Management Of A Case Of Polytrauma In The Orthopedic-Traumatology Department Of Chu Ignace Deen

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Citation

T CAMARA, M BAH, N MADJIRABE, K KEITA, M DIALLO, L LAMAH. *Management Of A Case Of Polytrauma In The Orthopedic-Traumatology Department Of Chu Ignace Deen*. The Internet Journal of Orthopedic Surgery. 2023 Volume 31 Number 1.

DOI: 10.5580/IJOS.56519

Abstract

We present the case of a 30-year-old patient, without any particular pathological history, admitted to our department on the 5th day of a polytrauma associated with a cranioencephalic trauma, a trauma of the cervical spine, an open trauma of the left leg and a trauma of the left hand following a road traffic accident (car-motorcycle collision).

INTRODUCTION:

Polytrauma is a group of serious traumatic injuries, at least one of which is or may be life-threatening in the short-term. It is an increasingly frequent clinical entity, a real cause of mortality in the world. This mortality is still high in spite of the creation of specialized centers. Mortality remains considerable high during the first hours, since it is close to 60%, hence the importance of the first measures taken by the rescuers at the place of the accident. Head trauma, spinal trauma and limb fractures are the main complications of polytrauma. We report a case of a polytrauma patient treated in our department.

CASE REPORT:

A 30-year-old patient, a civil engineer with no particular pathological history, was admitted to our department at D5 because of a road traffic accident (car-motorcycle collision) for a cranioencephalic trauma with notion of initial loss of consciousness, occipital region wound, cervical spine pain, left wrist pain, left leg pain plus functional impotence of the left pelvic limb and pain in the hypogastric region.

On clinical examination he was hemodynamically stable with the following parameters: BP = 130/80 mm Hg, π = 100 beats/min, FR = 24 c/min, □ = 36.5 °C

The examination of the musculoskeletal system revealed:

- At the head level: A localized wound in the occipital region sutured in 4 points was noted. Exo-oral examination revealed no facial asymmetry, no wound, no ecchymosis or epistaxis and no limitation of the mouth opening. Endo-oral examination revealed no wound, no dental avulsion or loss of dental occlusion.
- In the pelvis: The maneuvers of spreading and approaching awoke pain;
- On the left pelvic limb: Immobilized in a plaster cast, the removal of which revealed a global swelling of the leg, a dermabrasion on the anterior face of the leg in its lower third, an axial deformity of the type of external rotation of the foot, an abnormal mobility noted in its lower third during re-immobilization, the pedal and retro-malleolar pulses were perceived.
- On the left thoracic limb: a tumefaction on the dorsal surface opposite M2 of the hand with no finger mobility disorders.

Neurological examination:

- This was a conscious patient with a GCS score of 15/15;
- Pupil isocore and reactive to light;
- No signs of involvement of the I, III, IV, V, VI, and VII pairs of cranial nerves;
- In the right thoracic limb, the segmental muscle strength (SMF) was rated at 3/5;
- On the left thoracic limb, the segmental muscle strength (SMF) was rated at 2/5;
- On the right pelvic limb, the segmental muscle strength (SMF) was rated at 3/5;
- In the left pelvic limb, the presence of abnormal mobility in the leg did not allow us to evaluate the SMF;
- There was hypoesthesia from the toes to the C5 dermatome;
- Tonicity was preserved in all 4 limbs;
- The bicipital, tricipital and ulnar reflexes were abolished in the thoracic limbs;
- The patellar reflex was abolished in the right pelvic limb and not evaluated in the left pelvic limb

because of the abnormal mobility;
- The cutaneous-plantar reflexes were indifferent;
- Palpation of the spinous processes of the cervical spine awakened a pain with tension of the paraspinal muscles;

There was no trophic disorder or genital-sphincter disorder.

We retained as clinical diagnosis:

- A polytrauma associated with cranioencephalic trauma with notion of loss of consciousness, wound of the occipital region, closed cervical vertebral-medullary trauma with nerve damage type D of Frankel,
- Open fracture of the left leg, Gustilo Anderson type I; a fracture of the M2 finger of the left hand.

Faced with this clinical picture, the following paraclinical examinations were requested. In particular, X-ray of the cervical spine (F/P); X-ray of the pelvis (F); X-ray of the left hand; X-ray of the left leg (F/P) and CT scan of the cervical spine.

X-ray findings:

- A Tile type B1 symphyseal disjunction;
- A fracture of the body of M2;
- A comminuted fracture of the lower 1/3 of the tibia associated with a transverse fracture plus the 3rd fragment of the fibula, resulting in 42C3 and 4F2B according to the AO classification;
- CT scan showed a C5-C6 fracture-luxation, a fracture of the transverse apophyses C5, C6, C7 and T1.

Therapeutic protocol:

We immobilized the cervical spine in a rigid collar, the left hand in a plastered cuff, and the left leg in a posterior plastered splint. We prescribed analgesics, antibiotics, low molecular weight heparin and an opinion from the neurosurgery department was requested.

We made the decisions:

- To the spine: reduction + decompression and stabilization with a C5-C6 Caspard plate;
- To the pelvis: reduction + placement of an external fixator;
- Left leg: reduction + a screw plate;
- On the hand: placement of a removable cuff.

