

Non-surgical treatment options of chronic spinal and joint pain

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What we will cover

- Spinal treatments and interventions in the light of the latest NICE guidelines
- Novel treatment options for refractory knee and hip pain

NICE (NG59) : Low Back Pain and Sciatica in over 16s - assessment and management

- published November 2016
- replaces previous guideline CG 88 (2009)
- **Assessment with risk stratification**
- **Non-invasive treatment**
- **Medication**
- **Additional treatment for sciatica - Epidural**
- **Additional treatment for Low Back Pain - Radiofrequency denervation**

Assessment

- Clinical assessment
- Consider “red flags”/alternative Dx
 - Cancer
 - Infection
 - Trauma
 - Inflammatory Disease
- NO imaging in non-specialist setting OR if unlikely to alter therapy
- Risk Stratification (STarT Back)

STarT Back

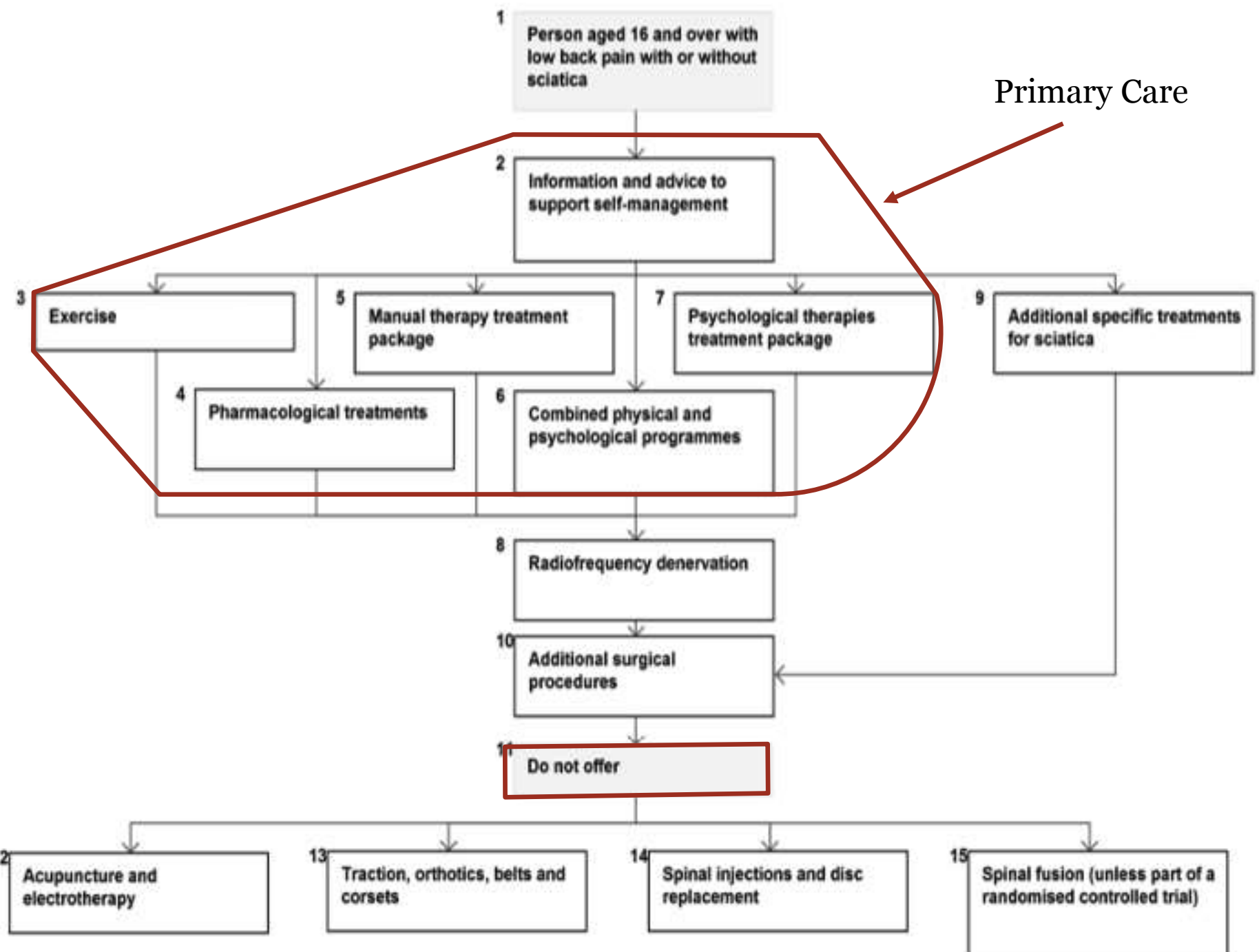
Box 1: STarT Back Screening Tool (created by Keele University)

For questions 1-8, score 1 for agreement, 0 for disagreement

1. My back pain has spread down my leg(s) at some time in the last 2 weeks
2. I have had pain in the shoulder or neck at some time in the last 2 weeks
3. I have only walked short distances because of my back pain
4. In the last 2 weeks, I have dressed more slowly than usual because of back pain
5. It's not really safe for a person with a condition like mine to be physically active
6. Worrying thoughts have been going through my mind a lot of the time
7. I feel that my back pain is terrible and it's never going to get any better
8. In general I have not enjoyed all the things I used to enjoy
9. Overall, how bothersome has your back pain been in the last 2 weeks?
Not at all (0), Slightly, (0), Moderately (0), Very much (1), Extremely (1)

STarT Back scoring: Low risk = total score 0-3; high risk = score 4-5 of questions 5-9 only; the rest are medium risk.

