STEVEN CHUDIK MD
SHOULDER, KNEE & SPORTS MEDICINE

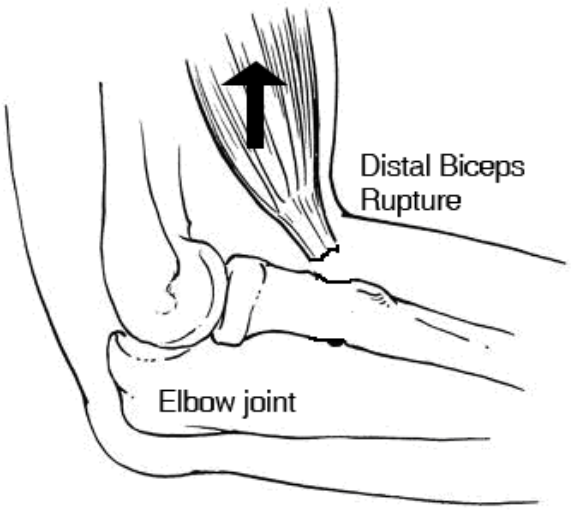
Biceps Tendon Rupture (Distal)

Distal biceps tendon rupture is a complete tear of the tendon of the biceps muscle from its attachment site at the elbow. The biceps muscle attaches to bone by its tendon (rope-like structure) to the top of glenoid (socket) bone at the shoulder and the radius (forearm) bone near the elbow.

This injury occurs most frequently when someone forcefully contracts their biceps trying to lift or catch a heavy object. At the time of injury, the biceps tendon pulls off the radius bone just below the elbow, causing the biceps muscle and tendon to roll up the arm like a window shade. Sometimes, the biceps tendon may maintain another connection to the forearm fascia (thin but firm tissue envelope surrounding the muscle compartments) by a structure called the lacertus fibrosus. This keeps the biceps from retracting up the arm and can cause some physicians to overlook the injury.

The biceps muscle is important for bending the elbow and rotating the forearm. Because there are other muscles that bend the elbow, rupture of this tendon results in a small loss of elbow bending strength. This biceps muscle is, however, the main muscle to forcibly supinate the forearm (rotate to a palm up position). When it is ruptured, forearm supination strength is greatly diminished. Thus, a complete distal biceps rupture without retraction or significant partial rupture can be easily detected by pain and weakness when trying to supinate the forearm against resistance.

Retraction of distal Biceps with upper arm deformity



Torn end of distal Biceps tendon

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Frequent Signs and Symptoms

- Pain, tenderness, swelling, warmth, or redness at the elbow, usually in the front of the elbow
- Pain that is worse with elbow function (particularly rotation of the forearm to a palm up position) against resistance and when straightening the elbow
- Bulge can be seen and felt in the upper arm as the muscle retracts
- Bruising in the elbow or forearm after 24 hours
- Limited motion of the elbow
- Weakness with attempted elbow bending (lifting, carrying) or rotation of the wrist (such as when using a screwdriver)

Etiology (Causes)

- Sudden force straightening the elbow while the biceps is contracted and the elbow bent

Risk Factors

- Sports that involve contact, as well as throwing sports, gymnastics, weightlifting, and bodybuilding
- Heavy labor
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play
- Anabolic steroid use

Prevention

- Appropriately warm up and stretch before practice or competition.
- Allow time for adequate rest and recovery between practices and competition.
- Maintain appropriate conditioning:
    - Elbow flexibility
    - Muscle strength and endurance
    - Cardiovascular fitness
- Use proper technique.

Outcomes

Surgery is usually required within 3 weeks of injury to reattach the tendon to the bone to optimize recovery of strength and function and prevent late pain. Four to six months of rehabilitation are necessary before a return to sports or heavy lifting. If the patient works hard, full strength and the majority of muscle bulk can usually be recovered.

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Potential Complications

- Weakness of elbow bending and forearm rotation, especially if treated non-surgically
- Prolonged disability and pain without repair
- Re-rupture of the tendon after surgery
- Risks of surgery, including infection, bleeding, injury to nerves (especially those that provide sensation to the outer part of the forearm), heterotopic ossification (abnormal bone formation in soft-tissues), elbow or forearm rotational stiffness or loss of motion, and weakness of elbow bending or forearm rotation

Treatment Considerations

Treatment requires surgery within 3 weeks of injury to reattach the tendon back to bone. The resultant weakness without surgery may be acceptable for older sedentary individuals but is not acceptable to athletic and active individuals. Furthermore, active individuals may experience chronic biceps discomfort with use if not repaired.

Surgical treatment usually consists of a single incision over the front of the elbow, retrieving the tendon and sewing it back to bone. Suture anchors (anchors with stitches) are often used to attach the suture to the bone which is then passed through the tendon and tied. After surgery, protective immobilization in a splint/elbow brace (for 6 weeks) and physical therapy (for 3 - 4 months) to regain elbow and forearm motion and strength are needed.

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are sometimes recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers are usually prescribed after surgery. Use only as directed and only as much as you need.

Modalities

- Cold is used to relieve pain and reduce swelling and inflammation after the injury. Cold can be applied to the injury for 20 minutes every 3 to 4 hours as needed. Be careful not to apply the ice directly on the skin and do not leave the ice on too long as it can cause severe permanent injury to the skin.

Notify my office if symptoms get worse