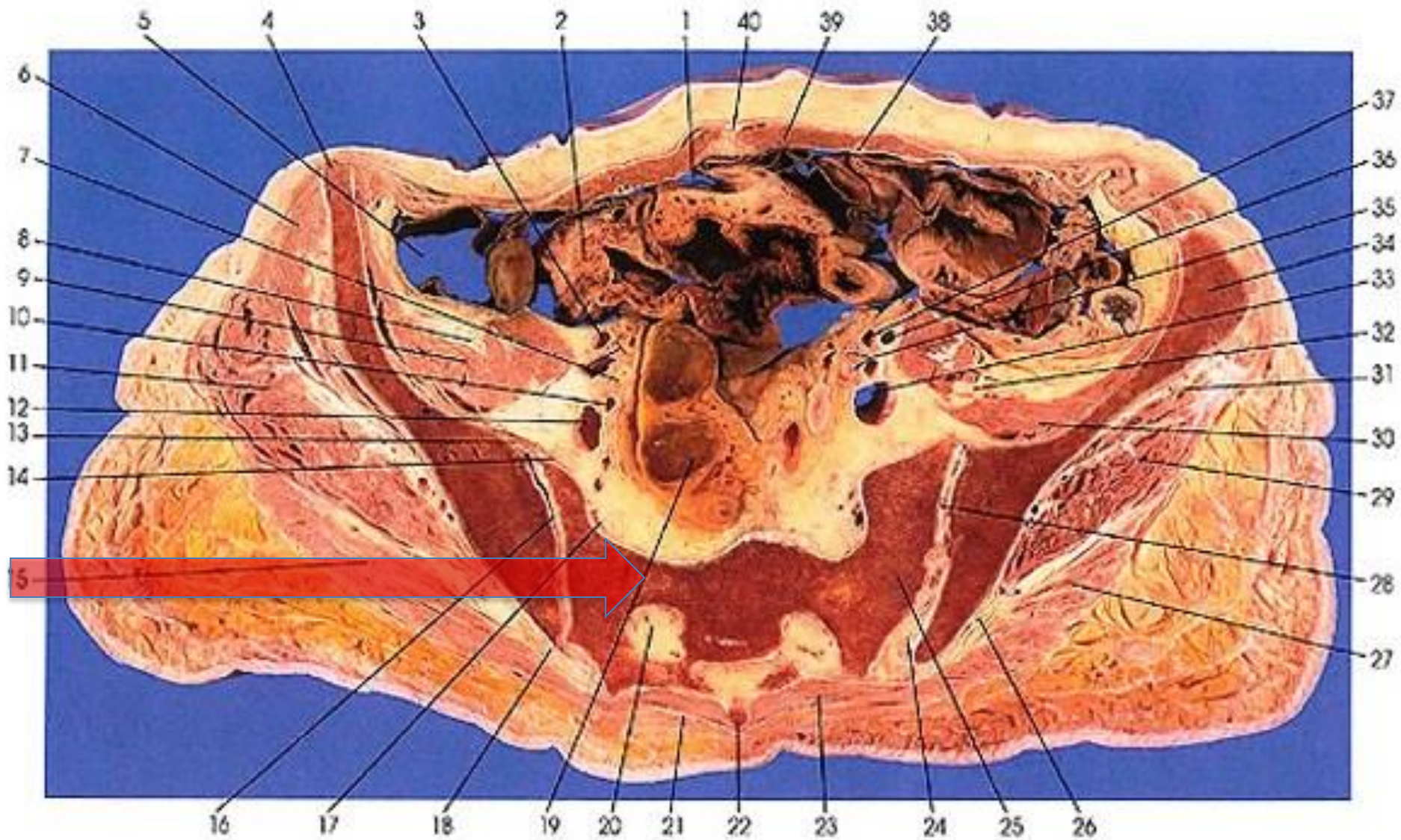


Treatment



- Recent advances in imaging and instrumentation allow for this procedure to be performed via minimally invasive, percutaneous lateral approach.
- Lateral approach is safe – no nerves or blood vessels in the way. No need for extensive dissection or neuromonitoring.
- Proper fluoroscopic guidance is critical.

