Omat Rachmat, Fractures Causes and Types Description in Drajat Prawiranegara Hospital Serang Indonesia: Journal of Health and Dental Sciences.e-ISSN 2807-3126 Vol. 03 No. 02: pp. 217-226

FRACTURES CAUSES AND TYPES DESCRIPTION IN DRAJAT PRAWIRANEGARA HOSPITAL SERANG INDONESIA

(*DESKRIPSI PENYEBAB FRAKTUR DAN JENIS FRAKTUR DI RUMAH SAKIT DRAJAT PRAWIRANEGARA SERANG INDONESIA*)

Omat Rachmat[1], Ilma Fiddiyanti[2*]

[1]Department of Surgery, Faculty of Medicine, Universitas Sultan Ageng Tirtayasa, Banten, Indonesia
[2]Department of Radiology, Faculty of Medicine, Universitas Jenderal Achmad Yani, Cimahi, Indonesia

*Corresponding author
ilmaradiologi@gmail.com

JHDS.unjani.ac.id/jite
Doi: 10.54052/jhds.

Article History
Received:31/07/2023
Accepted: 18/08/2023

ABSTRACT

Fractures are often associated with considerable morbidity, leading to extended hospital stays. Disturbances due to fractures impact activity tolerance, thereby reducing productivity. Fracture is a term for loss of continuity of bone or cartilage, either total or partial. In general, a fracture is caused by trauma or physical exertion. This case report consists of four types of fractures in the Drajat Prawiranegara Hospital Serang Indonesia: transverse fractures, cumulative fractures, oblique, segmental, impacted, and spiral fractures. Causes of fractures can be divided into traumatic injuries, direct, indirect, sudden violent contractions, pathological fractures, bone tumours, chronic infections, rickets, and term bone stress. The gold standard examination used to determine the location, type, and severity is an x-ray radiology examination.

Keywords: causes of fracture; description of fracture

ABSTRAK

Fraktur merupakan salah satu penyebab kecacatan termasuk kecelakaan. Fraktur sering dikaitkan dengan morbiditas yang cukup besar dan menyebabkan rawat inap yang lama di rumah sakit. Gangguan akibat patah tulang berdampak pada toleransi aktivitas sehingga menurunkan produktivitas. Fraktur adalah istilah untuk hilangnya kontinuitas tulang, tulang rawan, baik total maupun sebagian. Singkatnya dan secara umum, fraktur adalah fraktur yang disebabkan oleh trauma atau aktivitas fisik. Dalam laporan kasus ini terdiri dari empat jenis patah tulang yang datang ke Rumah Sakit Drajat Prawiranegara Serang Indonesia yaitu patah tulang transversal, patah tulang kumulatif, patah oblique, segmental, impak dan spiral.Berdasarkan gambaram radiologi maka penyebab patah tulang dapat dibedakan menjadi luka traumatis; kontraksi kekerasan langsung, tidak langsung, tiba-tiba dan fraktur patologis; tumor tulang, infeksi kronis, rakhitis, stres tulang jangka panjang. Pemeriksaan baku emas yang digunakan untuk menentukan lokasi, jenis dan tingkat keparahannya adalah pemeriksaan radiologi rontgen.

***Kata kunci**: jenis fraktur; penyebab fraktur*

INTRODUCTION

Musculoskeletal disease is one of many diseases found around the world. The World Health Organization (WHO) has set that in 2000–2010 as "The Bone and Joint Decade".[1] A musculoskeletal disease occurs in the muscles, tendons, joints, or bones, including pain in the bones, back, and fractures. [1] The fracture can caused by disease, for example in osteoporosis, circumstances pathological, and various types of accidents (traumatic fractures) such as accident domestic or accident House stairs, accidents work, accident sports, accidents then cross, and so on.[2]

Those traumatic fractures are Already predicted to become a reason for disability and death for several decades. Results of Basic Health Research (Rikesdas) by the Research and Development Agency RI Ministry of Health in 2013 stated the type of trauma that can cause fractures including non-traffic accidents, that is, incident fell (3.8%) and stabbed object sharp or blunt (1.7%) that can happen in an accident domestic or House stairs that have prevalence highest, accident work and accidents sport. Apart from non-traffic accidents, fractures can also be caused by crashes on accident and Then cross (8.5%).[3]

Fractures can have several classifications, for one is based on connection bone with a network around, namely open fracture and closed fracture. Based on the location of the affected body, limb fracture is a continuity network of severed bone that occurs in the bones that make up its extremity bottom and bone long extremity lower, including the femur, tibia, and fibula.[4] This case report consists of four types of fractures that came to the Drajat Prawiranegara Serang Indonesia Hospital: transverse fractures, cumulative fractures, oblique, segmental, impacted, and spiral fractures.

