

Timing Key in Heterotopic Ossification Surgery

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WASHINGTON — Heterotopic ossification of the elbow usually occurs within 6 weeks of fractures and other injuries, and surgery is best timed at about 6 months after the problem becomes apparent, Thomas Fischer, M.D., said at the annual meeting of the American Academy of Orthopaedic Surgeons.

While most heterotopic ossification forms as a result of trauma, it also can develop in patients who have had repetitive interventions on the elbow or prolonged immobilization, as well as in patients with ankylosing spondylitis or hypertrophic osteoarthritis, noted Dr. Fischer of Indiana University Medical Center and Indiana Hand Center, Indianapolis.

Physicians have routinely delayed surgical resection for years, but now it appears that initiating surgery at 6 months—or possibly even earlier—is ideal, he said.

Muscle atrophy, cartilage degeneration, and capsular and ligamentous contracture tend to be less severe with earlier intervention. Resection is easier, and patients recover faster. Patients must have enough time before surgical resection, however, to recover from the often numerous orthopedic injuries and trauma—either local or systemic—that cause the heterotopic ossification, and the area must be well demarcated, he said.

Six months gives most patients time to resolve many of their injuries, Dr. Fischer explained in a later interview. It gives the extremity time to resolve injury edema, and by 6 months, the heterotopic ossification is not usually going to grow in extent or spread; “the limits of its area are well determined.”

“My partner does [surgery] at 3-4 months,” he said. Dr. Fischer told physicians at the meeting that he prefers to wait 6 months. Patients need to be recovered and cooperative enough to participate in an “immediate and fast-paced postop functional aftercare program,” Dr. Fischer said. It’s helpful if therapists get involved preoperatively, he noted, partly to assess patients’ ability to persist with exercises after surgery.

The incidence of heterotopic ossification has varied significantly from study to study and by the type of precipitating injury or trauma. The literature indicates that about 3% of those with simple dislocation, 1%-3% of those with burns, 16%-38% of those with fracture and dislocation, and 76%-89% of those with head injury and elbow trauma, for instance, develop it.

“I don’t have a good number to quote my patients for what their risk of [heterotopic ossification] is, but whenever I see fractures and injuries around the elbow, I tell them that the 2- to 6-week period after injury is the chief period of incidence,” said Dr. Fischer, adding that most of his patients with heterotopic ossification have been critically injured. “I personally haven’t seen the onset of [heterotopic ossification] after 6 weeks.”

The mere presence of heterotopic ossification is “not necessarily an indication for surgery,” he said. “I’m talking about [os-

sification] that results in a significant loss of motion, and loss of function of the upper extremity.”

A 50% reduction in elbow mobility can reduce upper extremity function by almost 80%, he noted. In addition to local swelling, edema, and warmth, the physical exam reveals a “doorstop effect” with flexion and extension, “where you feel a mechanically rigid end point,” Dr. Fischer said.

With the exception of pediatric patients, who can “sometimes spontaneously re-

sorb heterotopic ossification,” most cases involving the elbow result in progressive loss of motion, he said.

Knowledge of the pathophysiology of heterotopic ossification is improving. Ectopic bone is known to be more metabolically active than native bone and is not covered by periosteum. In some cases, up to two times the normal number of osteoblasts have been found in ectopic bone.

Bone scans used to be routine for the evaluation of possible heterotopic ossifi-

cation, but “based on the latest literature, I can’t see a reason to use [them] anymore,” Dr. Fischer said. “It’s not the meter we thought it was.”

MRIs “don’t help me a lot either because I can’t tell the difference between dark spots from calcium and dark spots from other things,” he said. High-definition CT is more useful. “I can use this as a map in the operating room—the definition of the planes between bone and soft tissue is much better,” Dr. Fischer said. ■

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