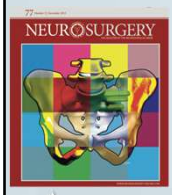
Should SI Fusion be Done Routinely in One's Spine Practice?



Anthony Bozzio MD
Selby Spine Conference 2018

BAY STREET ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Disclosures

- Medacta USA, Inc
  - Consultant

BAY STREET ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Patient example

- 60 year old man with low back, buttocks, radiating leg pain, 6 months
- X-rays show moderate degenerative disc disease, no instability, no hip OA
- MRI lumbar spine shows no signs of neural compression, no annular tears, multilevel DDD

BAY STREET ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Patient example

- Exam: 5/5 strength, normal sensation, negative SLR, and seated root testing, normal reflexes, no pain with hip ROM
- SI testing:
  - Seated, leaning to side
  - Tender over SI joint
  - Pain with FABER
  - Pain with pelvic distraction
  - Painful single leg hop
  - Positive Gaenslen test
    - Injection ->-> Fusion

BAY STREET ORTHOPAEDICS

---

6 months

Unilateral

Tenderness

Provocative testing +

No fibromyalgia

Imaging

75% reduction in pain after 2 injections

Tried steroid

North American Spine Society

The North American Spine Society (NASS) published coverage recommendations for percutaneous sacroiliac joint (SIJ) fusion in 2015.[36] NASS indicated that there was relatively moderate evidence. In the absence of high-level data, NASS policies reflect the multidisciplinary experience and expertise of the committee members in order to present reasonable standard practice indications in the United States. NASS recommended coverage when all of the following criteria are met:

1. "[Patients] have undergone and failed a minimum 6 months of intensive nonoperative treatment that must include medication optimization, activity modification, bracing and active therapeutic exercise targeted at the lumbar spine, pelvis, SIJ and hip including a home exercise program.
2. Patient's report of typically unilateral pain that is caudal to the lumbar spine (L5 vertebra), localized over the posterior SIJ, and consistent with SIJ pain.
3. A thorough physical examination demonstrating localized tenderness with palpation over the sacral sulcus (Fortin's point, ie, at the insertion of the long dorsal ligament inferior to the posterior superior iliac spine or PSIS) in the absence of tenderness of similar severity elsewhere (eg, greater trochanter, lumbar spine, coccyx) and that other obvious sources for their pain do not exist.
4. Positive response to a cluster of 3 provocative tests (eg, thigh thrust test, compression test, Gaenslen's test, distraction test, Patrick's sign, posterior provocation test). *Note that the thrust test is not recommended in pregnant patients or those with connective tissue disorders.*
5. Absence of generalized pain behavior (eg, somatoform disorder) or generalized pain disorders (eg, fibromyalgia).
6. Diagnostic imaging studies that include ALL of the following:
   a. Imaging (plain radiographs and a CT [computed tomography] or MRI [magnetic resonance imaging]) of the SI joint that excludes the presence of destructive lesions (eg, tumor, infection) or inflammatory arthropathy that would not be properly addressed by percutaneous SIJ fusion.
   b. Imaging of the pelvis (AP [anteroposterior] plain radiograph) to rule out concomitant hip pathology.
   c. Imaging of the lumbar spine (CT or MRI) to rule out neural compression or other degenerative condition that can be causing low back or buttock pain.
   d. Imaging of the SI joint that indicates evidence of injury and/or degeneration.
7. At least 75% reduction of pain for the expected duration of the anesthetic used following an image-guided, contrast-enhanced intra-articular SIJ injection on 2 separate occasions.
8. A trial of at least one therapeutic intra-articular SIJ injection (ie, corticosteroid injection)."

BAY STREET ORTHOPAEDICS

BlueCross BlueShield Association

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Evidence

Randomized Controlled Trial of Minimally Invasive Sacroiliac Joint Fusion Using Triangular Titanium Implants *vs* Nonsurgical Management for Sacroiliac Joint Dysfunction: 12-Month Outcomes

Polly DW, Cher DJ, Wine KD, Whang PG, Frank CJ, Harvey CF, Lockstadt H Glaser JA, Limoni RP, Sembrano JN* for the INSITE Study Group.*

- INSITE Study
  - Level 1 evidence
  - 1 year follow up
  - Implant was all SI-BONE iFUSE
  - Improvement in VAS and ODI compared to non-op

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Evidence

Two-Year Outcomes from a Randomized Controlled Trial of Minimally Invasive Sacroiliac Joint Fusion vs. Non-Surgical Management for Sacroiliac Joint Dysfunction

- 148 patients randomly assigned to MIS SI fusion or conservative care
- Improvements in VAS and ODI with surgery compared to conservative care
- 2 year follow up from INSITE

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Evidence

Degeneration of Sacroiliac Joint After Instrumented Lumbar or Lumbosacral Fusion

Kee-Yong Ha, M.D. et al.