CASE REPORTS

Case 1

A three-year-old child complained of a painful wound on the left arm after a fall. Complaint accompanied by difficulty moving left arm Because of pain. Quickly done installation splint on the arm left top. Then, an x-ray antebrachii was done.

INTERPRETATION RESULTS

Figure 1. Photo X-ray antebrachia.

On inspection, the Photo antebrachial arm's left size, shape, and structure trabeculae deep radius and ulna normal limits. Cut and surface joints are within normal limits. Picture of a fracture in the distal 1/3 of the radius and left ulna with angulation dorsally. There is no accompanying picture of osteomyelitis dislocation with the diagnosis of Closed fracture of the shafts of both ulna and left radius.

Then, the preparation and preoperative blood lab test form management and A chest x-ray were

completed. The procedure is given form observation of vital signs and an ORIF (Open Reduction Internal Fixation) plan. Then, postoperative management observes critical signs and signs of the syndrome compartment for six hours; if negative, the patient is sent home with a given drug and takes an antipyretic form of Ibuprofen syrup 2x10 ml and calitoz.

Case 2

After falling from the motor, a 50-year-old woman complained of thigh pain _ right 1 hour smrs. Feet no. Can be moved, accompanied by wound open on the right leg and backhand right—limited ROMs and then done inspection support form Photo x-ray of the femur.

INTERPRETATION RESULTS

Figure 2. Photo femur X-ray.

In the Photo, the femur is found in size, shape & structure, trabeculae deep femoral bone normal limits. Femoral head and acetabulum in normal limits. Between joints and surfaces, joints in normal limits. An overriding displacement fracture is seen medial to the right femur. No looked lesion lytic nor sclerotic. No visible osteomyelitis/dislocation, with the Impression of a displacement overriding fracture of the medial 1/3 of the extra femur.

Then, the preoperative supported form inspection Photo chest X-ray and blood lab tests were complete. The procedure was given form resuscitation liquid, gift analgesic opioid class tramadol drip in RL, administration drug H2 antagonists in the form of ranitidine amp, and prophylactic antibiotics ceftriaxone 1x2 gr. The patient Fasted at least 6 hours before the operation: planned ORIF (Open Reduction Internal Fixation) and elective debridement.

Case 3

A 57-year-old woman complained of pain once in the left lower leg after falling from stairs in his House; the patient cannot run and has limited ROM. Complaint: was No accompanied dizziness, nausea, and vomiting. She then did an inspection Photo x-ray cruris.

INTERPRETATION RESULTS

Figure 3. Photo X-ray cruris sinistra.

In the Photo, Cruris found the size, shape, and structure of trabeculae deep tibia and fibula normal limits. Between joints and surfaces, joints are within normal limits. A proximal ⅓ fracture is seen on the left tibia, visible fracture ⅓ distal; left os. Tibia. No looked lesion lytic nor sclerotic. No osteomyelitis.

Then, the inspection support form Photo preoperative chest X-ray and blood lab tests complete. The procedure was given _ to the patient form ketorolac injection 3x30mg iv, ranitidine injection 2x50mg iv, installation spalk, an elastic bandage and an ORIF (Open Reduction Internal Fixation) plan.

Case 4

A 57-year-old woman complained of a Sick head part right, and the post wound was exposed to a water heater explosion. Patient: No, remember what happened. Vomit already, four times, filled food. No. There is nosebleeds/bleeding ear. Done chest X-ray, blood lab tests complete.

INTERPRETATION RESULTS

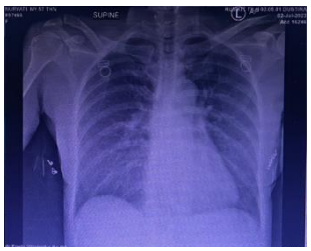

Figure 4. Photo thorax X-ray.

