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MULTIDISCIPLINARY TEAM IN TREATMENT OF HIGH ENERGY TRAUMA OF LEFT LOWER LEG– CASE REPORT

Ilina Gadjevska Tomulevska[1], Konstantin Mitev [1,2] Mihail Taushanov [1]
[1]Department of Surgery, PZU Zan Mitrev Clinic, Skopje, North Macedonia,
[2]Faculty of Medical Sciences, Goce Delcev University in Stip, North Macedonia

Abstract

High- energy fractures of lower leg are complex lesions that may be associated with soft tissue damage and severe complications, such as compartment syndrome and infection. This case report interests a professional motocross freestyler with complex tibia and fibular open fracture, with soft tissue damage.

Case presentation

We report the case of 31-year-old man, presented with injuries resulting from accident, as professional freestyler motorcyclist, including open horizontal multifragmentary fracture with angulation of the proximal and middle part of the left tibia and horizontal fracture with angulation of the proximal and middle part of the left fibula.

The initial assessment revealed surgical stabilization of the tibia, intramedullary osteosynthesis with wedge. The open lacero-contused wound of the anterior lower leg after the surgery complicated with infection. Necrectomy and Suprasorb A + Ag dressing was performed for per secondar healing of the wound.

Conclusion

For mounts later, despite the complexity of the fractures, the gravity of the soft tissue lesion and subsequent complications, the patient healed. This satisfactory result depended on the correct management in terms of type of treatment and timing.

It highlights the importance of a multidisciplinary approach, incorporating trauma surgeons, plastic and reconstructive surgeon and intensive care specialist to navigate the intricacies of high energy trauma care.

Keywords: injuries, soft tissue damage, osteosynthesis.

Introduction

High- energy fractures of lower leg are complex lesions that may be associated with soft tissue damage and severe complications, such as compartment syndrome and infection. This case report interests a professional motocross freestyler with complex tibia and fibular open fracture, with soft tissue damage.

The consequences of the severity of the injury and of an inadequate treatment can be serious and accompanied to unsatisfactory results. In this context it is important the correct timing of surgery that inevitably adds further traumatism to soft tissues, thus augmenting the possibility of wound complication, especially if open reduction and internal fixation (ORIF) is performed [1].

For this reason, in the preoperative planning it is also important the distinction of tibia fractures into complex and simple that allows to identify the more serious or potentially serious injuries, whose treatment is more difficult and more frequently characterized by complications.

Optimal treatment of the tibia fractures is still open to debate and a wide choice of methods can be used. In any case the goal of treatment is to obtain limb axis restoration, joint stability, avoiding further soft tissue damages [2-4], obtaining these aims is not simple and it requires excellent soft tissue handling and fracture reduction skills to avoid iatrogenic complications [5-10].

CASE REPORT

We report the case of 31-year-old man, presented with injuries resulting from accident, as professional freestyler motorcyclist, including open horizontal multifragmentary fracture with angulation of the proximal and middle part of the left tibia (42A24F2A) and horizontal fracture with angulation of the proximal and middle part of the left fibula (Figure 1, CT scan).

The initial assessment revealed surgical stabilization of the tibia, intramedullary osteosynthesis with wedge (Figure 2, Figure 3).

The open lacero-contused wound of the anterior lower leg, after the surgery, was complicated with infection (Pseudomonas aeruginosa).

Necrectomy, debridement and Suprasorb A + Ag dressing was performed for per-secundam healing of the wound. The infection of the wound was treated with Tobramycin 3mg, local application (sensitive by antibiogram) 2 times per week. After 4 mounts the wound was closed (Figure 4).

Patient was beak to his activities.

Discussion

Tibia fractures are common and can be due to high- or low energy traumas and can affect young adults or third-age patients [11-13]. Their incidence progressively raised over the years mainly due to the increase of road, sports and work accidents and of high energy traumas [14,15].

The anatomy of the tibia combined with high energy trauma produce complicated injury patterns with involvement of metaphysis, frequently, with loss of integrity of the soft-tissue envelope [16]. Furthermore, this type of injury is also becoming more and more prevalent in the elderly, as consequence of low energy falls and osteoporosis. In such cases, soft tissue damage arises from the delicacy of the skin. Numerous publications and case studies have been reported and all agree that the consequence of the severity of the trauma and of an inadequate treatment can be serious.

