UDC: 616-001.45-089.22(496.5)"2017/2022"
Review article

THE IMPORTANCE OF APPLYING AN EXTERNAL FIXATIVE TO GUN INJURIES EXTENDED

Elona HASALLA, Ilda TAKA, Ilia MAZNIKU, Blerta HASALLA, Sulejman BAHA, Shqipe LUTA, Albana SULA, Rajmoda HIDA, Marsida DUCI, Bena MARRA, Elona DYBELI, Brandi FAHRIU

"Aleksander Xhuvani" Faculty of Technical Medical Sciences, Elbasan
Department of Preclinical Materials; Department of Technical Medical Specialties; Department of Clinical Materials; Department of Nursing; University of Florence Italy;

Abstract

Introduction:
The incidence of gunshot wounds has increased significantly in our country, especially after 1997. Gun injuries have lasted, albeit with low kinetic energy, destroying soft tissue and should be treated as closed fractures. If the injury has caused unstable fractures, they should be treated through internal stabilization, while stable fractures should be treated through functional support.
Purpose:
The purpose of this study is to underline the importance of using an external fixative in extensor arms injuries as well as enhancing the quality of treatment for these patients.
Methodology:
Our study is retrospective and covers the period January 2017 to June 2022. We have studied 43 patients with fractures caused by prolonged arms. of general therapy.
Of these patients were: males 32-81%; Boys (under 18 years old) 3-7%; females 8-19%. Age: maximum 67 years old; minimum 5 years old; average 31 years old. Female / male ratio 1; 4.34.
Conclusions:
1. In all the cases presented, biological bone fusion was achieved for a maximum period of 12 months.
2. The use of external fixative in the treatment of these patients was necessary and was seen as the best possible treatment.
3. It is also important to treat the wounds and use appropriate therapy to improve the patient's health as quickly as possible.
Recommendations:
1. The treatment of open fractures in wounds with elongated arms is complex and requires the cooperation of all medical personnel.
2. Use of external fixator provides optimal solution for immobilization of fracture and fast start of osteosynthesis process.
3. Wound healing and the application of adequate therapy are the basic conditions for the fastest healing of the patient.

Keywords: open fracture, wound, elongated arms, external fixator, osteosynthesis.

Introduction

The incidence of gunshot wounds has increased significantly in our country, especially after 1997. Surgeons and nurses in urban trauma centers are encountering these types of injuries more often. Gunshot injuries with little kinetic energy and little soft tissue destruction should be treated as closed fractures. The treatment of choice for unstable fractures is early internal stabilization, while stable fractures can be treated with functional bracing.

The purpose of the study

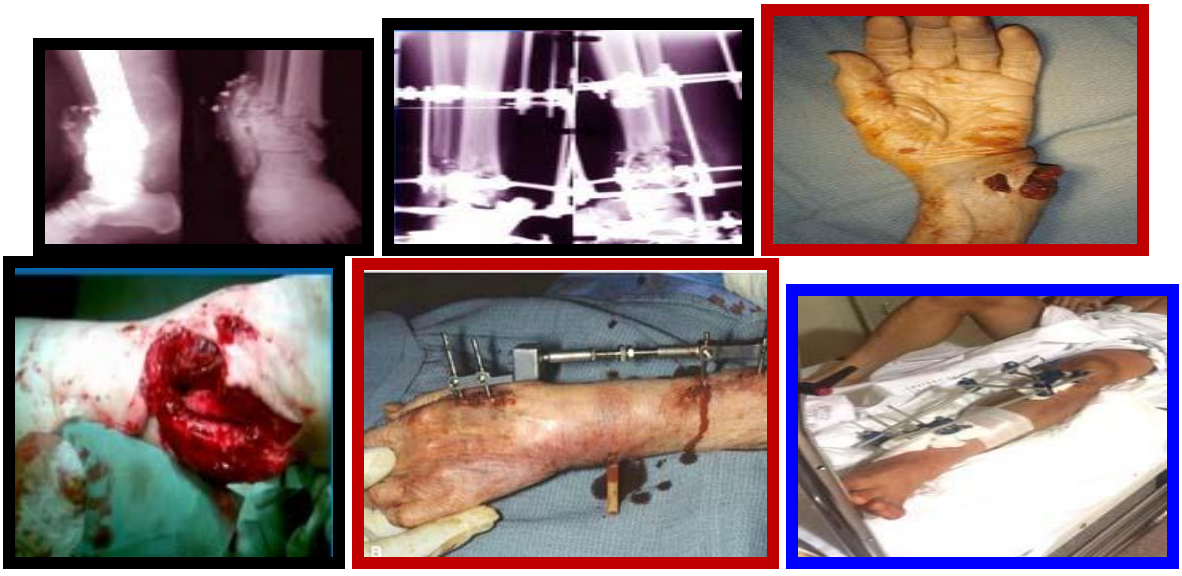
1. The purpose of this study is to analyze the use of temporary external fixation in the management of extremity firearm injuries.
2. Evidence of our nursing experience and its spread in all surgical services; on the other hand, it will also affect the increase in the quality of treatment for these types of injuries still present in our country even in modern times.