On the chest X-ray, the cor doesn't enlarge, and sharp sinuses and diaphragm No There is no abnormality. On the pulmo, Hilli normal, pattern broncho vascular increase, looks spots in the field lungs lower dextra. Skeleton found the image of a displacement overriding midclavicular fracture dextra, samar A fracture of the 2nd posterior right rib is seen.

The procedure was form monitoring vital signs and GCS when good joint operation plan, ORIF (Open Reduction Internal Fixation) on midclavicular dextra.

DISCUSSION

A fracture is a continuity bone or unity structure bone disconnected from cracks, crumbs, or part broken cortex.[1] Fracture type based on connection bone with the surrounding network shared into open fractures and closed fractures. An open fracture is a crushing fracture network skin so that fragment bone is connected with the outside world, while the fracture is closed, a fracture without connection between fragment bones and the outside world.[4] Fractures caused by traumatic

events (*traumatic fractures*) can happen in an accident. Then cross or non-past cross.

A closed fracture is caused by a mechanism injury and strength energy that is not too big; no, an engaged object is sharp and chronological, like fallen, sprained, and crushed object weight that occurs in non-traffic accidents. [6] While the fracture is open caused by a mechanism of *direct force* with strength *high-energy* and engagement object sharp like more vehicle bodies often happened in accident traffic. [7]

Diagnosis of initial fracture before done inspection support, yes seen from manifestation clinical and history inspection physical. Signs and symptoms include deformity, edema, erythema, spasm muscle tone, pain, limited ROM, and shock when bleeding occurs.[5] The severity of the fracture depends on the force that caused the fracture. Moment fracture occurs, and the muscle attached at the end bone can be disturbed. Muscles can experience spasms and pull fracture fragments out of position. Group big muscles can create strong spasms, even capable swipe bone large, like the femur. Although the part proximal from the bone stays in place, the distal part can shift Because reason is broken or spasms in the muscles around it. Fracture fragments can shift to the side, on a corner (form corner), or override segment bone. Fragments can, too, rotate or move.[9]

Type of fracture based on the radiologist, among others:

a. Transverse fracture. A transverse fracture is where the fracture line is upright straight to the axis of a long bone.

Figure 5. Transverse fracture.

b. Cumminutive Fracture. This fracture is a disconnection wholeness network that consists of two fragment bones.

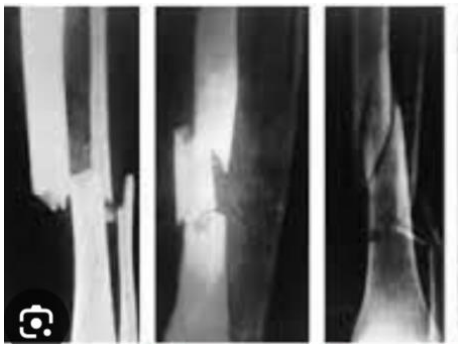

Figure 6. Comminuted fracture.

c. Oblique fracture. This fracture is the broken line that makes a corner to the faulty bone.

F**igure 5**Oblique fracture.

d. Segmental fracture. It is two fractures close together on one, causing the bone to be separately segmented central from the blood supply.

Figure 6 Segmental fracture.

e. Impacted fracture. That is a compression fracture when two bones pound the bones between the vertebrae.

Figure 7 Compression Fracture.

f. Spiral fracture. Consequence from limb torsion.

Figure 8 Spiral Fracture.

Principle dealing with fractures: return position fault to position and restore and maintain position during the healing period of a broken bone. The first-way handler is protection without repositioning or immobilization, for example, using mitela. They are usually performed on rib fractures and clavicle fractures in children. The second way is immobilization outside without repositioning, usually done on fractured bone limbs lower without dislocation. The third way is repositioning with method manipulation followed by immobilization, traditionally done on fractured distal radius bone. The fourth way is to reposition with traction continuously for a particular time. This _ is done on fractured bones that, when repositioned, will dislocate in the cast. The fifth way is form repositioning, followed by immobilization with outside fixation. The sixth way is to reposition non-non-operatively and then install the fixator bone operatively. The seventh way is repositioning in an operative manner followed by usual internal fixation called

