

Fracture Management

Osteogenesis imperfecta (OI) is a disorder that is characterized by frequent bone fractures. As a result, people with this disorder may spend a considerable amount of time immobilized, most often in a cast. Understanding the different methods that are used to immobilize a fracture as well as the proper techniques for taking care of a cast will enable them to play a more active role in their recovery.

Methods of Immobilization

Correct immobilization is critical in promoting proper healing of fractures, relieving pain, and allowing some freedom of movement during the healing process. The type of treatment that is required for each individual depends on the particular body part that is affected and the type of injury. The following is a brief listing of the different forms of immobilization that may be used:

- *Plaster casts* are most commonly used for initial treatment of a fracture. Plaster is used because it is pliable and economical. It is generally used in the acute stage of fracture healing because it is easily molded to the contour desired by the physician to hold the fracture in the correct position.
- *Fiberglass casting* is lighter and stronger and the exterior is more water resistant than plaster. If the cast becomes wet, it will not change form, but the padding and lining beneath it will remain wet and will irritate the skin.
- Check with your physician if this occurs.
- When a fiberglass cast is used in conjunction with a *GORE-TEX Cast Liner*, the person can participate in activities involving water—no special drying procedures are necessary after the cast becomes wet.
- *Bracing* may be used to maintain a fracture while allowing adjacent joints the freedom for movement.
- *Splinting* is used to immobilize and maintain a particular position of a bone or joint. The splints are secured to the limb with elastic bandages.
- *Traction* is used to regain alignment of a fracture by applying force to the body part. It also can relieve muscle spasms while the bone is healing. Skeletal traction is applied directly to the bones using pins, wires, or screws.

Immobilization should be kept to a minimum and weight bearing or other functional use of the affected extremity should be encouraged as quickly as possible to prevent bone loss. Casting and splinting are usually administered by an orthopedic technologist, working under a physician's directions, who has been trained in proper cast application and has an understanding of OI.

General Precautions and Care of a Cast

Once a cast has been applied, taking the following precautions will help ensure that the person with OI will get back to normal as quickly as possible:

- Follow the doctor's instructions carefully regarding physical activity.
- Move fingers or toes frequently to reduce swelling, prevent joint stiffness and maintain circulation.
- Do not let the cast get wet; this may cause softening of the cast and irritation to the skin.
- Keep dirt, sand, powder, and lotions away from the inside of the cast. Do not pull out the cast padding.
- Do not use oily substances (skin lotions) or powder in or around the edges of the cast. Oil softens skin and can lead to skin breakdown as well as softening of the cast. Powder will "cake" under the cast and cause skin breakdown.
- Rubbing alcohol should be applied to dry and toughen the skin. Rub the skin under all edges of the cast with the rubbing alcohol four times a day the first week, then as needed on irritated areas.
- If a cast walking shoe is prescribed, it should be worn at all times except when sleeping.
- Avoid bumping or knocking the cast against any hard surface.
- Do not use a foreign object, such as a nail file, to scratch under the cast, since it may break the skin and cause an infection. If itching is a problem, the doctor should be advised.
- Never stuff cotton or toilet tissue under the margin of the cast, since it may fall into the cast or decrease circulation and cause serious medical problems. (Be sure children do not put toys, pencils, crayons, etc., in their cast.)

- Elevate the extremity during the first few days after injury. Elevation helps reduce swelling and discomfort. Applying an ice pack to the injured area may also help.
- Do not break off rough edges or trim the cast yourself; always contact your doctor.
- Never remove a cast yourself. Your doctor has a special tool to do this.
- Inspect the cast daily and contact the doctor if any problems arise (e.g., if the cast becomes loose, broken, cracked, or soft).
- When moving a child with OI who is wearing a cast, be sure to lift and move the child while supporting the cast because the additional weight may create leverage and injure a body part near the end of the cast. Also, do not lift the child by holding only the cast.
- Finally, use common sense. Protect the cast from damage so that it can protect the injury and give it a chance to heal.

After the cast is applied, be sure to ask the doctor for a *written* list of instructions that can be referred to when taking care of the cast. Some of the problems that may occur include the following:

- Pain that is unrelieved by medication the doctor has prescribed.
- Pressure beneath the cast indicating that it may be too tight.
- The limb feels cold or numb; the skin near the cast appears whitish-blue; or you notice an unusual odor coming from the cast.
- Pain, numbness, or a continued tingling of the casted fingers or toes.

The information about cast care is provided by Nancy B. White, Orthopedic Technologist, Kingsport, TN

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