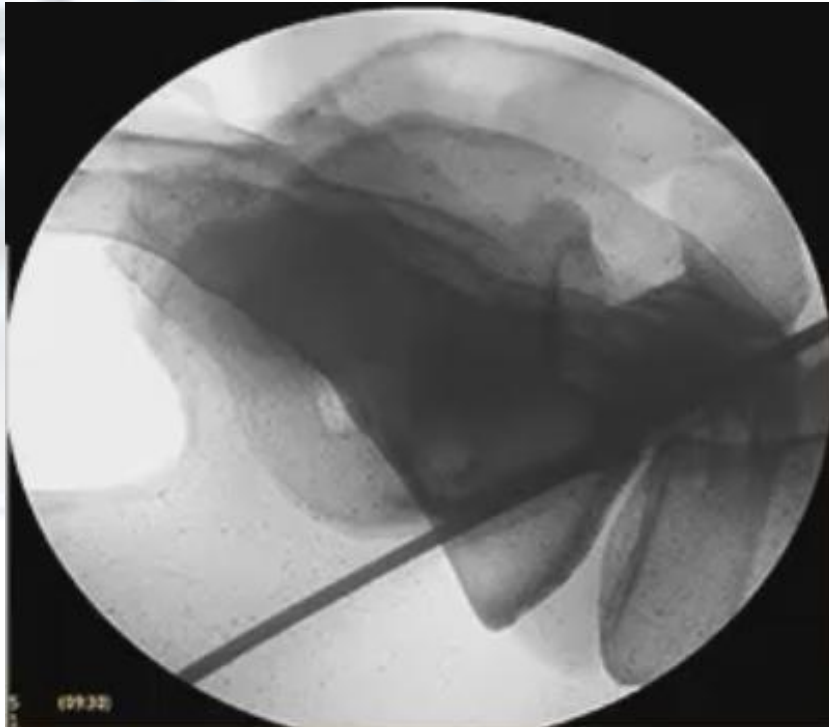
SIJ Anatomy



MIS SIJ fusion



- Pre-incision xrays localize entry point for the screws



MIS SIJ fusion

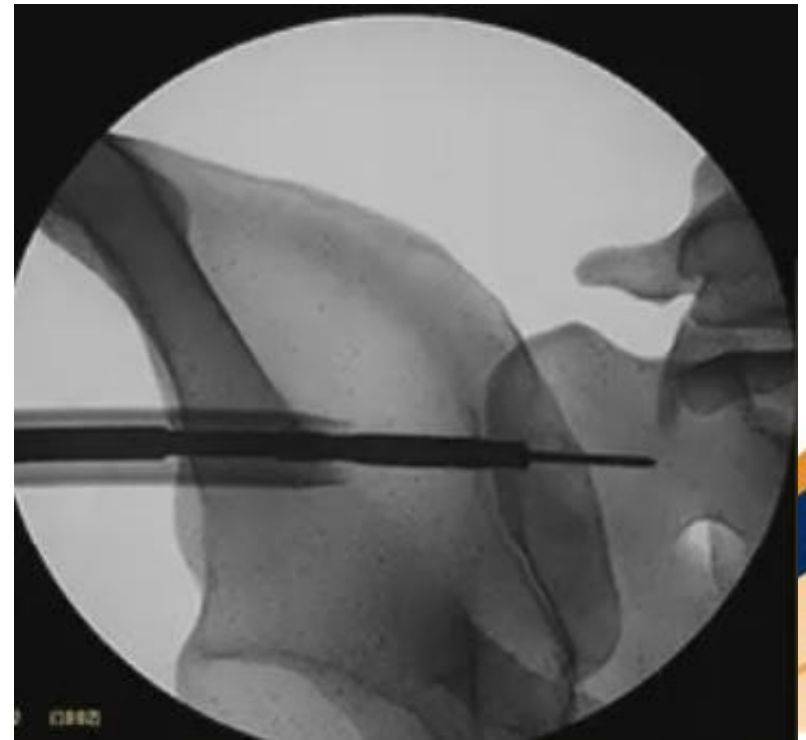


- Dissect soft tissue bluntly down to bone
- Under fluoroscopic guidance or computer navigation, a guidewire is inserted across the SI joint to establish screw trajectory.
- Path for the screw is created by drilling over the guidewire

