



## ADULT LIMB LENGTHENING AND DEFORMITY SERVICE

S. ROBERT ROZBRUCH, MD, CHIEF

Limb lengthening and reconstruction techniques are used to replace missing bone and correct deformed bone segments in both the upper and lower extremities without injecting or inserting any synthetic material or performing bone grafts. The bone is stabilized using external fixation frames or implantable internal devices.

Our surgeons are currently studying ways to decrease the time spent in the frame from six to 12 months to one to three months. To achieve this goal, they have developed hybrid techniques where external fixation is used for the initial distraction phase, and then substituted with internal fixation to maintain and hold the achieved position.

In the LATN (lengthening and then nailing) procedure, pioneered by our service, a rod is inserted into the bone marrow cavity and serves as a stabilizing mechanism while the bone heals. By substituting internal fixation at the end of the lengthening phase, the frame can be removed much sooner and bone healing is accelerated.

Another method developed by the service—lengthening and plating—allows for substituting the internal fixation at the end of the distraction phase with a locked plate and screws to maintain and hold the position while the frame is removed. We now have in place an IRB approved study for prospective evaluation of limb lengthening and

reconstruction outcomes and have established a limb lengthening database.

Working with the Anesthesiology Department, our surgeons are comparing in a randomized prospective study the use of epidural analgesia to intravenous PCA for postoperative pain management after limb lengthening osteotomies.

Traditionally, osteotomy patients have been at risk for compartment syndrome, and standard practice avoided the use of epidural PCA fearing it would mask the symptoms of the syndrome. Our surgeons perform osteotomies through a small incision, and in reviewing 300 cases of tibial osteotomies, they found no incidence of compartment syndrome, leading them to conclude that epidural PCA could be utilized with better pain management and little risk of developing compartment syndrome.

In 2006, the service published *Limb Lengthening and Reconstruction Surgery*, an illustrative and in-depth textbook of the many available applications and techniques for limb lengthening and reconstruction.

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