



SUCCESSFUL OPEN REDUCTION AND INTERNAL FIXATION FOR FRACTURE AT "KSATRIA AIRLANGGA" FLOATING HOSPITAL ON PALU-DONGGALA DISASTER 2018 WITH LOW RESOURCE: A CASE REPORT

Rahadiyan Rheza Dewanto¹, Atiya Nurrahmah², Bambang Widiwanto³, Agus Harianto⁴, Gadis Meinar Sari⁵

¹ General Practitioner, "Ksatria Airlangga" Floating Hospital, Surabaya, East Java, Indonesia

² Cardiothoracic and Vascular Surgery Residents, Faculty of Medicine, Universitas Airlangga

³ Orthopaedic Surgeon, Department of Orthopaedic and Traumatology, Karsa Husada General Hospital, Batu, East Java, Indonesia

⁴ General Surgeon, "Ksatria Airlangga" Floating Hospital, Surabaya, East Java, Indonesia

⁵ Faculty of Medicine, Universitas Airlangga, Surabaya, East Java, Indonesia



BACKGROUND

There are many differences of medical management between disaster and non-disaster scene. In the worst-case scenario, adequate care may be available only through delivery of external resources to site of disaster, like on Palu-Donggala Disaster (September 28th, 2018). Trauma is the major medical problem resulting from the disaster. The most common mechanism of this injury is struck down and sometimes trapped into the recklessness of the building[1]. Mackenzie 2017 reported, from 1549 patients, most of them are an orthopedics cases which are tibia and fibular fractures, followed by femur fracture[2]. The population needs help, while health infrastructures are damaged, making an already insufficient offer of care even more inadequate. The immense initial needs are solely handled by the overwhelmed local health forces[3].

OBJECTIVE

The aim of this study was to describe successful case of fracture management at "Ksatria Airlangga" Floating Hospital on Palu-Donggala Disaster 2018 with low resource management and their outcomes.

CASE

A 15-year-old boy fell while running away from the earthquake in Palu-Donggala at September 28th, 2018. He presented with persisting pain, deformities and limp. He got first aid just with a long bandage from navy, army, and then he was referred to the "Ksatria Airlangga" Floating Hospital six days after disaster came. He performed a radiologic examination, there was closed fracture femur 1/3 proximal dextra. It was Winquist and Hansen Classification of Fracture Communion Grade 1.



Fig. 1 X-ray 6 days closed fracture 1/3 shaft femur S

He treated by Open Reduction Internal Fixation (ORIF) that was performed with X figure-like K-wiring fixation. Hip spica cast was applied post operatively.



Fig. 2 Durante Operation at "Ksatria Airlangga" Floating Hospital



Fig. 3 Post operative, A case x-ray the alignment of femoral bone is good without any shortening be cause of its fixation by X figure-like K-wire. Hip spica cast was applied post operatively

RESULT

Two days after operation, from x-ray, he got the fracture in proper position and there was no complication such as wound edge dehiscence, necrosis, infection, and compartment syndrome.

DISCUSSION

In disaster setting, sometimes the usual management can not be applied properly because of lacking the resources, including doctors and hospital so the doctors improve their management to save more lives with limited equipment, the definitive treatment of femur fracture is early femoral reduction and fixation because associated with low rates of complications and also safe in most patients with multiple injuries, including some with severe abdominal, chest, or head injuries with attention to resuscitation before surgery[4]. More complications and longer hospital stay were noted with delayed fixation after adjusting for age and injury severity score[5].

In our case, the fracture was located on proximal metaphysis of femur which is an indication for ORIF[6]. But, doctors did an ORIF with unusual technique. They modified the standard technique of ORIF because of limited resources by using K-wire instead of applying a plate then connect the fracture line like X-figure.

From the post operation result, the alignment of femoral bone is good without any shortening because of its fixation by K-wire.

CONCLUSION

ORIF with X figure-like K-wire as definitive treatment can be successful perform without complication in "Ksatria Airlangga" Floating Hospital at Palu-Donggala Disaster, 2018 with low resources.

Reference

- 1 Trelles Centurion, M., et al., *Surgery with Limited Resources in Natural Disasters: What Is the Minimum Standard of Care?* Current trauma reports, 2018. **4**(2): p. 89-95.
- 2 MacKenzie, J.S., et al., *A review of the epidemiology and treatment of orthopaedic injuries after earthquakes in developing countries.* World journal of emergency surgery : WJES, 2017. **12**: p. 9-9.
- 3 Giri, S., et al., *Impact of 2015 earthquakes on a local hospital in Nepal: A prospective hospital-based study.* PLOS ONE, 2018. **13**(2): p. e0192076.
- 4 Harvin, J.A., et al., *Early femur fracture fixation is associated with a reduction in pulmonary complications and hospital charges: a decade of experience with 1,376 diaphyseal femur fractures.* J Trauma Acute Care Surg, 2012. **73**(6): p. 1442-8; discussion 1448-9.
- 5 Nahm, N.J., et al., *Early appropriate care: definitive stabilization of femoral fractures within 24 hours of injury is safe in most patients with multiple injuries.* J Trauma, 2011. **71**(1): p. 175-85.
- 6 Court-Brown, C.M., et al., *Rockwood and Green's Fractures in Adults.* 2015: Wolters Kluwer Health.