ORIF (Open Reduction Internal Fixation).[10] Fracture immobilization aims to prevent shift fragments and prevent possible movement threatening unification. Mounting plate or traction intended for maintaining reduction fractured extremity. [11]

Rehabilitation done for return activity functional optimally. After surgery, the patient needs help to do Exercise. The shared three categories are Passive movement, active movement, and muscle strengthening exercises. [12]

CONCLUSION

The gold standard examination used to determine the location, type, and severity is an x-ray radiology examination. Immediate inspection of other supports such as chest X-ray and blood lab tests complete as pre-op requirements for ORIF is done.

CONFLICT OF INTEREST

There is no conflict of interest in writing this article.

ACKNOWLEDGEMENT

The author would like to thank Drajat Prawiranegara Hospital Serang Indonesia, friends, family, and facilities for helping write this scientific paper.

REFERENCES

1. Woolf AD. The bone and joints decade 2000-2010. Ann Rheum Dis. 2000 Feb;59(2):81–2.
2. Triono P, Murinto. Application processing image for detect bone fractures with method detection edge. J Inform. 2015;9(2):1115–23.
3. Basic Health Research (Rikesdas) 2013. Available from: http://www. depkes.go.id/resources/download/general/Results of Riskesdas 2013.
4. Solomon L, Warwick D, Nayagam S. Apley's system of orthopedics and fractures (9th Edition). Malaysian Orthopedic J. 2010;4(3):39.
5. American Academy of Orthopedic Surgeons. (2020). AAOS Comprehensive Orthopedic Review 3. AAOS.
6. Court-Brown, CM, & Rimmer, S. (2008). Prone intramedullary nailing of the femur: A radiographic study. Injury, 23-27.
7. Court-Brown, CM, Caesar, B. (2006). Epidemiology of adult fractures: A review. Injury, 37(8), 691-697.
8. Court-Brown CM, Rimmer S, Prakash U, McQueen MM. The epidemiology of open long bone fractures. injured 1998 Sept;29(7):529–34.
9. Juli A, Henni F, Padila. Harsismanto, Rahayu S. Pain in Post Op Patients with

Lower Extremity Fractures Implementation Early Mobilization And Ambulation. Bengkulu Muhammadiyah University. 2020.

10. Giri W. (2017). Bone and joint pain. Yogyakarta. Goshen Publishing
11. Court-Brown, CM, McQueen, MM, & Tornetta, P. (Eds.). (2020). Rockwood and Green's Fractures in Children (9th ed.). Wolters Kluwer.
12. Bhandari, M., Guyatt, GH, Swiontkowski, MF, Schemitsch , EH, (2002). Treatment of open fractures of the shaft of the tibia. Journal of Bone and Joint Surgery, 84(12), 2123-2134.
13. Chapman, CG, & Pohlemann, T. 2019. Fracture healing: biology and biomechanics. injured
14. Trio H, Sapti A, Anik I. Application Compress Cold Against Pain Scale in Post Fracture Surgery Patients. AKPER Dharma Discourse Metro. 2022.
15. Edwards, CC, Wilson, PA, & Zhang, LQ (2001). The relationship between the outcome of distal radial fractures and the movements of the wrist during healing. Journal of Bone and Joint Surgery, 83(3), 355-361.
16. Moed, BR, McQueen, MM, & Tsui, FY (2007). Locked versus unlocked plate fixation for displaced proximal humeral fractures: A biomechanical analysis. Journal of Orthopedic Trauma, 21(1), 17-22.
17. Z Lowodzki, M., & McKee, MD (Eds.). (2018). Evidence-Based Orthopedics: The Best Answers to Clinical Questions. People's Medical Publishing House.
18. Egol, KA, Koval , KJ, Zuckerman, JD (Eds.). (2020). Handbook of Fractures (6th ed.). Wolters Kluwer.
19. Maffulli, N., & Wong, J. (Eds.). (2020). Fractures in Athletes (2nd ed.). Springer.
20. Sierra, RJ, & Trousdale, RT (2007). Fractures about the acetabulum: Update on advances in surgical management. Journal of the American Academy of Orthopedic Surgeons, 15(12), 748-755.