

## MYOSITIS OSSIFICANS

Essentially, *myositis ossificans* (heterotopic ossification) is a condition in which a calcium mass or bone-like structure forms within muscle tissue as a separate body. It generally develops out of a nonspecific healing response to muscle or periosteal tissue injury delivered as a series of repeated light insults or a single severe trauma to a specific site. If the injury is to periosteal tissue, the new bone-like formation is sometimes called an exuberant callus, since it is usually organized around the ossification of a hematoma found beneath the periosteum and extends out into the muscle tissue. The bone-like mass that finally forms, regardless of the type of tissue injured, may be connected to the supporting regular bone shaft by an osseous pedicle or a fibrous septum. However, it is not unusual for the mass to lie within the muscle itself, independent of any regular bone structure, especially when it has resulted from a muscle tissue injury.

Intramuscular ossification is most frequently found in the thigh, upper arm, or elbow. The ossification first appears as minute osteocartilaginous spicules that lie parallel to adjacent muscle fibers, later coalescing to form irregular bony masses that gradually become rounded, homogeneous and dense. This tissue has been reported to sometimes simulate the formation of osteogenic sarcoma on a microscopic level. This developmental process usually ceases within three to six months following onset, and spontaneous regression of the osseous mass has been noted to

occur frequently, with the osseous mass sometimes completely disappearing.

There is a rare form of progressive *myositis ossificans* in which in its advanced stage muscles and fasciae are transformed into immobile structures that have the same consistency as bone. The cause of this disease is unknown, but it is most common in males and makes its initial appearance as early as the first year of life. The muscles of the neck and back are usually the first to be involved with ossification proceeding from one muscle group to another. Eventually the patient becomes bedridden and voluntary motion of any of the extremities may become impossible.

### Treatment

The bony formation of *myositis ossificans* has been shown to be susceptible to continuous or pulsed ultrasound treatment, applied at patient tolerance levels from 1.5 to 1.8 W/cm<sup>2</sup>, with the unit set to provide a pulsed waveform. Treatment time usually depends on the size of the treatment site, six minutes generally being adequate for areas ranging in size from one to six square inches. Sometimes, only a single treatment session will relieve all the pain associated with a small formation, and only a few sessions will relieve the pain from a larger one.

Trigger points may add to the general pain experienced by the patient suffering *myositis ossificans*. Any that are present should be treated appropriately to afford the patient optimum relief.