

## Road to recovery from multiple fractures and subdural, sub arachnoid bleed along with low back pain- A case report

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### ABSTRACT

We present a case of multiple fractures with subdural, subarachnoid bleed and open wound. Fracture is a loss in the continuity of bone while open wound is loss in the continuity of skin and managing the both is important. Secondary complications like low back pain develop due to prolong supine position. Managing the condition and preventing the secondary complications is one of the major roles of a physiotherapist. Platelet rich plasma is a therapy used to boost the healing of the wounds, in which the blood of the patient is centrifuged and platelets and plasma are separated and inserted at the site of injury. Managing multiple levels of injury requires a multidisciplinary approach. In this case report we conclude that early management reduces the risk of secondary complication and further involvement of neurological system post subdural and subarachnoid bleed.

**Keywords:** Road traffic accident, Platelet rich plasma, Rehabilitation, autobiographical case report, open wound.

### 1. INTRODUCTION

Road Traffic accidents are the leading cause of death in whole world is also leading cause of bone fracture (Fedoroff et al., 1992). Bone fracture is a condition where there is partial or complete discontinuity in bone. Managing a Fracture is an important to prevent further soft tissue or bone damage. Management can be conservative or Operative. Conservative management include immobilization by cast or splint while operative management include surgical intervention depending upon the type and extend of the fracture (Dushyant et al., 2020). Break in the continuity of skin or soft tissue is known as open wound. Skin is the protective layer which protects internal organs from the external environment any breach in the skin is invitation to the infection which will lead to further issue. Open wound with blood loss require proper management, Management options include cleaning, debridement, wound dressing, and antibiotics (Kim et al., 2011). PRP therapy that is platelet rich plasma is injecting patients own plasma in the wound to promote healing. As, the plasma is taken from the patient's body itself there are no side effects

and it reduces the need of anti-inflammatory and opioids (Puri and Talwar, 2009).

We present a case of multiple fractures along with subdural and subarachnoid bleed with an open wound on the lateral aspect of the ankle. Multiple fractures include metacarpal, lateral malleoli and skull fracture. Multiple fractures lead to disability while depending upon the extent of the bleed in subdural and sub arachnoid region the symptoms differ. Complications include neurological deficit, seizure, rebleed and vasospasm. We discuss the clinical finding in a case of road traffic accident and the management of various findings.

## 2. CASE PRESENTATION

A 23 year old female met with a road traffic accident on 23<sup>rd</sup> of February 2021, she was unconscious and was brought to hospital immediately. I had an Open wound on the lateral aspect of left ankle with tendons and arteries visible. On further assessment the behaviour was very agitated. So, head injury was suspected and MRI was done. MRI revealed subdural and subarachnoid bleed of 4mm depth. X ray revealed fracture of Left Lateral Malleolus (Fig 1) and fracture of Left 1<sup>st</sup> and 2<sup>nd</sup> Metacarpal (Fig 2).

She was subconscious for 3 days. In hospital, conservative management was done for 1<sup>st</sup> and 2<sup>nd</sup> Metacarpal. Tranexamic acid 500mg was given to control subdural and subarachnoid bleed for 5 days. Bleeding was controlled and patient was discharged. Platelet rich plasma therapy was given to the patient for the open wound management (Fig 3-4). She was advanced non-weight bearing ambulation and physiotherapy management to prevent secondary complications and maintain the strength. Platelet rich plasma therapy was given for 4 weeks with 2 sessions a week. Repeated evaluation showed dizziness and decreased grip strength. For grip strength, clay exercises and resistance putty exercised were given. Prehension and precision exercises were continued. For Lower limb Toe movements and isometric exercises were continued. Once the open wound was completely managed ankle range of motion was initiated with ankle dorsiflexion-plantar flexion and inversion eversion. After 8 weeks partial weight bearing ambulation was suggested and the rehabilitation was continued till 16 weeks. Post 16 weeks complete range of motion of ankle was achieved. Dizziness was resolved. Upper-limb grip strength was improved.



**Figure 1** X-ray of the Left ankle taken in antero posterior View



**Figure 2** X-ray of the Left hand taken in antero posterior View



**Figure 3** Open wound at the time of injury



**Figure 4** open wound post Platelet rich plasma therapy 12 sessions

### 3. DISCUSSION

We present a case of multiple fracture and subdural subarachnoid bleed post road traffic accident. Because of the subdural and subarachnoid bleed the patient was agitated and was unconscious for the initial 3 days post injury. Patients MRI showed marked bleed in left high parietal region in subdural region, linear blood density in fronto-parietal region and temporal region in subarachnoid region. Acute subdural haematoma post trauma is a challenge for all medical professionals because of limited recovery and high mortality. Many variables have been found important for results of treatment two could be influenced by a neurosurgeon-the time interval from injury to surgical evacuation of the lesion and the control of Intracranial Pressure (Chapman & Anderson, 1994).

Factors like age and associated injury to cerebral region modify the results. Young adults 18 to 30 year old revealed 25 % mortality, while in older groups mortality exceeded 50%, in people above 50 being almost 80% (Noonan et al., 2012). Road traffic injury incidences rate in recent ten years was from 9.17% to 11.54% annually (Pan et al., 2014). The high incidences reported by Pan et al., (2014) were similar to the reported data by, Krishnamoorthy and Karthikeyan, (2011) about road traffic accidents. While managing the subdural, subarachnoid bleed as well as fractures, Lots of precautions were taken for the open wound to prevent infection and other secondary complications. Most wound care protocols now advocate the use of such standard measures for an initial period of 4 weeks, after which an assessment of wound area reduction should be made.

The use of PRP has impact in reducing the cost of treatment, Even though it is cost effective treatment it cannot be considered as a treatment that replace conventional treatments, like debridement of necrotized tissue, it is a complementary therapy.

### 4. CONCLUSION

Road traffic accident is a leading cause of mortality; early management plays a important role in preventing secondary complications. Subdural and subarachnoid bleed can be controlled with early intervention. Long term follow-up is important to check for any long term complications.

#### Author's Contributions

All authors did equal contribution. The entire author's read the manuscript before submission.

**Informed Consent**

Patient was informed about the procedure and written consent was taken from the patient.

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**Conflicts of interest**

The authors declare that there are no conflicts of interests.

**Data and materials availability**

All data associated with this study are present in the paper.

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