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ILIZAROV TERMINOLOGY

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"Bifocail consecutive distraction-compression osteosynthesis" is Ilizarov's term for the procedure referred to in the Western orthopaedic literature as "bone transport" - the filling-in of a segmental osseous defect by pulling a bone fragment through the tissues. Ilizarov's terminology for the numerous strategies of osseous reconstruction helps surgeons communicate the conceptual framework for any treatment plan. For this reason, orthopaedists using Ilizarov's methods shouid employ Ilizarov terminology to clearly describe treatment tactics to knowledgeable colleagues in North America, Europe, and the Soviet Union. Furthermore, Ilizarov's forthcoming publications will be more easily understood and enjoyed if readers are familiar with his descriptive terminology.

Ilizarov usually characterizes procedural strategies by four terms which form the basis of treatment: location, sequence, action and objective.

Location

The first term describes the number of locations along a bone where osseous

manipulations are occurring For example, if there is simple compression (or distraction) at only one level, the procedure is referred to as "monolocal." However, if at one level a segmental defect is being closed while at a second location within the same bone a corticotomy site is being distracted, the strategy is referred to as "bilocal" Likewise, if two corticotomy sites within a bone are being distracted while a skeletal defect between them is being closed, the technique is referred to as "polylocal."

Sequence

The second term in the treatment protocol describes the sequence of maneuvers. Thus, therapy can be either "simultaneous' (when different actions are occurring at the same time) or "consecutive" (when one action precedes a second).

Action

The third term defines the actual maneuver (or maneuvers) used to effect the reconstruction. In most cases involving movement of bone fragments, this action may be either "compression," "distraction," "compression-distraction," "distraction-compression" or (when correcting deformities) "simple opening wedge," "distractional wedge" and "translational wedge." As a rule, the first term describes the first action in a sequence.

Objective

The last term in the description refers to the goal of therapy. Hence, repair of a fracture or nonunion would be called "osteosynthesis," while limb elongation wouid be referred to as a "lengthening." Limb elongation by traction on a child's growth plate is called "traction epiphysiolysis." Obviously, obliteration of a growth plate by external compression (to treat, for example, hemihypertrophy) would be "compression epiphysiodesis."

Examples

In a situation where a simple transverse hypertrophic nonunion is compressed in an external skeletal fixator to promote union, the Ilizarov terminology for this treatment strategy would be "monolocal compression osteosynthesis." A limb lengthening through a single level (without deformity correction) is called "monolocal distraction lengthening."

When closing a skeletal defect in a bone by transporting an osseous segment through the limb (after performing a corticotomy elsewhere in the bone), the strategy is called "bilocal consecutive distraction-compression osteosynthesis" since the corticotomy site is distracted *before* the defect is compressed. In some situations, a non-union site is compressed (shortening a limb slightly) at the same time that limb length is restored through a corticotomy elsewhere in the bone. This strategy is called "bilocal simultaneous compression-distraction osteosynthesis." In oblique hypertrophic nonunions associated with shortening, a single location may be compressed for two weeks and then distracted to regain length (new bone forms in the non-union site); such a regimen is called "monolocal consecutive compression-distraction osteosynthesis."

Certain pathologic bone diseases - such as diffuse chronic osteomyelitis - can be cured (according to Ilizarov) by performing an oblique S-shaped osteotomy through the region, followed by gradual distraction (after the usual latency interval). The new bone which forms within the distraction gap can serve as a highly vascularized cancellous bone graft. Since the limb might end up too long if left in the elongated position, the distraction is stopped and the osteotomy gap gradually compressed until the original limb length is restored. This procedure squeezes the newly formed bone into the micro-abscesses of the osteomyelitic bone. Such a sequence would be referred to as "monolocal consecutive distraction-compression osteosynthesis."

Conclusions

Surgeons using Ilizarov's method of treatment - or any modification, for that matter - will find it convenient to use Ilizarov's terminology to express the location, sequence, action and objectives of a treatment plan employing external skeletal fixation and the movement of bone fragment.

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