Primary Care



Non-invasive treatments for LBP and Sciatica

- **Information/Education**
 - Information on nature of LBP and Sciatica
 - Encouragement to continue with normal activities
- **Group exercise programme**
- **Manual therapies**
 - Manipulations, Mobilisations, Soft tissue techniques

Pharmacotherapy

- Offer oral **NSAIDs** for managing low back pain, taking into account potential differences in gastrointestinal, liver and cardio-renal toxicity, and the person's risk factors, including age.
- Prescribe oral NSAIDs for low back pain at the **lowest** effective dose for the **shortest** possible period of time.
- Consider weak opioids (with or without paracetamol) for managing acute low back pain **only if an NSAID is contraindicated, not tolerated or has been ineffective.**

Pharmacotherapy

- **Do not** offer paracetamol alone for managing low back pain.
- **Do not** routinely offer opioids for managing *acute* low back pain.
- **Do not** offer selective serotonin reuptake inhibitors, serotonin–norepinephrine reuptake inhibitors or tricyclic antidepressants for managing low back pain.
- **Do not** offer anticonvulsants for managing low back pain.
- **Do not** offer opioids for managing *chronic* low back pain.

Opioids for chronic noncancer pain

A position paper of the American Academy of Neurology

Gary M. Franklin,

Neurology 83 September 30, 2014

Figure 2 Risk/benefit of opioids for chronic noncancer pain



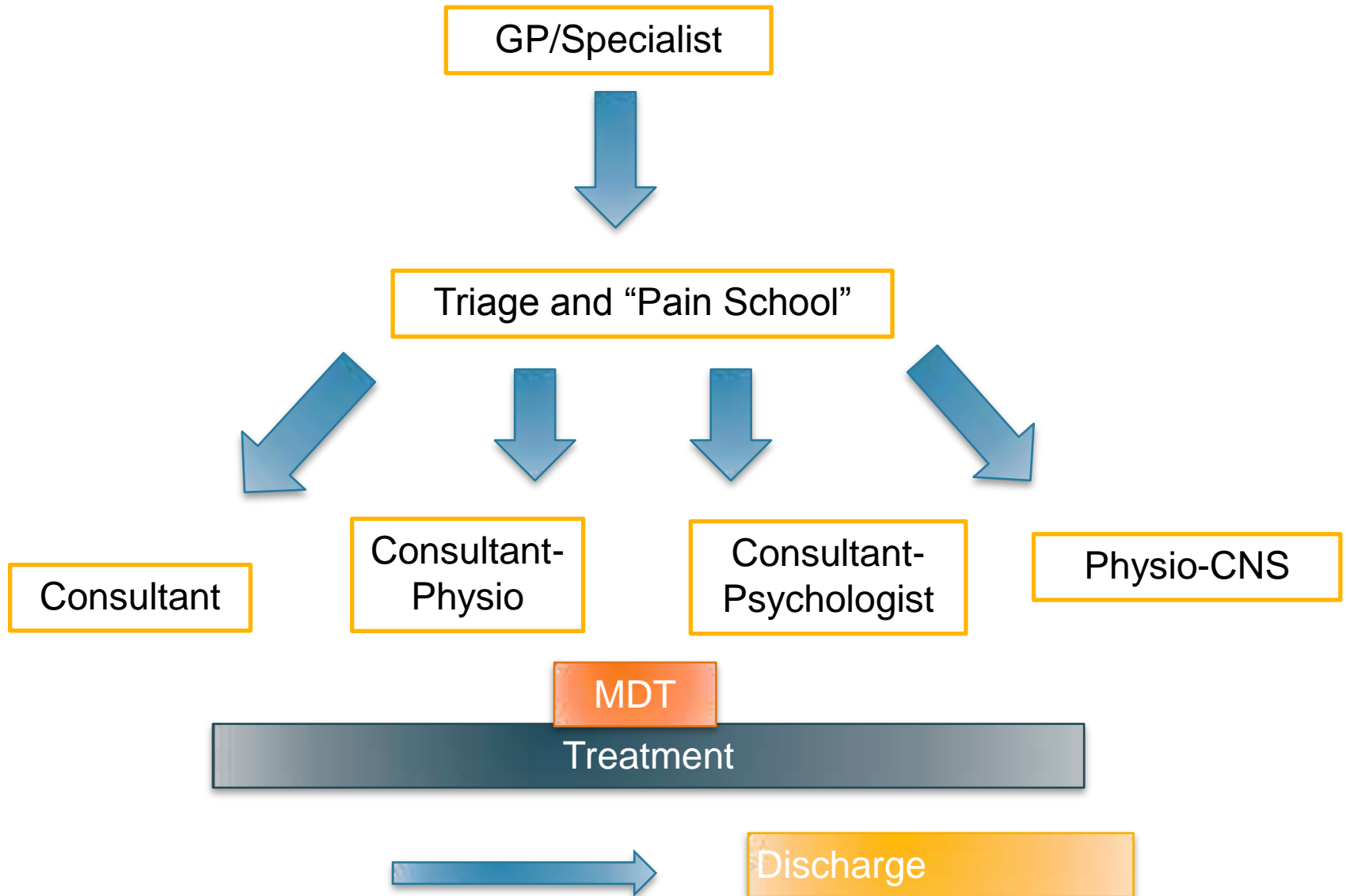
Pharmacotherapy - *sciatica*

- anti-neuropathic medication (see NICE guidelines)
- Gabapentine, Pregabalin, TCA, SNRIs (i.e. Duloxetine)
- refer urgently for consideration of Epidural injection, if severe or failing to improve
 - “Red flag” - progressive neurology, Cauda equina necessitates **urgent referral to spinal unit**

Additional Interventional/Surgical procedures

- **Radiofrequency** ablation in facetogenic LBP
- spinal cord stimulation in LBP of neuropathic or ischaemic origin
- disc specific procedures (percutaneous laser ablation)
- Spinal fusion as part of RCT

Patient Pathway



Mechanical (80-90%)

