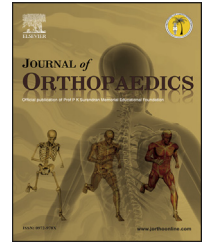


Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jor

Original Article

Pediatric lower limb Ilizarov lengthening with functional evaluation in adulthood: A report on underprivileged patients

Gholam Hossain Shahcheraghi, Mahzad Javid*, Fatemeh Hadavi

Orthopaedic Research Centre, Department of Orthopaedics, Namazee Hospital, Shiraz Medical University, Shiraz 7193711351, Iran

ARTICLE INFO

Article history:

Received 4 February 2014

Accepted 29 June 2014

Available online 28 July 2014

Keywords:

Ilizarov technique

Bone lengthening

Lower extremity

Outcome assessment (health care)

Exercise therapy

ABSTRACT

Purpose: Ilizarov lengthening, with the principles of Ilizarov, requires a collaboration and supervision of the physiotherapist, nurse, and psychologist, preferably in a group-therapy set-up. We report the mid- and long-term functional outcome of cases that had none of the above listed supporting elements. In addition, we tried to observe the effect of the disease category on the final outcome in the patient.

Method: In this study, 35 children who had undergone Ilizarov lower limb lengthening were evaluated using the following methods: clinical, radiographic, and by four functional scoring systems, and parent/patient satisfaction questionnaires, after an average of 17.2 years (10–25 years).

Results: In this study, 19 boys and 16 girls aged 5–16 years received 18 femoral and 20 tibial lengthening. An average of 6.2 cm lengthening in the femur and 8.4 in the tibia was achieved, with a healing index of 26.5 days. The disease category did not significantly affect the healing index, but the complications, 0.5 per femoral and 0.7 per tibial segment, were more common among congenital, and least among post-traumatic discrepancies. A complete improvement in joint stiffness was observed by 6–12 months post-frame removal in 83% of the cases, following home therapy by parents alone.

Conclusion: The long-term results of Ilizarov lengthening for lower limb discrepancy in children, even without group-therapy or good supportive aids, can improve function and maintain patient satisfaction in two thirds of the cases, over an average period of 17 years.

Levels of evidence: IV.

Copyright © 2014, Professor P K Surendran Memorial Education Foundation. Publishing Services by Reed Elsevier India Pvt. Ltd. All rights reserved.

1. Introduction

Ilizarov principles revolutionized lengthening and a large correction of discrepancies became possible. Elongation of up

to 40%–70% of the limb segment is now possible, although associated with increased complications.^{1–5} Today, thanks to the Ilizarov principles, several more conditions are deemed suitable for leg preservation and lengthening than ever before.

* Corresponding author. 382-Zafar Avenue, 4th Floor, Tehran, Iran. Tel.: +98 9121439818, +98 2188788443; fax: +98 2188983610.

E-mail addresses: mahzadjavid@yahoo.com, mahzadjavid@gmail.com (M. Javid).

<http://dx.doi.org/10.1016/j.jor.2014.06.010>

0972-978X/Copyright © 2014, Professor P K Surendran Memorial Education Foundation. Publishing Services by Reed Elsevier India Pvt. Ltd. All rights reserved.

The use of Ilizarov in North America was initiated in the 1970s and in Europe in the 1980s.³ Special, well-organized limb lengthening centers have been developed in different parts of the world, with well-organized physiotherapy and psychosocial support for children undergoing major lengthening.

There have been many modifications and advances in the original Ilizarov circular frame fixators, partly with the aim of reducing the associated complications such as joint stiffness, alignment loss, although the basic rules and principles set out by Ilizarov remain in place. Lengthening over an intramedullary rod, maneuvering into lengthening by rotational motion of the leg or with an external magnet, planning the deformity correction through a computer-assisted fixator system (Taylor Special Frame)^{6,7} are some of the newer changes in the use of the Ilizarov principles. We would now like to report our long-term experience with Ilizarov lengthening of lower limbs in children in a general orthopedic setup,

in an environment with challenges accessing secondary support, i.e., physiotherapy, wound care management, regular follow-up care, and social or psychological support. We also reviewed the detailed functional and psycho-emotional status to correlate the cause of discrepancy with the final results.

2. Materials and methods

This is a study of the first series of pediatric cases with limb length discrepancy, who underwent lower limb lengthening by the senior author (GHS) from 1991 to 2006 in accordance with the Ilizarov principles of bone elongation. Only those patients who had reached skeletal maturity or whose planned limb equalization had been achieved were included. Adult patients (over 16 years of age) and those waiting for the second stage of lengthening were excluded from this study.



Fig. 1 – Tibial hemimelia type II. He had undergone tibiofibular synostosis as a small child. (a): X-ray finding at age 2. (b and c): Clinical and X-ray finding at age 7. (d and e): Ilizarov lengthening in progress and 8 cm of tibial lengthening.

Download English Version:

<https://daneshyari.com/en/article/3251899>

Download Persian Version:

<https://daneshyari.com/article/3251899>

[Daneshyari.com](https://daneshyari.com)