Material and working method

In the period January 2017-June 2022, 43 patients with injuries from firearms were treated. The basic treatment of fractures was their external mefixator immobilization, so in all 43 patients or 100% of them. Complementary treatment was the treatment of application wounds of general therapy. Of these patients there were: Men 32-81%, Boys (under 18 years). 3-7%, Women 8-19%. By age; Maximum 67 years, Minimum 5 years, Average 31 years

Distribution of patients according to fracture location

- F. femoral in loc. various 12 - 28 %
- F. screamed with loc. different . . . . 7 - 16%
- F. Humerals with different loci. . 9 - 21%
- F. of the metacarpals. . . .. .5 - 12%
- F. of pylon. . . . . 9 - 21%
- F. femoral bicondylar. . . . . 1 - 2%
- In total. 43---100%
- Female: male ratio 1:4

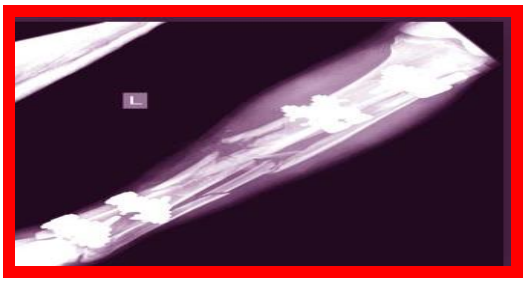


Associated damages

Damage to the fibular nerve. . . . . 3 - 7%
Femoral vascular injuries. . . . . .2 - 5%
Large wounds with skin defects. . . . 6 -14%
Large bone defects. . . . . .3 - 7%
Complementary osteoplastic operations. .1.- 2%
Amputate. Sec. from infection. . . . . 1 - 2%
In total. . . . . .16 -37 %

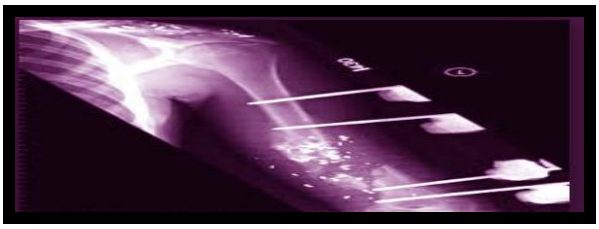
Advantages of the external fixator

- Creates optimal conditions for the continuation of local and general treatment:
- Removal of necrotic tissue from complicated wounds¬
- It allows spaces for the application of plastic interventions¬
- Fixes the fracture definitively, away from its focus¬
- It can be used in infected osteosyntheses as a continuation of treatment¬



Disadvantages of the external fixator

- Difficulties in the application of the external fixator related to the reposition of the fracture after working at a distance from it:
- Fixation of bone fragments
- you did not become in all of them
- but only in the two main solid
- this creates weak points in us
- immobilization of the fracture in its entirety
- The risk of damage to the growth areas from the placement of spears



Medical management of external fixator

- There are many risks associated with the use of external fixation devices including those of the device itself, as well as the initial injuries that require fixation.
- In the place of spears with the very serious consequence of the installation of osteomyelitis
- Deep venous thrombosis resulting in pulmonary thromboembolism (PE)
- Aseptic release of fixation spears
- Fracture or non-union of existing fractures
- Loss of reduction.