- Non-specific – muscle strain/ligamentous injury (65-70%)
- Facet joint related (~30% of all BP)
- Disc related pain (~40% of all BP)
- Vertebral fracture
- Congenital deformity (scoliosis, kyphosis, transitional vertebrae)
- Sacro-iliac related pain (~60% post traumatic)

Neurogenic (5-15%)

- Herniated disc
- Spinal stenosis
- Osteophytes
- Annular fissure with chemical irritation
- FBSS (mixed)
- Infection (i.e. Herpes zoster)

Interventional approach in BP

- **Facetogenic BP**
 - Facet joint injection (FJI)
 - Diagnostic Medial Nerve Branch Block (MNBB)
 - Radio-frequency (RF) rhizotomy
- **Sacro-iliac related BP**
 - Sacro-iliac joint (SIJ) injection
 - RF- SIJ- Neurotomy
- **Radicular BP**
 - Trans-foraminal nerve root injection
 - Epidural
- **Discogenic BP**
 - Discography
 - Biacuplasty



Algorithm for facetogenic BP

Patients with suspected facetogenic back pain



Diagnostic medial nerve branch block

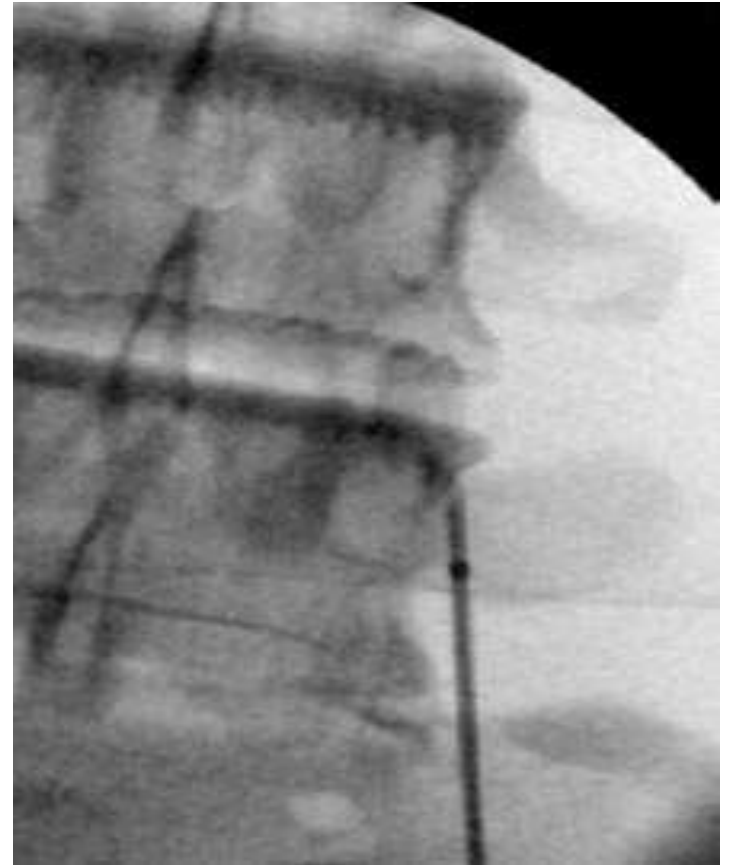
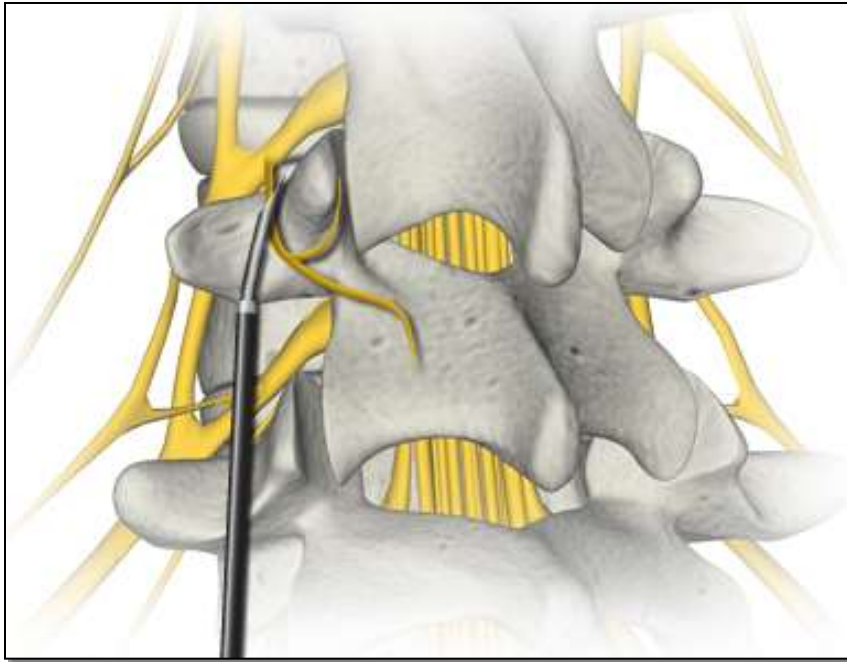