Spine. 2008; 33, No. 11: 1192-1198

- 39 patients, prospective cohort
- CT assessment of SI joint following lumbar fusion (lumbar and lumbosacral)
- At 5 yrs post fusion, 75% in fusion group had degenerative change, versus 38.2% in non-fusion group
- Increased mechanical stress transmitted to SI joint

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Evidence

Etiology of Chronic Low Back Pain in Patients Having Undergone Lumbar Fusion

Michael J. DePalma, M.D. et al.

Pain Medicine 2011; 12: 224–233

- Retrospective review
- 28 patients post-fusion with >12months pain
  - Underwent injections (SI, facets, disc, implants)
    - 12 SI injections (43% gave relief)
    - 80% of pts with SI pain relieved w injection had fusion to sacrum (P=0.0035)

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Evidence

Cost-effectiveness of Minimally Invasive Sacroiliac Joint Fusion

Cher DJ[1], Frasco MA, Arnold RJG, Polly DW[4]

Clinicoecon Outcomes Res. 2016;8:1-14.

- Cost effective
- Cost saving long term

	Total Direct Costs	QALYs	ICER
Non-surgical management	$12,635	2.46	—
SI Joint Fusion	$22,468	3.20	—
Incremental Value	$9,833	0.74	$13,313

Cost-effectiveness (base-case analysis), from Table 3 of full article

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Hip Spine Syndrome

Offierski, C.M.. and MacNab, I. (1983) Hip-Spine Syndrome. Spine, 8, 316-321.

- ”Symptoms from both sites gives a confusing clinical picture and may require ancillary investigations to diagnose the major source of disability.”

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Hip Spine Syndrome

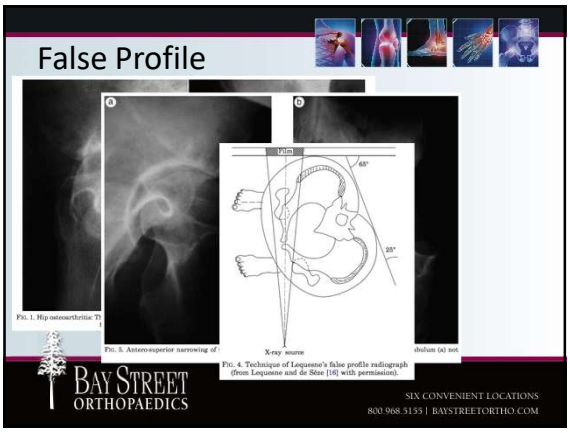
- Is it the hip, is it the back, is it the SI joint?
- Sort it out with injections
- Most people look for hip OA as groin pain and AP pelvis with obvious radiographic signs
- **Posterior wear, posterior hip pain is missed**
  - Consider the false profile view hip x-ray in these cases

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Where does it hurt?
HNP S1
Dubuisson (1999)
HNP L5
Dubuisson (1999)
BAY STREET
ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Osteoarthritis and Cartilage
Journal of the OsteoArthritis Research Society International
Evaluation of the 'Lequesne's false profile' of the hip in patients with hip osteoarthritis
"Its your hip."
"Its not your hip."
BAY STREET
ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM


False Profile
Film
X-ray source
BAY STREET
ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Painful Total Hip

- High prevalence of patients with THAs. Be aware of common causes of pain after THA.
- Loose?
  - Thigh pain with start up
  - Bone scan
- Infected?
  - ESR, CRP, aspirate
- Malpositioned?
- Other

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Summary

- There exists a subset of patients who benefit from SI fusion
- Fully evaluate lumbar spine and hip
- Get more information: False profile x-ray, hip injections, SI injections, epidurals, EMGs for cases where diagnosis is unclear

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

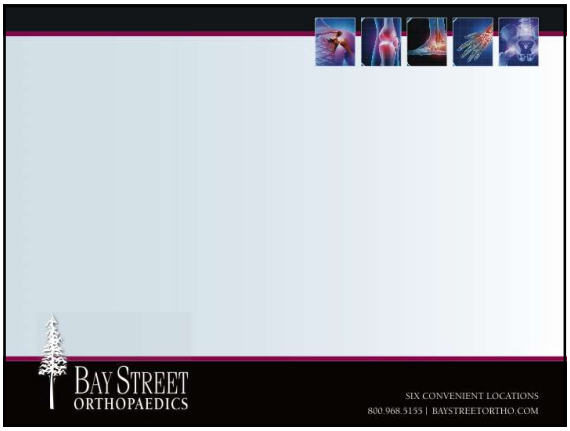
Summary

- Being aware of SI joint pain and being able to diagnose spine, SI, hip issues makes you more versatile.
  - Generates referrals
  - Benefits patients who have a more difficult diagnoses
- **Yes, SI fusion should be part of a spine practice**

BAY STREET ORTHOPAEDICS

SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM

Thank you
BAY STREET
ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM


BAY STREET
ORTHOPAEDICS
SIX CONVENIENT LOCATIONS
800.968.5155 | BAYSTREETORTHO.COM