Soft tissue problems in fractures are of crucial importance. One should think that the fracture will not change but soft tissue will. In high-energy traumatisms, fractures should be considered as “substantial soft-tissue injuries with a broken bone inside”.

As consequence, compartment syndrome can be a devastating complication of such traumas and its incidence can vary from 17% to 18.7% in closed and open fractures respectively [17-25].

In this context it is very important the correct timing of surgery that inevitably adds further traumatism to soft tissues; therefore, the management in the early stages of treatment, should focus on preventing their further injury while waiting to repair definitively the fracture [26-37]. The optimal temporizing treatment in initial damage control is fixation. Fixators reduce fracture fragments via ligamentotaxis, along with providing pain relief and a stable environment for soft tissue healing, as well as early mobilization of the patient. Optimal treatment is still open to debate. However, surgery is now the preferred method of treatment for displaced fractures, a wide choice of fixation techniques can be used.

This case report summarizes all it has been explained in this discussion (high-energy trauma, complex fracture, compartment syndrome, and wound infection). Despite all these negative variables, the result was satisfactory. Authors believe that this positive outcome depended on the precise management of the lesions both for the therapeutic strategy and for its correct timing [38-40].

Figure 1. CT scan, on the day of the injury.

Figure 2. X rays, first day after surgery.

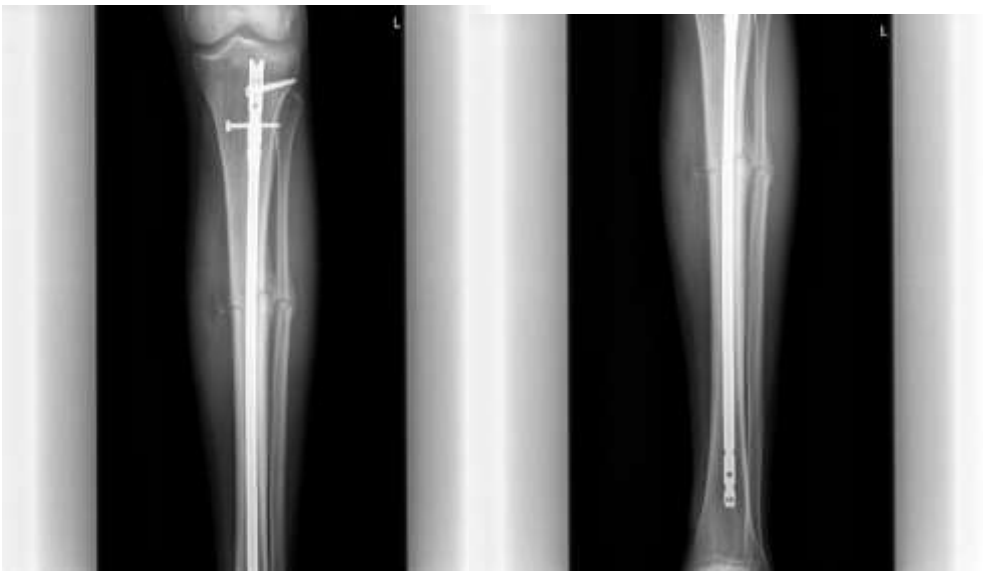

Figure 3. X rays, 6 weeks after surgery.

2 weeks **4 weeks** **6 weeks**

Figure 4. After four months status.

Conclusion

For mounts later, despite the complexity of the fractures, the gravity of the soft tissue lesion and subsequent complications, the patient healed. This satisfactory result depended on the correct management in terms of type of treatment and timing.

It highlights the importance of a multidisciplinary approach, incorporating trauma surgeons, plastic and reconstructive surgeon and intensive care specialist to navigate the intricacies of high energy trauma care. High-energy tibia fractures are complex lesions that may be associated with extensive soft tissue damages and severe complications.

The success of their treatment depends on the precise surgical procedure and on its correct timing. Soft tissues evaluation is as important as bone care. Minimally invasive techniques may improve results.

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