Non-responder ←→ **responder (≥ 50% pain relief)**



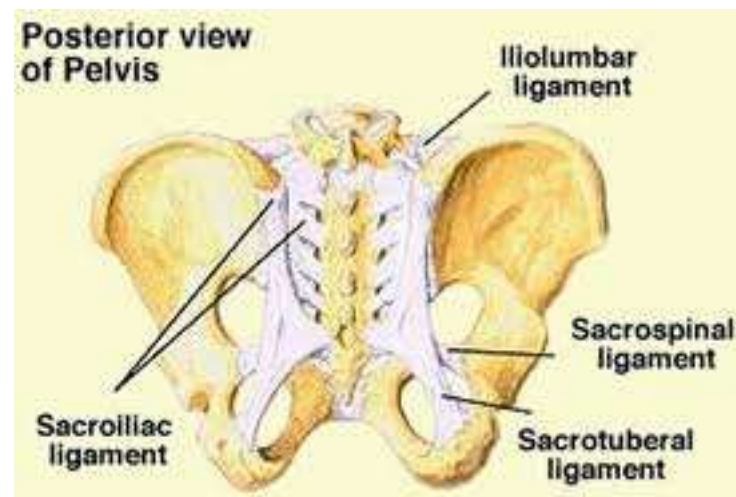
RF-rhizotomy

Lumbar Medial Branch RF Neurotomy (Rhizotomy)



Sacro-iliac related backpain

- Largest axial joint
- 30 % of chronic low back pain is attributed to SIJ Syndrome
- Pain originates in the SI joint and/or surrounding connective tissues
- Best screening test is maximum pain below L5 coupled with pointing to the PSIS or tenderness just medial to the PSIS (60% PPV) (Dreyfuss, Slipman)
- Stress tests: FABER, Shear



Algorithm of SIJ pain

Diagnostic SIJ injection under x-
ray/US control



Responder (PAS>8)

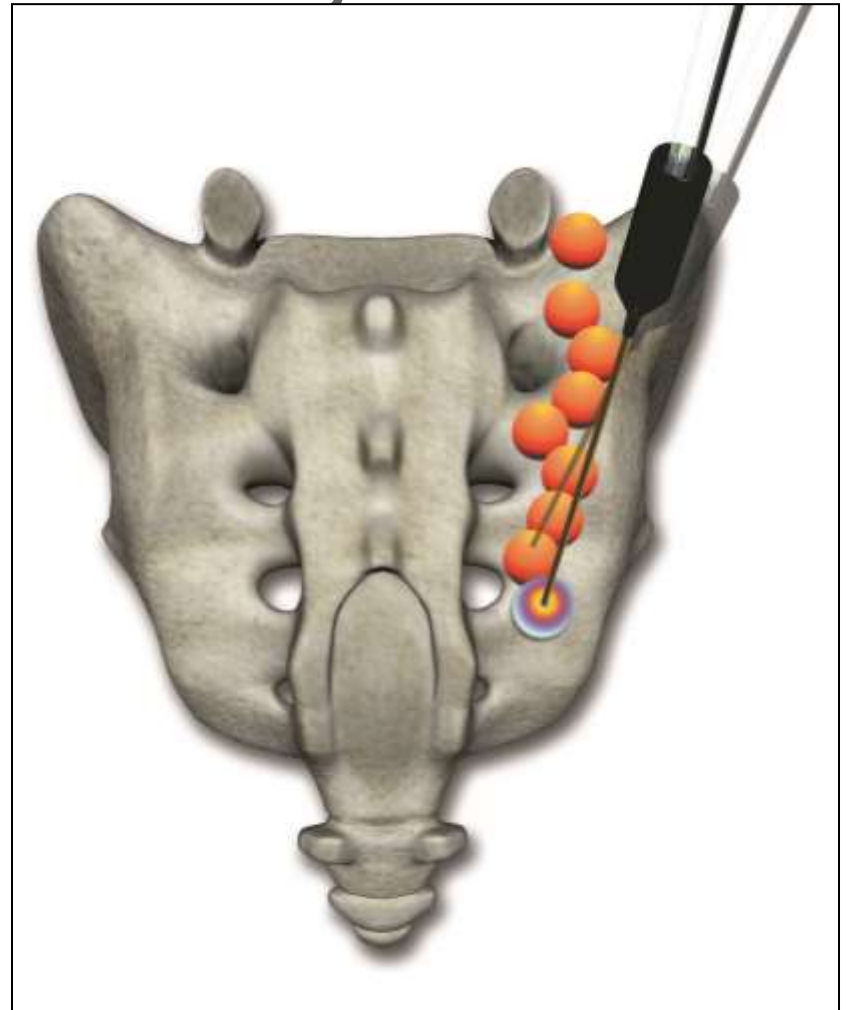


Cooled RF – SIJ Neurotomy



Cooled RF SIJ- Neurotomy

- Cooled RF is used to create large, spherical, forward projecting lesions
- Overlapping lesions are made to intersect any nerves traveling from the sacral foramina to the SIJ

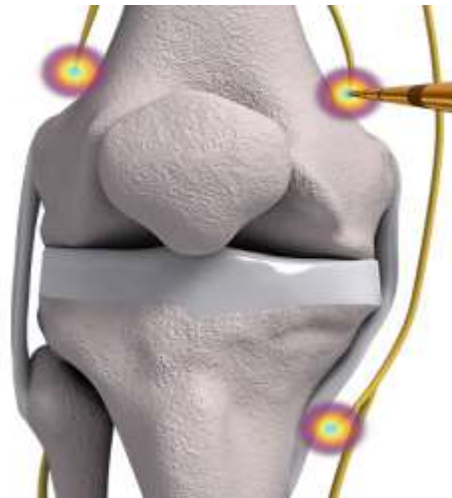


Lumbar epidural

- In radicular BP and (spinal canal stenosis)
- Good short term relief; mixed evidence for long term (6 months – 1 year)
- Stronger evidence for trans-foraminal injections for acute and sub-acute radiculopathy



Selective Radiofrequency denervation/modulation of genicular nerves for refractory knee pain



Chronic Knee Pain

- Prevalence: Knee = 16% (18.7% female; 13.5% male) adults aged 45+ years

Jordan JM, et al. Prevalence of knee symptoms and radiographic and symptomatic knee osteoarthritis in African Americans and Caucasians: The Johnston County Osteoarthritis Project. J Rheumatol, 2007;34(1):172-180

