

FIRST MEDICAL AID IN FRACTURES AND DISLOCATIONS

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Annotation. *This review article discusses the clinical presentation, diagnosis, first medical aid, and treatment of fractures and dislocations. These injuries are among the most common causes of disability and require rapid and effective first aid to prevent complications.*

The paper highlights the mechanisms of injury, classification, signs and symptoms, and diagnostic methods. It also emphasizes the importance of immobilization, pain management, and timely transportation to a medical facility. Proper first aid and early medical intervention significantly reduce the risk of long-term complications and improve functional recovery.

Keywords: *fracture, dislocation, first aid, diagnosis, immobilization, trauma, treatment, bone injury, emergency care.*

ПЕРВАЯ МЕДИЦИНСКАЯ ПОМОЩЬ ПРИ ПЕРЕЛОМАХ И ВЫВИХАХ

Аннотация. *В данной обзорной статье рассматриваются клиническая картина, диагностика, первая медицинская помощь и лечение переломов и вывихов. Эти травмы являются одной из наиболее частых причин инвалидности и требуют быстрого и эффективного оказания первой помощи для предотвращения осложнений. В статье освещаются механизмы травмы, классификация, признаки и симптомы, а также методы диагностики. Также подчеркивается важность иммобилизации, обезболивания и своевременной транспортировки в медицинское учреждение. Правильная первая помощь и раннее медицинское вмешательство значительно снижают риск развития долгосрочных осложнений и ускоряют восстановление функций.*

Ключевые слова: *перелом, вывих, первая помощь, диагностика, иммобилизация, травма, лечение, повреждение кости, неотложная помощь.*

Introduction

Fractures and dislocations are among the most frequent injuries encountered in trauma medicine. They can occur as a result of direct or indirect mechanical forces such as falls, road traffic accidents, or sports injuries.

The main objective of first medical aid is to prevent further damage, alleviate pain, and ensure proper transport of the injured person to a healthcare facility.

Timely and adequate first aid plays a decisive role in the prognosis and functional outcome of the injured limb. This article provides an overview of the clinical signs, diagnosis, emergency management, and treatment principles for fractures and dislocations.

Anatomy and Mechanism of Injury

A fracture is a complete or partial break in the continuity of a bone caused by trauma or pathological processes that weaken bone tissue.

A dislocation refers to the displacement of the articular surfaces of bones forming a joint, leading to loss of joint congruence and function.

Common mechanisms of injury include:

- Direct trauma: impact or blow at the site of injury;
- Indirect trauma: fall on an outstretched arm causing fracture of the clavicle or radius;
- Muscular contraction: sudden muscle pull during seizure or electric shock;
- Pathological fracture: bone break due to disease (osteoporosis, tumor).

Clinical Features

1. Fractures:

Typical signs include:

- Intense pain at the site of injury;
- Deformity of the limb;
- Abnormal mobility and crepitus;
- Swelling, bruising, and hematoma;
- Functional impairment and inability to move the limb;
- Shortening or abnormal position of the limb.

2. Dislocations:

Characteristic features include:

- Severe pain and limited range of motion;
- Visible deformity of the joint;
- Fixed abnormal position of the limb;
- Absence of normal joint contour;
- Possible compression of nerves and vessels, leading to numbness or loss of pulse.

3. Diagnosis

Diagnosis of fractures and dislocations is based on:

1. Clinical examination – inspection, palpation, and assessment of limb function;
2. Radiological examination – X-ray in at least two projections to confirm the diagnosis and identify the type and location of the injury;
3. Additional imaging – CT or MRI for complex joint injuries or intra-articular fractures;
4. Vascular and neurological assessment – to exclude damage to major vessels or nerves.

Early and accurate diagnosis determines the success of subsequent treatment.

First Medical Aid

Proper first aid for fractures and dislocations aims to prevent additional injury, relieve pain, and immobilize the affected area.

The main steps include:

1. Ensure safety and calm the victim.
2. Stop bleeding (if present) using pressure bandage or tourniquet.
3. Pain relief: administration of analgesics (ibuprofen, paracetamol) or cold application.
4. Immobilization:
 - Use of splints (improvised or medical) to fix the injured limb in a functional position;
 - Immobilize two adjacent joints above and below the injury site;
 - Do not attempt to realign a deformity or reposition dislocated joints.

5. Cold application to reduce swelling and pain.

6. Transportation: carefully move the patient to a medical facility, avoiding unnecessary movement of the injured limb.

In the case of open fractures, cover the wound with a sterile dressing before applying the splint to prevent infection.

Treatment

The definitive treatment of fractures and dislocations is carried out in a hospital and includes:

1. Fracture management:

- Closed reduction – non-surgical realignment of bone fragments;
- Open reduction and internal fixation (ORIF) – surgical stabilization using plates, screws, or rods;
- Immobilization – plaster casts, splints, or orthopedic devices;
- Physiotherapy and rehabilitation – to restore muscle strength and joint mobility.

2. Dislocation management:

- Closed reduction under anesthesia or sedation;
- Immobilization with bandage or splint for 2–3 weeks;
- Rehabilitation exercises after immobilization to prevent stiffness.

Complications

Possible complications include:

- Nonunion or malunion of fractures;
- Joint stiffness or contracture;
- Nerve or vessel injury;
- Infection (especially in open fractures);
- Post-traumatic arthritis (in dislocations).

Prevention of complications requires careful immobilization, aseptic wound management, and early functional therapy.

Prevention and Prognosis

Preventive measures include:

- Use of protective gear during sports and work;
- Fall prevention in the elderly;
- Treatment of osteoporosis;
- Road traffic safety education.

The prognosis is favorable in most cases with timely first aid and proper medical management. Delay or improper handling can lead to long-term functional impairment or deformity.

Conclusion:

Fractures and dislocations are serious injuries that require immediate and competent first aid. Proper immobilization, pain relief, and careful transportation are crucial to prevent complications. Subsequent treatment, including reduction, fixation, and rehabilitation, ensures full recovery of limb function and reduces disability risk. Health education and preventive measures play a vital role in minimizing trauma incidence.

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