CHONDRAL INJURY

Description

A localized injury affecting a surface of the joint that involves breaking, with or without separation, of a segment of articular cartilage without injury to the underlying bone. This can occur in any joint, though it occurs most commonly in the knee, followed by the ankle, elbow, and shoulder. It occurs most often in adolescent males. This is a difficult problem to treat because cartilage has a limited ability to heal.

Common Signs and Symptoms

- Swelling, pain; possibly an aching, giving way, and "locking" or catching of joints
- Feeling a piece of cartilage floating in the joint
- Crepitation (a crackling sound) within the joint with motion
- Often, injuries to other structures within the joint, such as tears of the ligament and meniscus cartilage, due to the great force necessary to cause this injury

Causes

Impaction, avulsion, shearing, and rotational forces caused by direct trauma or injury to the joint.

Risk Increases With

- Contact and collision sports and sports in which playing on and possibly falling on hard surfaces may occur
- Adolescence
- Other knee injury, such as anterior cruciate ligament (ACL) or meniscus tear
- Poor physical conditioning (strength and flexibility)

Preventive Measures

- Wear protective equipment (knee pads) to soften direct trauma.
- Wear appropriate-length cleats for playing surface.
- Appropriately warm up and stretch before practice and competition.
- Maintain appropriate conditioning:
  - Flexibility, strength, and endurance of muscles around joints
  - Cardiovascular fitness

Expected Outcome

Small areas of chondral injury may not cause problems. Large and deep chondral injuries are more of a problem because cartilage does not heal. It is suggested that these injuries may go on to develop arthritis. Usually the symptoms resolve with appropriate treatment, which can include removal of or fixing loose pieces of cartilage.

Possible Complications

- Frequent recurrence of symptoms, resulting in chronic pain and swelling
- Arthritis of the affected joint
- Loose bodies with locking of affected joint

General Treatment Considerations

Initial treatment consists of medications and ice to relieve pain and reduce the swelling of the affected joint. For the knee or ankle, walking with crutches until you walk without a limp is often recommended (you can put full weight on the injured leg). Range-of-motion, stretching, and strengthening exercises may be carried out at home, although referral to a physical therapist or athletic trainer may be recommended. Occasionally your physician may recommend a brace, cast, or crutches (for the knee or ankle) to protect or immobilize the joint. For those with persistent pain after conservative treatment or loose fragments within the joint, surgery is usually recommended. Surgery may include arthroscopy to remove the loose fragments, procedures to stimulate healing into the space left empty by the loose fragment, and when possible, procedures to re-attach the fragment (if large enough and not deformed). After immobilization or surgery, stretching and strengthening of the injured, stiff, and weakened joint and surrounding muscles (due to the injury, surgery, or the immobilization) is necessary. This may be done with or without the assistance of a physical therapist or athletic trainer.

Medication

- 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 often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Strong 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 2 weeks despite treatment
- Any of the following occur after surgery:
  - Signs of infection: fever, increased pain, swelling, redness, drainage, or bleeding in the surgical area
  - Pain, numbness, or coldness in the foot or hand
  - Blue, gray, or dusky color appears in the toenails or fingernails
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

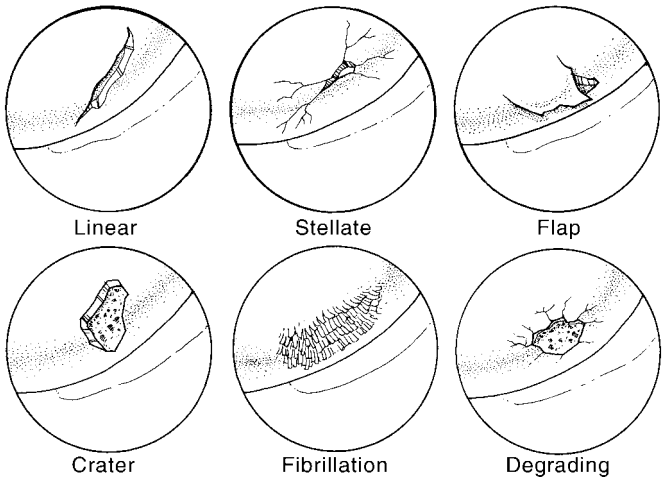

Figure 1
From Miller MD, Cooper DE, Warner JJP: Review of Sports Medicine and Arthroscopy. Philadelphia, WB Saunders, 1995, p. 34.

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Notes and suggestions