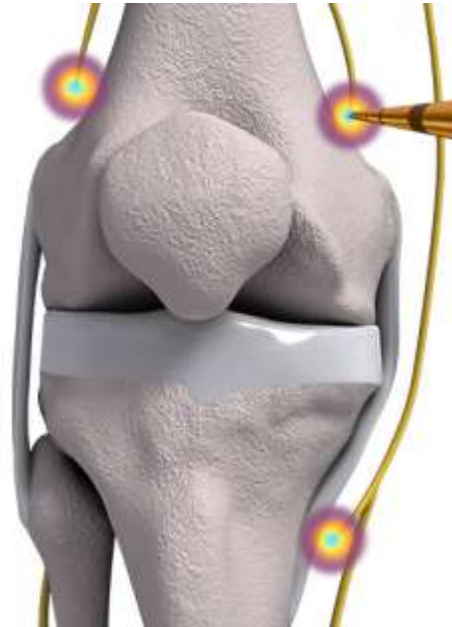
- OA of the knee is 1 of 5 leading causes of disability among adults

Guccione AA, et al. The effects of specific medical conditions on the functional limitations of elders in the Framingham Study. Am J Pub Health 1994;84(3):351-358

- 20% prevalence of chronic knee pain post replacement

Beswick AD, Wylde V, Gooberman-Hill R, et al. What proportion of patients report long-term pain after total hip or knee replacement for osteoarthritis? A systematic review of prospective studies in unselected patients. *BMJ Open* 2012;

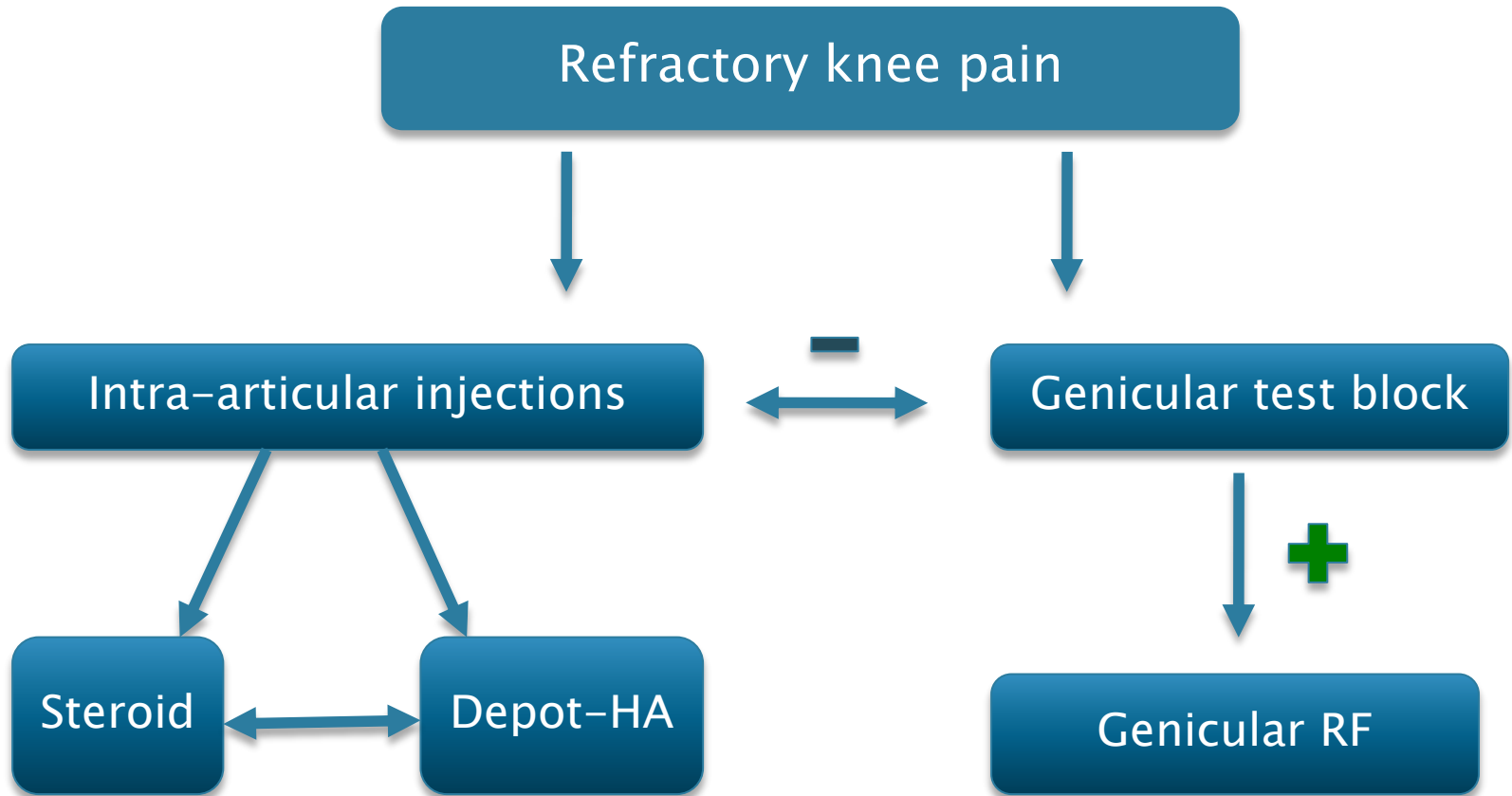
Patient Selection



Patient Selection

- Too young/too old for surgery
- Unfit for surgery
- Failure of conventional treatment options – *physiotherapy, medication, injections, surgery*
- Chronic post replacement pain (20%!)
- Positive response to genicular test block (>50%)

