

Stature Lengthening Surgery

Essay

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Orthopaedic Surgery

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Introduction

Introduction

Each year, thousands of individuals undergo elective cosmetic surgery to alter their physical presentation. One elects to have cosmetic surgery to improve satisfaction with one's appearance and ultimately, self esteem.⁽¹⁾

But cosmetic leg lengthening or (symmetrical extended limb lengthening) surgery is n't in the same dimension as other cosmetic procedure because it is major surgery with a host of possible complications as well as a lengthy postoperative course.⁽²⁾ As such, surgeons who perform this procedure often recommend that patients undergo an intensive psychological evaluation by specific measure to assess a patient 's internal and external motivation for and expectations of surgery as well as psychological expectations and possible benefits derived from the procedure as most patients with body dysmorphic disorder show little to know psychological improvement and often request further surgical procedures.⁽³⁾

Lengthening for stature in normally proportioned individuals with short stature but without dysplasia requires a different strategy for lengthening than in patients with disproportion and dysplasia. Most patients with constitutional short stature or low normal stature require only modest increase in stature compared to the extreme amount of lengthening required by patients with dwarfism.⁽⁴⁾

The skeletal dysplasias are a heterogeneous group of disorders characterized by intrinsic abnormalities in the growth and/or remodeling of cartilage and bone. They frequently cause a disproportionately short stature (dwarfism); Achondroplasia is the most common type of short-limb disproportionate dwarfism.

In achondroplasia, the extremity involvement is rhizomelic, with the arms and thighs more severely involved than the forearms, legs, hands, and feet .

In addition to limb deformities, children with achondroplasia also have frontal bossing, thoracolumbar kyphosis, delayed developmental milestones, and spinal stenosis. Therefore, prior to undergoing limb reconstruction surgery, patients with achondroplasia should be neurologically evaluated. Children with achondroplasia typically present for orthopedic evaluation after already having been diagnosed by a geneticist.

The goals of surgery for achondroplasia are to correct upper and lower limb deformities while at the same time increasing stature to the low end of normal height spectrum.⁽⁵⁾

Distraction osteogenesis is a unique clinical method for regenerating local bone deficiencies in length, width, or alignment or in bones with intercalary gaps, nonunions, or osteomyelitis.⁽⁶⁾ As introduced by Ilizarov, gradual mechanical distraction of a low-energy osteomy spontaneously produces potentially unlimited new bone from the local host bone that rapidly remodels to normal structure, even in skeletally mature bone, Ilizarov's work implies that this process is regenerative rather than reparative; consequently he referred to the new bone as "regenerate".⁽⁷⁾

The recognition of the ability of bone to regenerate has stimulated the development of different procedures to lengthen or restore bone loss. External fixators, hybrid systems such as lengthening over an intramedullary (IM) nail, and lately, fully implantable lengthening devices, have been designed in an attempt to regain bone length.⁽⁸⁾

While there are many potential complications of lengthening like mild infection, deep infection, delayed union, non union, nerve and vascular injuries, joint contracture,

fracture of regenerate bone, and more over the premature consolidation which could occur in cases of achondroplasia.

Finally, one must still weigh the risks of undergoing a major surgical procedure versus the benefits of increasing ones stature by 2" to 3". Proceeding with the surgery is a very personal decision.⁽⁹⁾

Aim of the work

Review of the procedures of stature lengthening, avoiding its obstacles, decreasing and better management of its complications for cosmetic indications and achondroplastic patients.

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Indications and Contraindications

Limb lengthening aimed at increasing stature is a topic of great current interest and one that triggers debate and controversy among orthopedic surgeons. A growing number of patients in different countries have been requesting this treatment to increase their height, with the awareness that this is the only effective treatment. The reasons behind their requests are numerous and vary from one individual to another, *but they can all be summed up in a single common objective, i.e., to alleviate a physical defect to improve quality of life.* However, there is no consensus on the indications for lengthening among doctors who deal with physical, social and psychological problems associated with a short stature. The difference of opinion is primarily to the following causes: the different value attached to stature by different ethnic groups and nationalities; the differing evaluation of the cost-benefit ratio of this type of treatment, which varies according to the social, economic and cultural situation of the country; the complex nature of this procedure; and the very high treatment time necessary to complete the surgical procedures and rehabilitation.⁽¹⁾

Precise guidelines were established to select patients suitable for lengthening:

- 1- Major stature deficit as compared with the anthropometric chart and the target stature.
- 2- Disproportional relationship between the trunk and the lower limbs (disproportionate short stature).
- 3- Reduced physical abilities as compared with a normal stature person of the same age, with respect to the function of the upper and lower limbs.
- 4- Subjective negative judgment by the patient of his/her own stature.
- 5- Negative impact of short stature on social relations, personality and behavior.⁽¹⁾