MIS SIJ fusion



- Screws are sequentially inserted using fluoroscopic guidance



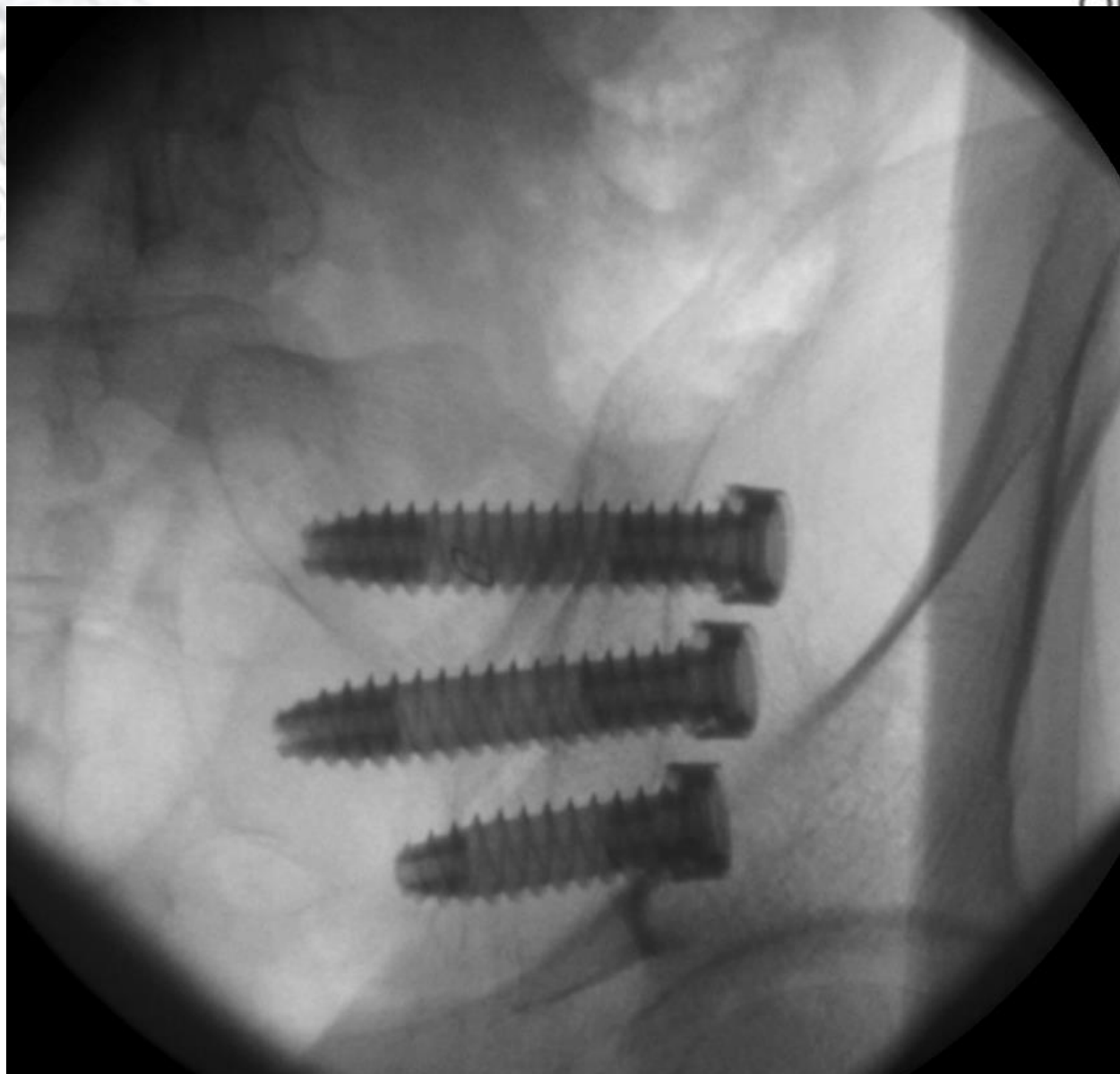
MIS SIJ fusion



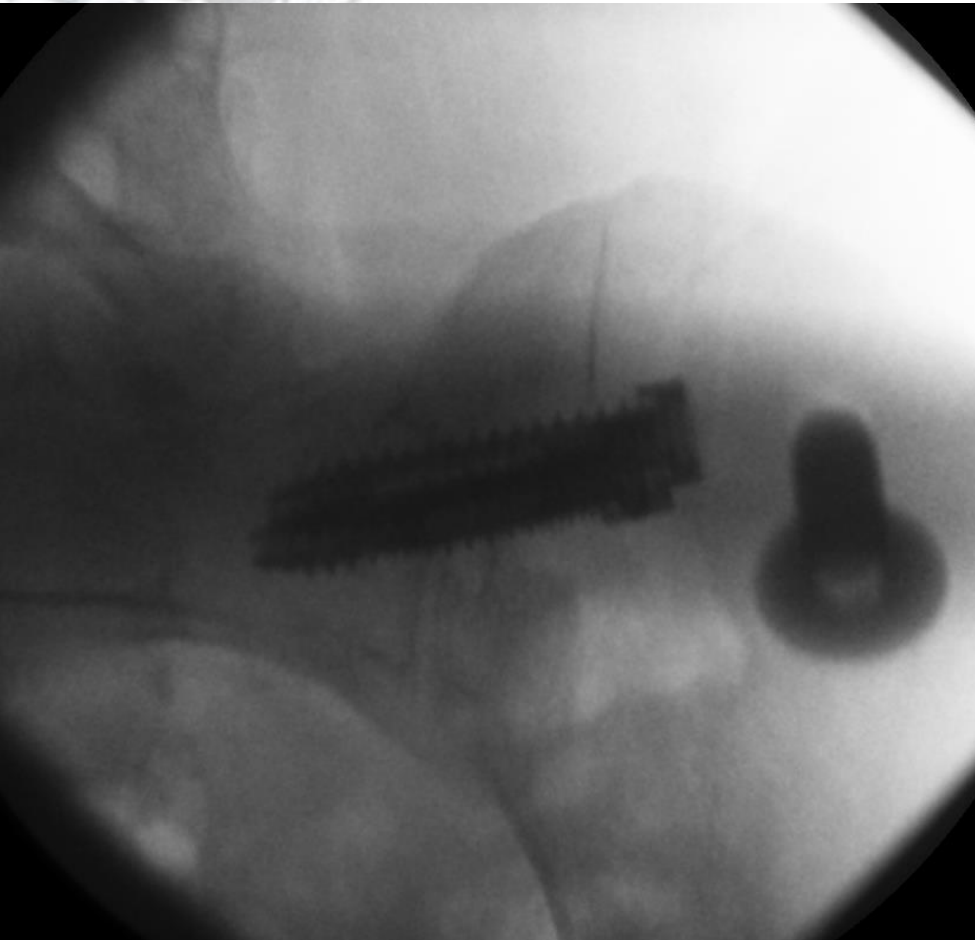
- Local bone autograft from bony reamings is used to achieve bony fusion while screws are stabilizing the joint.



MIS SIJ fusion



MIS SIJ fusion



MIS SIJ fusion



- Animation:

<http://www.globusmedical.com/portfolio/si-lok/>

MIS SIJ Fusion



- Surgery can be outpatient but overnight stay may be needed for pain control and physical therapy (for crutches training)
- If done at ACS, should have overnight stay capability
- Usually no drains required
- Toe-touch weight bearing on the operative side for 2 weeks to allow for soft tissue healing.

MIS SIJ fusion



- Very favorable early to mid-term results^{4,5}
- Long-term outcome studies pending
- One prospective multicenter cohort study how has 2-year results⁷:
 - 172 patients at 26 sites
 - Triangular titanium implants used
 - Pain and ODI scores decreased from 79.8 to 26.0 and 55.2 to 30.9 points respectively
 - 97% fusion rate at 1 year per CT scan
 - 8 (4.7%) needed revision surgeries.

MIS SIJ Fusion



- Private insurance coverage very poor at this time for degenerative conditions
- Covered by Medicare as of 4/1/2016
- Economically more effective than non-operative treatment for chronic SIJ pain⁶



Case Example



- 59 y.o. male presents with 1.5 yr. history of low back and right buttock pain