Treatment Algorithm



Genicular RF Case Series

- August 2014 - June 2016
- 26 patients
 - 16 female
 - 10 male
- 15 standard RF (18G, straight 10 mm active tip)
- 11 cooled RF (17G, 4mm active tip)
- Needle placement under U/S guidance with x-ray check

Genicular RF Case Series

Results

- Successful test blocks: 81% (n=21)
- Success rate overall: 70%
- Mean pre-op Oxford Knee Score (OKS): **13/48**
- Mean 6 wks post-op OKS: **23.6**
- Mean 3 month post-op OKS: **27.4**
- Mean 6 month post-op OKS: **30.8**
- Mean % VAS improvement: **63.5%**

Case Study



- 29 yr M, artificial limb technician, referred by knee surgeon
- c/o
 - (L) Anterior-central (burning) knee pain since age 12 (!), non-traumatic. Pain at rest, aggravated by movement
 - Extensively Ix, incl. MRI - NAD
 - Arthroscopic synovectomy in 2005
 - Significant impact on mobility and career
 - Oxford Knee Score (OKS): 11

Case Study

- **Rx**
 - Oramorph 5 mg nocte
 - Tried NSAID's, co-analgesics, Tramadol – no benefit
- **O/E**
 - Normal ROM
 - No PFT, no instability
- **Tx**
 - **Test block** (sup. medial, intermedial, lateral; inf. medial genicular nerves)
 - 100% relief for 24 hours
 - **Genicular standard RF** (18G, 10 mm active tip, 2 lesions per site)

Case Study

- FU by Physiotherapist
 - 4 weeks post RF-Tx
 - OKS: 46
 - PAS: 11
 - Off medication



Case Study

- 6/12
 - OKS 46/48
 - No analgesia
 - Planning snowboarding trip
 - Advised to exercise regular to be able to cope.
-
- 9/12
 - Nurse telephone review.
 - OKS 32/48.
 - 2-3/52 of increasing pain and worried about snowboarding trip.

Case Study

- 11/12 month review Physio
- Managed Snowboarding holiday with no problems. Admitted was concerned about spoiling holiday and seeking whether injection could have been used “in case” of symptoms worsening
- OKS – 42/48
- Continues with strength based exercise 1-2 weekly.
- No analgesia.
- Continues with jogging.

Refractory Hip Pain

- *Cooled RF sensory denervation*



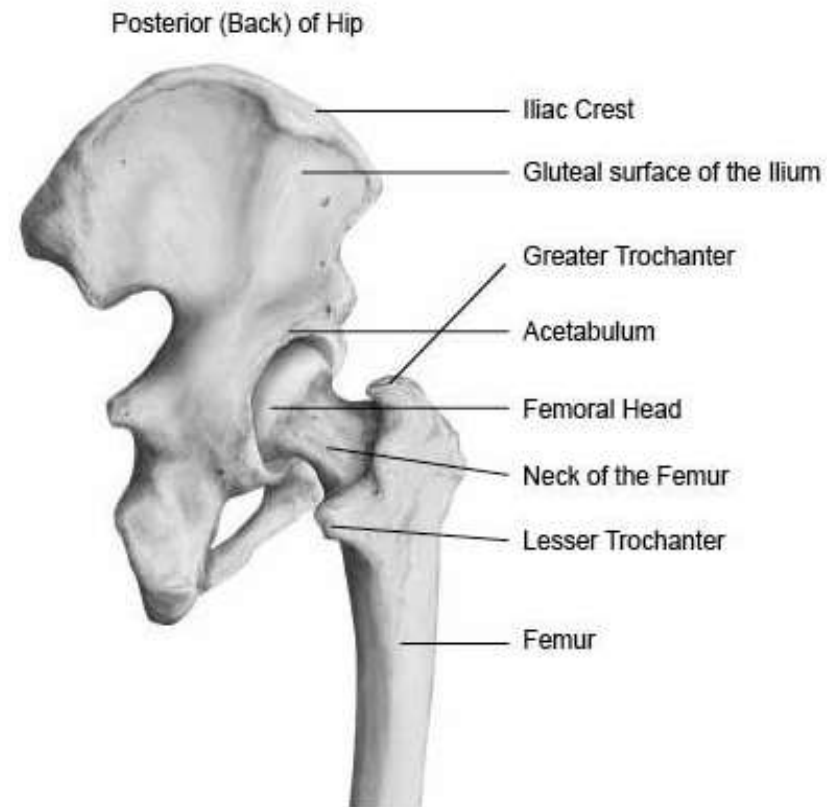
Chronic Hip Pain

- Prevalence:

