

## CASE REPORT ON AVULSION FRACTURE OF ANKLE

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### Abstract

**Introduction:** An avulsion fracture is where a fragment of bone is pulled away at the ligamentous or tendinous attachment. It can be caused by traumatic traction (repetitive long-term or a single high impact traumatic traction) of the ligament or tendon. This occurs as tendons can bear more load than the bone. It can occur at numerous sites in the body, but some areas are more sensitive to these types of fractures than others, such as at the ankle which mostly occurs at the lateral aspect of the medial malleolus or in the foot where avulsion fractures are common at the base of the fifth metatarsal, but also at the talus and calcaneus.

**Case presentation:** -A 59- years - old male admitted in tertiary care hospital Wardha. with the complaints of injury to the left foot, bleeding in the toe wound, trouble moving the leg, swelling, muscle soreness, and limping or inability to walk. No history of hematemesis, abdominal pain, nausea, vomiting. No history of cold, cough, fever, syncope, loss of consciousness. Previous treatment, no prior hospitalization. There was no associated illness were present like Diabetes mellitus, tuberculosis, and thyroid disorder. No any significant past history. Physical examination and systemic examination were done. In respiratory system: bilateral clear, cardiovascular: heart sound was normal, central nervous system: conscious and oriented, abdominal examination: soft and nontender. No any abnormality detected in musculoskeletal system.

**Conservative management:** All the routine investigation done. A doctor can diagnose an avulsion fracture by examining the injury and carrying out an X- ray. Magnetic resonance imaging and computerized tomography scan can help for diagnosis. Orthopaedicsurgeons' opinion was taken and patient was advice for restriction of activity.

Surgery opinion was taken and patient was advised for conservative management.

**Conclusion:** due to conservative management and quality nursing care patient condition was stable and had no active complaints at present hence patient is being discharged.

**Keywords:** -fracture, ankle, injury, tissue, ligaments

### Introduction:

Avulsion fractures occur when the soft tissue around the bone pulls. It is separated from its primary body.<sup>1</sup> Tissue that is soft and linked to the bone forces it away from its main body, resulting in an avulsion fracture. Avulsion fractures can happen everywhere that soft tissue connects to bone.<sup>2</sup> The most prevalent causes of bone failure are acute events in which a tensile strain is applied chronic recurrent avulsive stresses, in which a portion of bone is dragged away by the soft tissue, or to the bone through the soft tissue.<sup>3</sup> Avulsion fractures occur when a bone fragment is torn away from its attachment and might be ligamentous or tendinous.<sup>4</sup> Traumatic traction of the tendon or ligament traumatic traction (either long-term or a single high-impact traumatic traction) can cause it.<sup>5</sup> This happens because tendons may carry more weight than bones.<sup>6</sup> If a bone fragment is found, the because the prominent bones are too far apart to fuse naturally, surgery may be required to join them.<sup>7</sup> Surgery may be necessary in the case of avulsion fractures involving the growth plates in children.<sup>8</sup>

Ligaments, tendons, subtended sheaths, joint capsule, labrum, retinaculum, meniscus, and syndesmosis are examples of soft tissue attachments to bone. Avulsion fractures are an important topic with many different processes, clinical circumstances, manifestations, and treatment options depending on where they occur.<sup>9</sup> They can represent minor or significant fractures. An avulsion fracture is a type of fracture that occurs when a bone is in addition damaged to intra-articular soft tissue and may indicate higher instability than is often observed.<sup>10</sup>

### Case History

A medical case was taken by Tertiary Care Hospital Wardha, Maharashtra, India. This com-placated case was taken care of nicely by the hospital because of expert medical team management and excellent nursing care.

**Patient information:** We report here case of a 59- years - old male admitted in tertiary care hospital Wardha with the complaints of injury to the left foot, bleeding in the toe wound, trouble moving the leg, swelling, muscle soreness, and limping or inability to walk. No history of hematemesis, abdominal pain, nausea, vomiting. No history of cold, cough, fever, syncope, loss of consciousness. Previous treatment, no prior hospitalization. There was no associated illness were present like Diabetes mellitus, tuberculosis, and thyroid disorder. No any significant past history. Physical examination and systemic examination were done. In respiratory system: bilateral clear, cardiovascular: heart sound was normal, central nervous system: conscious and oriented, abdominal examination: soft and nontender. No any abnormality detected in musculoskeletal system.

Physical examination was done: Pulse: 80 beats per min, Blood pressure: 120/80 mm of Hg, temperature afebrile, general examination was normal.

**Medical, family, and Psycho-social history:** - There were no history of comorbidities in patient's family. Patient belongs to middle class family. He is living with his wife and 1 son. Patient maintain good interpersonal relation with family members, relatives and neighbours. Patient do not have bad habit like smoking, tobacco chewing and alcoholism.

**Relevant past intervention with outcomes:** - For above mentioned complaints patient was admitted in private hospital. He was get relief from that hospital. That's why patient referred to tertiary care hospital Wardha.