- Anti-inflammatory medications, full course of physical therapy, trigger point injections, and osteopathic manipulations did not resolve the pain
- Sacroiliac joint injections under fluoroscopic guidance provided 100% relief of the pain for several weeks

Case Example



- Physical exam:
 - Antalgic gait to right side
 - Tenderness to palpation over right sacroiliac joint
 - Positive reproduction of pain with FABER test on right side only
 - No neurologic deficits or pain on hip or lumbar range of motion

Case Example

- Xray:
 - Mild lumbar spondylosis
 - Inferior osteophytes in right SI joint
- MRI:
 - No stenosis
 - Mild facet arthropathy



Case Example



- Patient failed all reasonable non-operative options
- Minimally invasive sacroiliac joint fusion was offered
- Patient was cleared from medical standpoint

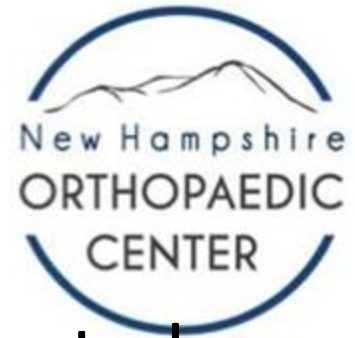


Case Example



- Patient underwent uneventful MIS SIJ fusion
 - 1.5 hr procedure including set-up
 - 1.5 inch incision
 - Minimal blood loss
 - Discharged home on POD1
 - Toe-touch weightbearing on right side for 2 wks
- Pain improved within days of surgery
- Physical therapy was started 2 weeks after surgery

Case Example



- At 6 weeks postoperatively patient reported no pain, was off all pain medications and was released from physical therapy.
- Patient was released to full activity with no restrictions at 3 months after the surgery

Case Example



References



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THANK YOU