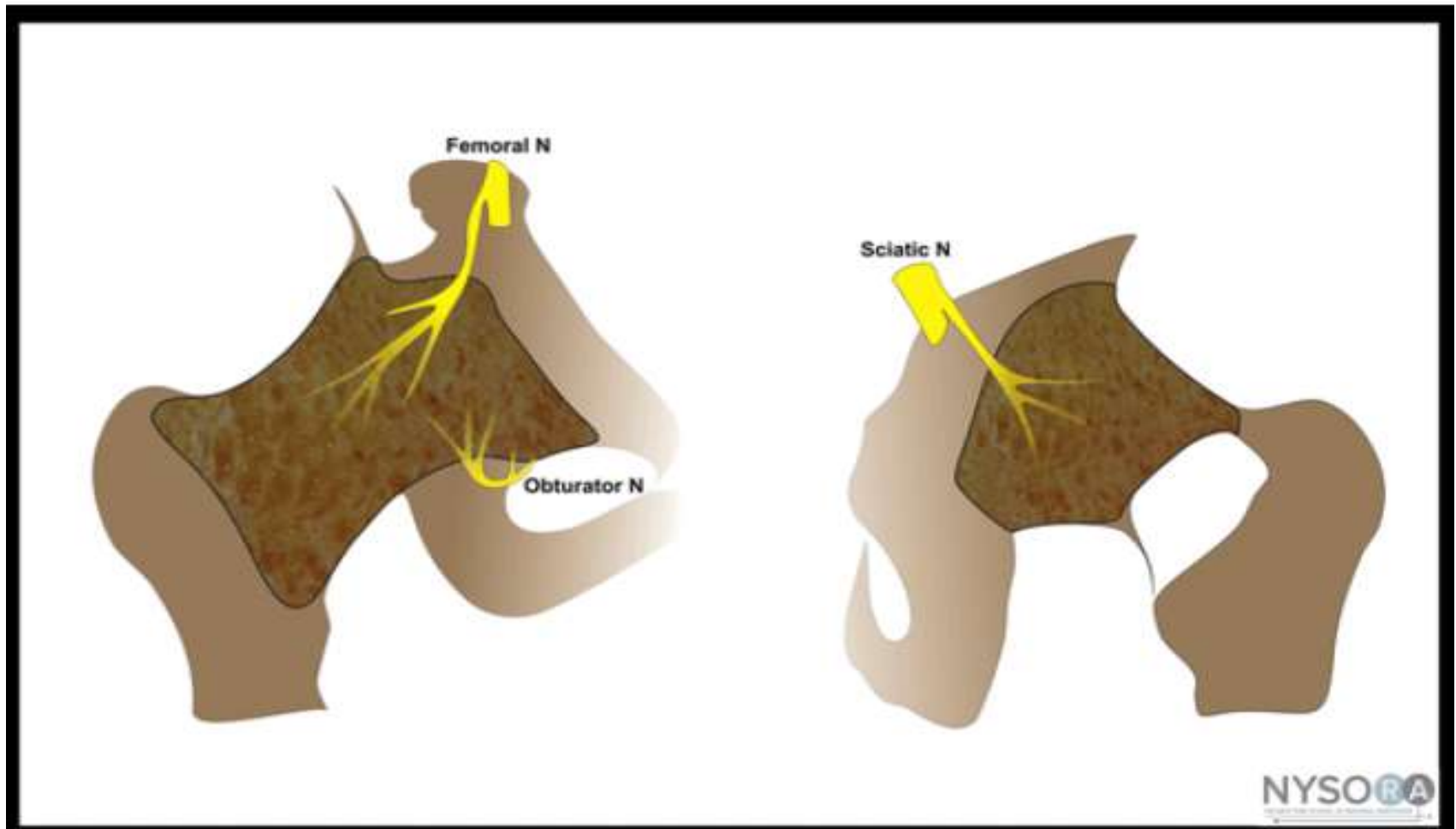
- Hip joint pain is a common condition with an estimated prevalence of 7% in men and 10% in women, in a population sample aged over 45
 - *Birrell F, et al. Association between pain in the hip region and radiographic changes of osteoarthritis: Results from a population-based study. Rheumatology, 2005;44:337-41.*
- Rates of chronic pain @ 1 yr, THR 38%
 - *Spencer S. Liu, MD. et al. A Cross-Sectional Survey on Prevalence and Risk Factors for Persistent Postsurgical Pain 1 Year After Total Hip and Knee Replacement. Reg Anesth Pain Med 2012;37:415-422*
- Symptomatic osteoarthritis of the hip affects 4.4% of adults ≥55 years of age (3.6% female; 5.5% male)
 - *Lawrence RC, Felson DT, Helmick CG, et al. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Part II. Arthritis Rheum 2008;58(1):26–35.*

Frequent causes of hip pain

- Degenerative Joint Disease (DJD)
- Avascular Necrosis (AVN)
- Labral tears
- Femoral-Acetabular Impingement (FAI)
- Tumor



Innervation of the hip joint is regionally specific



Birnbaum K, Prescher A, Hessler S, Heller KD. The sensory innervation of the hip joint – An anatomical study. *Surg Radiol Anat* (1997)19; 371-375.

