

# AVULSION FRACTURES OF THE ISCHIAL TUBEROSITY OF THE PELVIS



## ■ ■ ■ Description

Avulsion fractures are separations of bone due to pulls of muscle-tendon units. These may occur in fully grown athletes, although in the pelvis they tend to occur more commonly in skeletally immature (growing) athletes. This is due to the relative weakness of the growth plate as compared with the bone, muscle, and tendon. The growth plate is an area of relative weakness, and injury to it commonly occurs with repeated stress or vigorous exercise. An avulsion in the growing athlete thus is a separation of bone at the growth plate. A similar injury in adults is a muscle-tendon strain. Because the pelvic growth plate closes by age 20 to 25, this problem is uncommon after these ages.

The ischial tuberosity is the bony attachment of the hamstring tendons. The hamstring muscles extend (straighten) the hip and bend the knee. They are also stretched when the hip is bent and the knee is straight (the hurdler's position).

## ■ ■ ■ Common Signs and Symptoms

- A slightly swollen, warm, and tender area of the pelvis at the buttocks
- Pain with activity, especially stretching the muscle (bending the hip and straightening the knee) or having the muscle contract to perform its function (forcefully straightening the hip or bending the knee)
- Pain with walking (often walking with a limp)
- Pain with sitting
- Pop heard in the area at the time of injury
- Muscle spasm in the back of the thigh
- Crepitation (a crackling sound) when the tendon is moved or touched
- Bruising in the thigh 48 hours following the injury
- Loss of fullness of the muscle
- Weakness of bending the knee or straightening the hip

## ■ ■ ■ Causes

- A powerful contraction of the hamstrings muscles, with force exceeding the strength of the growth plate.

## ■ ■ ■ Risk Increases With

- Sports that require quick starts (sprinting or running races and other track events, racquetball, badminton)
- Sports that require jumping (basketball and volleyball)
- Kicking sports, gymnastics, and water skiing
- Contact sports (soccer or football)
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play
- Previous thigh, knee, or pelvis injury
- Poor technique
- Poor posture

## ■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
  - Hip and knee muscle strength, endurance, and joint flexibility
  - Cardiovascular fitness

## ■ ■ ■ Expected Outcome

A complete return to sports is expected with appropriate management.

## ■ ■ ■ Possible Complications

- Recurrent symptoms, especially if activity is resumed too soon
- Prolonged healing time if usual activities are resumed too early
- Nonunion (no healing of bone)
- Malunion (healing in a bad position)
- Weakness of the hip and knee
- Pain with sitting

## ■ ■ ■ General Treatment Considerations

Initial treatment consists of medications and ice to relieve pain, stretching and strengthening exercises (particularly of the hamstring muscles), and modification of activities. The exercises can all be carried out at home for acute cases, or a referral to a physical therapist or athletic trainer may be necessary for further evaluation or treatment. Use of crutches while limping may be helpful. Relative rest, particularly avoiding the activity that caused the problem, is beneficial. Some feel surgery is beneficial to re-attach the bone, though this is controversial at this time. If pain and discomfort persist, with an inability to sit comfortably after nonoperative treatment, excision of the bony piece can be performed.

## ■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen, are often recommended to reduce inflammation (do not take within 7 days before surgery). Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur. Other minor pain relievers, such as acetaminophen, may also be used.
- Pain relievers may be prescribed as necessary. Use only as directed and only as much as you need.

## ■ ■ ■ Heat and Cold

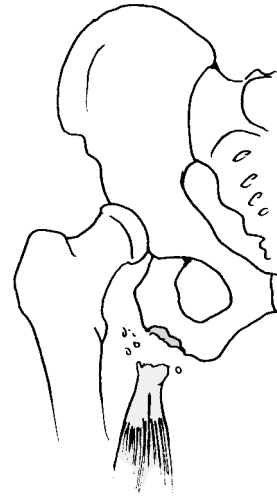
- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to

15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.

- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

■ ■ ■ **Notify Our Office If**

- Symptoms get worse or do not improve in 4 weeks despite treatment
- You have a fever above 101°F
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)



**Figure 1**

From Shankman GA: Fundamental Orthopaedic Management for the Physical Therapy Assistant. St. Louis, Mosby Year Book, 1997, p. 206.

Notes:

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Notes and suggestions