Nursing care

- Nursing care is related to the education of the patient with wounds and fractures from firearms. These include:
- the advice of the injured person regarding all his health problems¬
- This should be done in the pre-operative and post-operative period¬
- Caring for the fixing rods by soaking them with alcohol¬
- The beginning of wetting of the skin at the point of contact with the spear is the first sign of the beginning of the infection.¬

- Taking care of the general condition, the application of therapy and especially of antiaggregate and antithrombotic medications
- Taking care of the application of general therapy, local medication, execution of radiographs according to the protocol

Possible complications

- Fractures from firearms, being in different open degrees, associated with massive soft tissue and bone damage, have a high potential for non-adhesion, infection, trophic wounds
- Osteomyelitis can be encountered in its classic acute, subacute and chronic forms
- Infection can also be encountered in places where the fixator pins are embedded in the bon

Results achieved

- The primary goal in our study series, which was biological bone union, was achieved in all cases in a maximum period of 12 months.
- Given that gunshot wounds are more common in the inferior side, the final result is related to the activity of the injured in later life. . In our cases, this goal has been fully achieved

Conclusions

- Fractures caused by firearms have also increased in Albania and in their treatment, which is complex, nursing cooperation is also required.
- It is very necessary to simplify the application of the external fixator as an optimal possible treatment in these cases.
- The role of the nurse in the management of post-operative situations, taking care of the general condition, of the wounds, the condition of the fixator spears, as well as the follow-up of the injured, is absolutely necessary.

Recommendations

- The application of the extension fixator in wounds and fractures from firearms is an optimal solution that provides immobilization at the focus of the fracture by applying the means of fixation away from it and ensuring a stable osteosynthesis.
- Nursing care is an absolute prerequisite for the success of this type of treatment.

Reference

[1]. Handbook of Fractures by Kenneth Egol MD | Nov 19, 2019
[2]. Handbook of Fractures by Kenneth Egol MD, Kenneth J. Koval MD, et al. | Nov 15, 2014
[3]. Emergency Room Orthopaedic Procedures: An Illustrative Guide for the House Officer by M.D. Egol, Kenneth A., M.D. Strauss, Eric J., et al. | Jan 1, 2012
[4]. Handbook of Fractures by M.D. Egol, Kenneth A., M.D. Koval, Kenneth J., et al. | Jan 1, 2010
[5]. Handbook of Fractures 6th Edition by Kenneth Egol MD Kenneth Egol MD | May 2, 2023
[6]. The Orthopaedic Manual: From the Office to the ORby Kenneth Egol MD | Dec 8, 2017
[7]. Orthopedic Residency and Fellowship: A Guide to Success by Laith M. Jazrawi MD, Kenneth A. Egol MD, et al. | Mar 15, 2010
[8]. Manual de fracturas (Spanish Edition)Spanish Edition | by Kenneth Egol MD, Kenneth J. Koval MD, et al. | May 13, 2015
[9]. Manual de Fracturas / Handbook of Fractures (Spanish Edition)Spanish Edition | by M.D. Egol, Kenneth A., M.D. Koval, Kenneth J., et al. | Mar 15, 2011
[10]. Orthopedics Made Ridiculously Simple 1st Edition
[11]. by Patrice Tetreault M.D. (Author), Hugue Ouellette M.D. (Author)
[12]. Practical Office Orthopedics 1st Edition
[13]. by Edward (Ted) Parks (Author
[14]. EMRA Urgent Care Guide: Management and Disposition Decisions Paperback – January 1, 2021
[15]. by Brian Levine (Author), Lori Felker (Author)
[16]. EMRA Ortho Guide Perfect Paperback – January 1, 2019 , Sepehr Sedigh Haghighat MD (Author), Robert Hsu MD FACEP (Author), Jeremy Berberian MD (Author), William Brandon White DO (Contributor), Mahesh Polavarapu MD (Contributor)