Neuroanatomy of the anterior hip joint

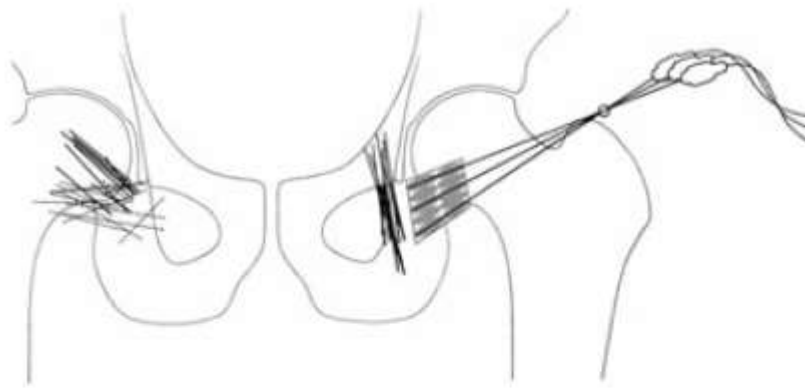
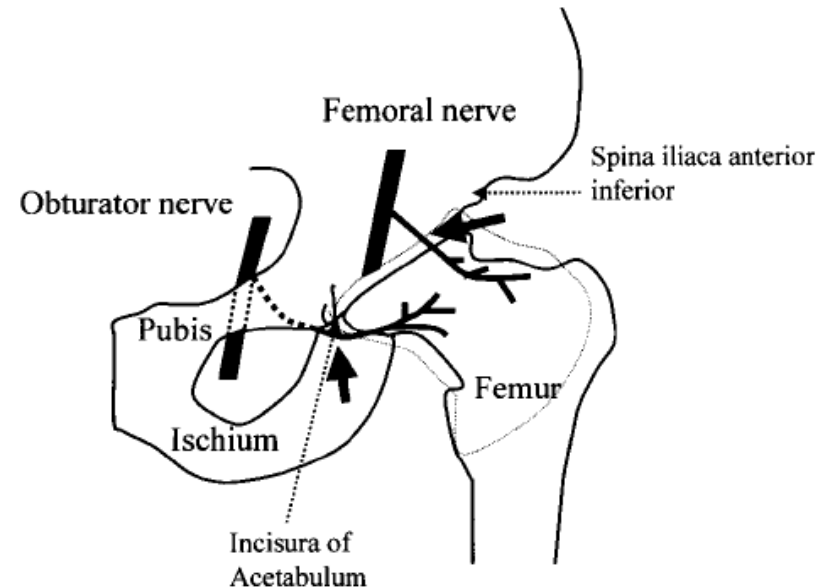
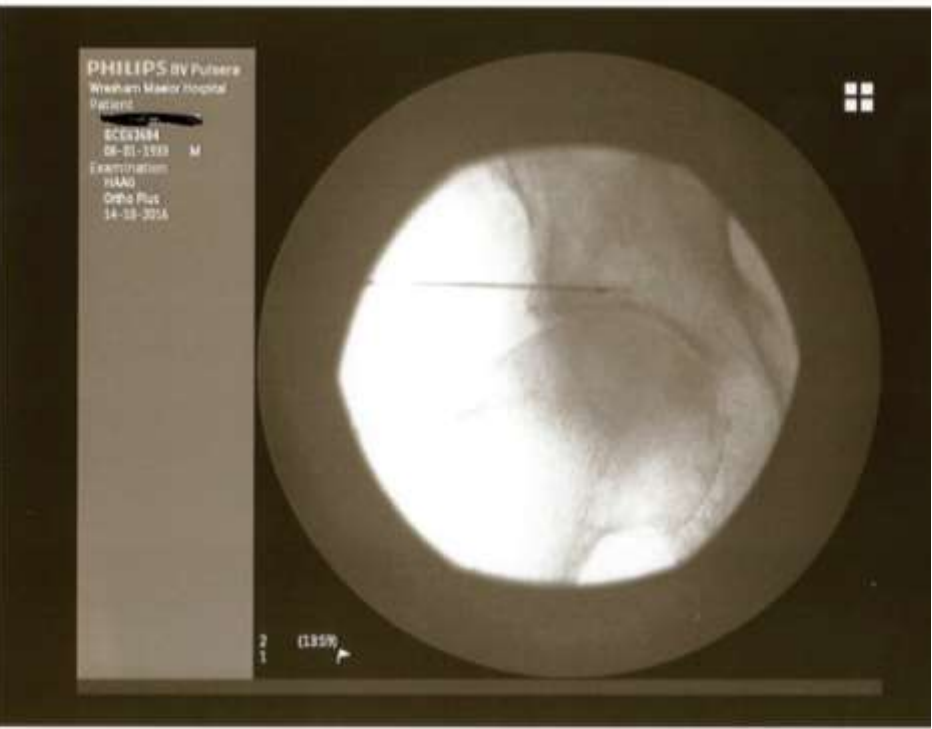
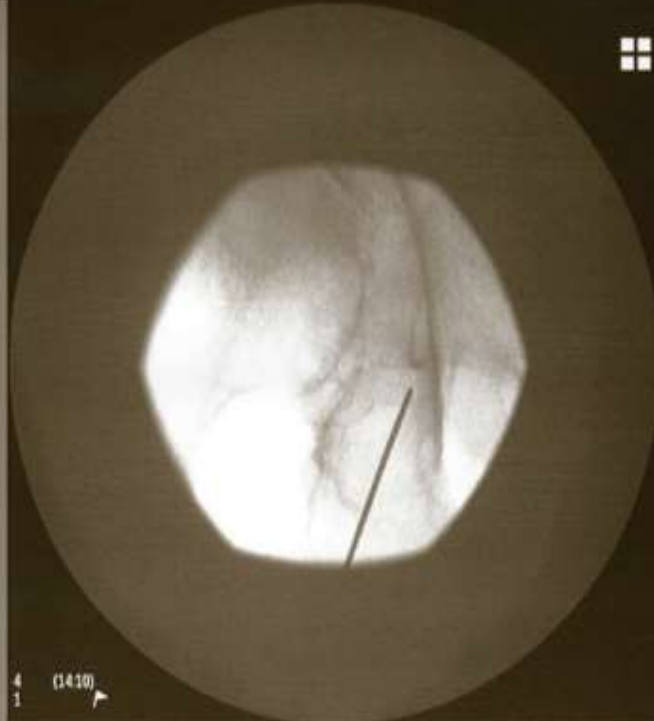


Figure 1 Articular branches of the obturator nerve and target region for radiofrequency denervation. Covering the right hip are tracings of the anteroposterior projections of the metal wires used to mark the location of the articular branches in cadavers. In each cadaver, articular branches were spread across band-like areas. The bold lines represent the upper boundary of each area, and the dotted lines represent the lower boundary. The stem of each band was located below the teardrop shape of the inferior end of the acetabulum. Over the left hip, the matrix of lesions required to coagulate the articular branches is illustrated. Its medial margin lies opposite and below the teardrop silhouette of the acetabulum. For reference, tracings of wires covering the obturator nerve have been depicted.





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Washam Manor Hospital
Patient
BCC07664
08-01-1977 M
Examination
HAAS
Ortho Plus
14-10-2016



4 (14.10)
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Summary

- Non-surgical treatment options increasingly relevant
 - Aging society
 - Clinical practice and patient expectation more risk averse
 - Economics - cost of surgery and after-care higher

Thank You!

A decorative graphic consisting of a solid red horizontal bar that spans the width of the slide. Below this bar, on the right side, there are several horizontal lines in white and light red, creating a layered, stepped effect.