Hip and Related Lower Extremity Radiating Pain

ICD-9-CM codes: 355.0 Lesion of sciatic nerve

ICF codes: Activities and Participation Domain codes:
- d4153 Maintaining a sitting position (Staying in a seated position, on a seat or the floor, for some time as required, such as when sitting at a desk or table.)

Body Structure code:
- s7408 Structure of pelvic region, other specified
- s7508 Structure of lower extremity, other specified

Body Functions code:
- b28015 Pain in lower limb
- b2804 Radiating pain in a segment or region

Common Historical Findings
- Line of pain in buttock, posterior thigh, and calf; aching in buttock
- Symptoms worsen with driving and sitting on involved buttock (“wallet sign”)

Common Impairment Findings - Related to the Reported Activity Limitation or Participation Restrictions:
- Symptoms are reproduced with SLR and hip adduction - altered with ankle dorsiflexion and plantar flexion
- Symptoms are reproduced with piriformis stretch and palpation/provocation of piriformis

Physical Examination Procedures:

SLR / Hip Adduction

Performance Cues:
Raise leg to first sense of resistance- utilize a combination of additional hip flexion and hip adduction in an attempt to reproduce the reported symptoms - alter the symptoms with ankle dorsiflexion and plantar flexion
Piriformis Stretch

**Performance Cues:**
Stand on opposite side of involved hip
Flex hip to approximately 90° - fully externally rotate hip - horizontally adduct and flex the hip
(at about a 45° angle) simultaneously

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Hip and Related Lower Extremity Radiating Pain:
Description, Etiology, Stages, and Intervention Strategies

The below description is consistent with descriptions of clinical patterns associated with the vernacular term “Piriformis Syndrome”

Description: Contracture or spasm of the piriformis muscle causing compression of the sciatic nerve resulting in neuritis of one or both branches of the sciatic nerve. The patient may experience buttock pain with or without lower extremity pain and paresthesias extending to, but rarely below, the knee; as well as tenderness to palpation over the piriformis muscle.

Etiology:
Postural Factors: Prolonged or frequent single limb stance, crossed-leg sitting, sitting on one foot, prolonged hip external rotation – such as sleeping with one lower extremity in external rotation, unilateral coxa vara, pronated foot.
Trauma: Femoral neck fracture, sudden starts/stops – such as in playing tennis; direct trauma to the piriformis muscle.
Surgery: May present following a total hip arthroplasty
Diseases: Arthritis, tuberculosis, bone tumors may cause piriformis muscle contractures

Acute Stage / Severe Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: b28015 SEVERE pain in lower limb

- The reported symptoms are reproduced with a stretch to the piriformis muscle (i.e., hip horizontal adduction, flexion (above 60°), and external rotation – or with – hip horizontal adduction, flexion (below 60°) and internal rotation, aka as FAIR)
- The reported symptoms are also reproduced with lower limb tension tests
  Example of lower limb tension tests include:
  - SLR with ankle dorsiflexion
  - Freiberg’s test (passive internal rotation of the hip with the thigh extended in prone)
  - Laségue’s sign (hip and knee flexed to 90 degrees in supine and the knee is then extended until pain is reported or knee is fully extended)
- The reported symptoms are also reproduced with provocative palpation of the piriformis muscle - typically palpated lateral to the sciatic notch to the greater trochanter
- The reported symptoms may also be reproduced with resisted tests to the piriformis muscle, such as the Pace test (resisted active abduction of thighs in seated position)
- The patient may present with any or all of the following biomechanical abnormalities: ipsilateral shortened lower extremity, anterior rotation of sacrum in the contralateral oblique axis (deep ipsilateral sacral sulcus), excessive pronation of ipsilateral foot, in supine- the involved lower extremity may rest in excessive external rotation
- Activities that stretch the piriformis and the sciatic nerve (e.g., exiting our of a car) aggravate the symptoms
- The patient may present with dyspareunia or rectal pain with bowel movements
Sub Acute / Moderate Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: b28015 MODERATE pain in lower limb

As Above – except:

- Activities that stretch the piriformis and the sciatic nerve only intermittently aggravate the symptoms

Settled Stage / Mild Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: b28015 MILD pain in lower limb

As Above – except:

- Activities that stretch the piriformis and the sciatic nerve only aggravate the symptoms after prolonged end-range positions

Intervention Approaches / Strategies

Acute Stage / Severe Condition

Goals: Decrease pain
Increase hip rotation range of motion

- Manual Therapy
  Soft tissue mobilization using very slow, inhibitory pressure to the piriformis muscle – followed by gentle contract/relax, manual passive stretching
  Soft tissue mobilization to areas or potential entrapment of the sciatic nerve of the posterior thigh

- Therapeutic Exercises
  Instructions in gentle piriformis stretch.
  Nerve mobility exercises for the sciatic nerve

- Re-injury Prevention Instruction:
  Modification or avoidance of activities/positions that are aggravating symptoms, such as prolonged sitting with an overstuffed wallet in the back pocket of the involved buttock
Sub Acute Stage / Moderate Condition

Goals: Increase flexibility of piriformis muscle to normalize hip rotation range of motion
Normalize mobility of the sciatic nerve
Normalize pelvic girdle and lower extremity lower extremity biomechanics

- Approaches / Strategies listed above

- Manual Therapy
  Procedures to restore normal pelvic girdle symmetry

- Therapeutic Exercises
  Provide stretching exercises for relevant pelvis and lower extremity tight musculature – typically the hip external rotators and calf muscles
  Provide strengthening exercises for relevant pelvis lower extremity weak musculature – typically the back extensor and hip flexor muscles and hip abductor muscles

- External Devices (Taping/Splinting/Orthotics)
  Foot orthotics may be useful to correct excessive pronation

Settled Stage / Mild Condition

Goal: Return to desired activity or occupation

- Approaches / Strategies listed above

Intervention for High Performance / High Demand in workers/ Athletes

Goals: Return to desired sport or occupation

- Approaches / Strategies listed above
Selected References


