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The use of soft tissue manual release techniques for pain relief during cosmetic correction of the tibial axis with the Ilizarov method (case report)

E.S. Kolesnikova, K.I. Novikov, S.V. Kolesnikov

Russian Ilizarov Scientific Center for Restorative Traumatology and Orthopaedics, Kurgan, Russia

Pain is managed effectively with traditional means of anesthesia with the use of narcotic and non-narcotic medication in tibial correction and lengthening with the Ilizarov method. However, in many cases, traditional analgesics are not sufficient. Therefore, soft tissue manual technique of myofascial release was applied and showed a rather high degree of pain relief.
Keywords: osteotomy, anesthesia, soft tissue manual technique

INTRODUCTION

Osteotomy has been used in orthopedic practice for many decades. It was first performed in the USA in the XIX century and was later improved by many domestic and foreign orthopedic surgeons [1]. Osteotomy is an artificial bone break and is accompanied by injuries to fascia and other tissues. Like any injury, this damage is preserved in their "memory" and results in restriction of mobility, i.e. becomes a "chain of damage" [2]. According to Zh. Barral, damaged (diseased) tissue disorganizes equilibrium in all human membranes and creates pathological axes of movement [2]. Postoperative pain is characteristic for correction of deformity or limb shortening and occurs in most cases. The severity of such pain according to VAS may reach the intensity of severe or very severe pain, i.e. 6.0-8.0 cm. The treatment of postoperative pain with narcotic and non-narcotic analgesics in standard dosages has been a well established protocol. However, analgesic therapy with only drugs is frequently not effective enough.

Purpose of the study To assess the effect of soft tissue manual release techniques in the management of pain during cosmetic correction of the tibia axis with the Ilizarov method.

MATERIAL AND METHODS

Myofascial techniques are methods of manual therapy. They have been widely used in the management of pain of various origins, including posttraumatic and postoperative pain [3]. Treatment with manual myofascial techniques is performed with the doctor's hands within the physiological boundaries of tissue motion and is aimed at eliminating the cause of the disorder. The duration of the treatment session does not depend on the doctor, but on the disease. To resolve an acute problem, several sessions are sufficient; one or two sessions would be enough sometimes. However, persistent long-term problems require a prolonged course of management. The duration of the session varies from 5 minutes to several hours, more frequently from half an hour to two hours. The patient feels relaxed and "extraordinary comfortable" by its performance [4].

We bring to your attention the evaluation of the effect of the soft tissue myofascial release technique in arresting pain in a young woman who was admitted for treatment with a diagnosis of congenital varus deformity in both legs that measured 165˚ and deforming osteoarthritis of the knee joints in stage 2.

At admission, patient’s complaints were a pronounced deformity of the legs, quick fatigue of the muscles of the lower extremities, and pain in

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the knee joints. The patient underwent the surgery of monofocal compression-distraction osteosynthesis of both legs with the Ilizarov apparatus, osteotomy of the tibias in the upper third and fibulas in the lower third. Correction of the tibial axis started in standard terms, on the 5th day after the operation. From the start of correction, the patient began to complain of pain in the shins, knee joints and unusual pain in the upper limbs which was of pulling and twisting character. The patient estimated her pain as strong and very strong. The intensity of pain according to VAS was 5.0-6.0 cm, and reached 6.0-7.0 cm after doing adjustments for correction of the tibial axis. The patient was administered analgesic therapy: 2 % promedol in the dosage of 1.0 ml i/m 3 times a day on the first four days; standard painkillers were used on the following days such as tramadol in the dosage of 2.0 ml i/m 2–3 times a day or ketorol in the dose of 1.0 ml 2–3 times a day. The intensity of pain decreased to a moderate VAS of 3.0-4.0 cm for only the first 2–4 hours after the injections. Persistent pain resulted in sleeping disturbance (the patient fell asleep not more than for 4 hours a day) and poor appetite. Due to insufficient effectiveness of the measures undertaken, a consultation of the rehabilitation department doctor was appointed on the 8th day.

RESULTS

When examined, the patient had a "worn out" expression of her face, bad mood, tearfulness and was reluctant to talk. The patient was explained of the possible cause of her pain and the possible effect of manual therapy, in particular, about manual soft tissue release technique, its features and capabilities. After the conversation, the patient became calmer and agreed to a manual examination. Palpation revealed tension and a sharp weakening of the mobility of the tissues (visceral rhythm) of the shin, tension and pain during palpation of the calf muscles, tenderness by palpation of the tibia and fibula, tension and tenderness during palpation of the plantar foot surface.

A treatment session was conducted after manual tests using myofascial techniques (myofascial release of the tissues of the lower leg and foot). The session resulted in recovery of the mobility of the tissues, and pain ceased almost entirely during the therapeutic action. Pulling and twisting pain in the upper limbs disappeared and VAS was 0.0–2.0 cm. According to the patient, minor pain in the knee joints persisted. The patient’s mood, sleep, appetite have improved and she was more communicative. The patient was indicated 6 sessions of manual therapy twice a week. Pain continued only after corrective manipulations with the Ilizarov apparatus for the tibial axes or more intense exercise therapy but in intensity it was moderate and did not exceed 2.0–3.0 cm of VAS. An injection of 1 ml of Ketorol i/m arrested it completely. This case of postoperative pain was a trial of the soft tissue manual technique which was myofascial and involved mobilization of the inherent mobility of the tissues [3]. Metal structures in the limb tissues do not have any influence by its performance.

This technique was used in another five patients with various pathologies and severe pain. All showed good results after the use of manual pain correction.

CONCLUSIONS

The use of soft tissue manual techniques (myofascial release) relieves pain completely or significantly and allows patients to tolerate more easily the deformity correction procedure, improves sleep and mood disorders, and significantly reduces the need for pain killers. It can be recommended for a widespread use due to its high efficiency and lack of additional material costs.

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Information about the authors:

1. Elina S. Kolesnikova, M.D., State Government Institution Kurgan Regional Tuberculosis Dispensary, Department of Tuberculosis Extra-pulmonary Localizations, traumatologist-orthopedist; e-mail: Li985@mail.ru
2. Konstantin I. Novikov, M.D., Ph.D., Russian Ilizarov Scientific Center for Restorative Traumatology and Orthopaedics, Kurgan, Russia, Head of the Laboratory of Deformity Correction and Limb Lengthening
3. Sergei V. Kolesnikov, M.D., Russian Ilizarov Scientific Center for Restorative Traumatology and Orthopaedics, Kurgan, Russia, Laboratory of Reconstructive Arthroplasty and Arthroscopy, researcher