**Diagnostic Assessment:** All the routine investigations were done: Haemoglobin: 10.2gm %. Red blood cells: 2.74, White blood cells: 8700, MCHC: 31.4, MCV: 64.4, MCH: 20.2, Total platelet count: 3.43, HCT: 16.6. Coagulation profile done-APTT- control-29.5, APTT patient -30.4, Prothrombin Time-control 11.8. Prothrombin Time-Patient: 13.0, INR: 1.09. Stool for occult blood was negative. TIBC: Total iron binding capacity blood test was: 387, Ferritin iron levels were: 119. Iron level was: 20. Kidney function and liver function test were done.

### Conservative Management:

Most of the healing happens between six to 12 weeks, but can take several months for your symptoms to completely settle. A doctor can diagnose an avulsion fracture by examining the injury and carrying out an X- ray. Magnetic resonance imaging and computerized tomography scan can help for diagnosis. Patient advice resting and icing the affected area, followed by controlled exercise that help restore range of motion, improve muscle strength and promote bone healing.and surgery opinion was taken SOS in emergency (deformity, pain, malunion, bleeding,). Surgery opinion was taken and patient was advised for conservative management.

**Treatment on admission:** Inj. Ceftriaxone 1gm IV BD X 5Days, tab. tramadol hydrochloride and diclofenac sodium 100mg X BD5 Days tab. Limcee 500mg OD 5 Days , TAB. PAN 40 mg X OD 5Days

**Treatment on Discharge:**Tab. Ceftriaxone 200mg BD X 5Days, tab. tramadol hydrochloride and diclofenac sodium 100mg X BD 5 Days tab. Limcee 500mg OD 5 Days , TAB. PAN 40 mg X OD 5Days . tab calcium 500mg X OD. Resting and icing the affected area, followed by controlled exercises that helps restore range of motion, improve muscles strength and promote bone healing.Patient was stable and had no active complaints at present. Hence patient is being discharged.

**Prognosis:** -Good

### Follow-up and outcome

Despite the most significant efforts of the Patient, their vibrant health will improve, and her health status will improve even more. Follow-up in case of following signs and symptoms patient are requested to attend the emergency department. Diagnostic and other test findings are critical.

### Discussion:

A 59- years - old male admitted in tertiary care hospital Wardha.with the complaints of injury to the left foot, bleeding in the toe wound, trouble moving the leg, swelling, muscle soreness, and limping or inability to walk. No history of hematemesis, abdominal pain, nausea, vomiting. No history of cold, cough, fever, syncope, loss of consciousness. Previous treatment, no prior hospitalization. There was no associated illness were present like Diabetes mellitus, tuberculosis, and thyroid disorder. No any significant past history.

It was managed by the general examination and some routine investigations. A doctor can diagnose an avulsion fracture by examining the injury and carrying out an X- ray. Magnetic resonance imaging and computerized tomography scan can help for diagnosis. Patient advice resting and icing the affected area, followed by controlled exercise that help restore range of motion, improve muscle strength and promote bone healing. And surgery opinion was taken in emergency. Patient was managing with conservative treatment.

Several elements must be taken into account. In a vast amount of cases (39.4 percent) skin/soft tissue problem was reported by Gita JN.In their review of 33 individuals, they found problems. Even in the absence of as the tuberosity is so prominent, skin problems might be a significant problem. The typically sharp fracture fragment can press into the strained cranium. This can result in decubitus or possibly skin necrosis.<sup>11-14</sup>

The use of a twofold approach is required since the research indicates a significant 27.3 percent failure rate percent with loss of reduction and lack of fixing. The tensile strength, according to Gregor et al. The Achilles tendon is subjected to a force of 500-600N while riding. However, Lag screws alone have a fixing strength of roughly 250N. It is hoped that by combining strategies, this failure rate might be reduced, as well as increasing the construction's pull-out strength.<sup>15-17</sup>

Various strategies are described in the literature. Using two K-wires and a tension band wire, Squires et al. demonstrated how to heal the fracture. The tension band's purpose is to neutralise the Achilles tendons force, although it necessitates the use of a hefty device. This may result in soft tissue problems and even death. Irritation of the peroneal tendon. The fracture fragments are frequently tiny, thus screws are used. may not always be the best option. A suture is used in this scenario. Zhao et al. describe how to apply the anchor technique, and Greenhagen and colleagues. This method of fixation has the drawback of being time-consuming. The cost of the surgery.<sup>18-22</sup>

#### **Conclusion:**

A 59-year-old- male came in hospital with above mentioned complaints, in critical condition. Conservative treatment was given. All the routine investigation done. A doctor can diagnose an avulsion fracture by examining the injury and carrying out an X- ray. Magnetic resonance imaging and computerized tomography scan can help for diagnosis. Orthopaedic surgeons' opinion was taken and patient was advised for restriction of activity. After the treatment patient's prognosis was good. Overall Patient had given a positive response to treatment and patient was stable. Hence patient is being discharged.

#### **Ethical approval**

Not applicable

#### **Patient Inform consent**

While preparing a case report and for publication patient's informed consent has been taken.

#### **Conflict of Interest**

The Author declares that there are no conflicts of interest.

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Not applicable

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