In terms of surgery, the procedure consisted of:

- On the spine: reduction + C5-C6 arthrodesis + immobilization with a rigid collar;
- Pelvis: reduction by external maneuver and placement of an external fixator under fluoroscopic control;
- In the left leg: reduction + osteosynthesis with a screwed plate.

The postoperative course was simple, with healing of the surgical wounds in the first instance, and the follow-up radiographs showed the presence of the various implants with.

Figure 1

Cervical spine CT scan: sagittal section, 3D reconstruction, transverse section: showing C5-C6 dislocation fracture, fracture of the apophyses. Rx. Front cervical spine showing: reduction and fixation by plate

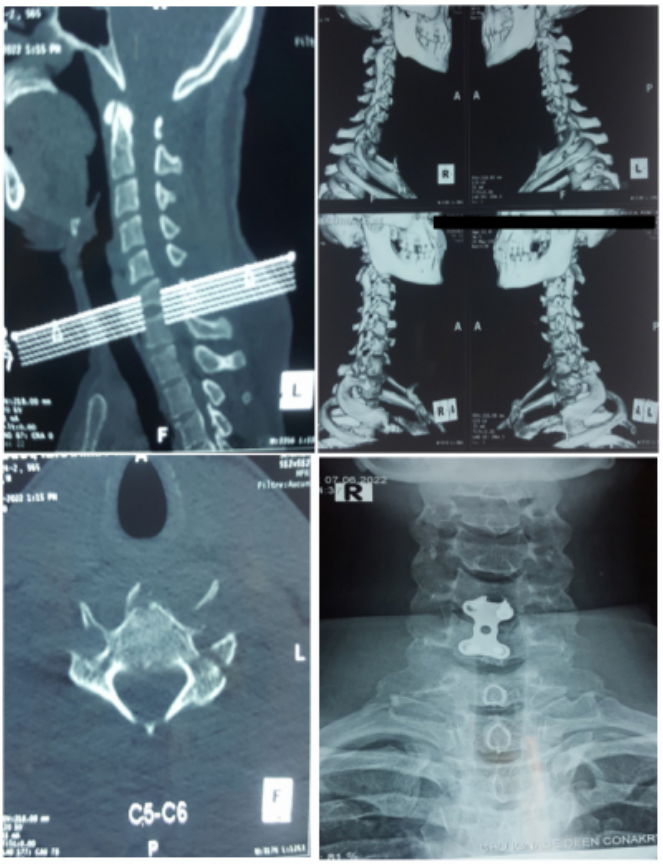

Figure 2

Frontal pelvis X-ray: showing symphyseal disjunction and stabilization by external fixator

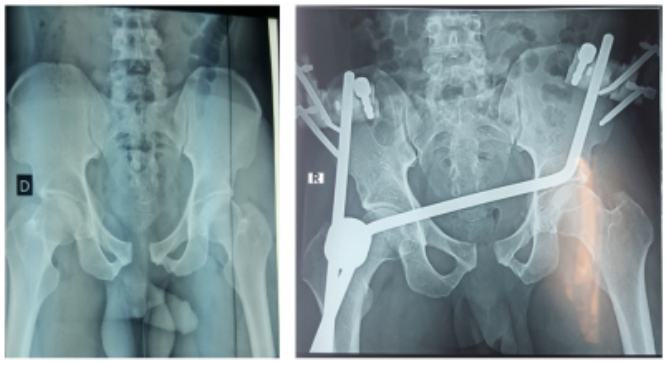

Figure 3

Rx. Jambe gauche montrant : fracture tibia et fibula classée 42C3 et 4F2B

DISCUSSION:

Polytrauma patients are patients who have suffered a violent trauma. They are defined as seriously injured patients with at least two injuries, at least one of which is life threatening in the short-term [1]. The multiplicity and severity of these injuries require urgent and effective care. These lesions and their pathophysiological consequences require a well codified management by a multidisciplinary medical team [2]. In developing countries, the management of polytrauma patients is poorly structured and pre-hospital medical services are not very specific [3].

Our patient was 30 years old. Monkessa et al [4] in Congo in 2022 reported an average age of 39 ± 15 years with a sex ratio of 4.8 in favor of men. Young people represent the most active segment of our population and therefore the most exposed to trauma.

Road traffic accident was the circumstance of occurrence of this polytrauma. Obame et al [3] in Gabon in 2019 reported that road traffic accidents were the primary cause of the occurrence of these polytraumas in 83%. The defective state of road networks, the rapid growth of the population, speeding, non-compliance with the highway code, the advent of motorcycle cabs and the use of psychoactive substances by drivers could explain this result.

According to the diagnosed injuries, our patient presented a cranioencephalic trauma with notion of loss of consciousness, a wound of the occipital region, a closed cervical vertebrae-medullary trauma C5-C6 (dislocation C5-C6 with corporal fracture of C6 and nerve damage C6, C7, C8, T1) type D of Frankel, a fracture of the body of M2 of the left hand, a symphysial disjunction type B1 of Tile, and a closed fracture of the 2 leg bones left classified as 42C3 and 4F2B according to AO. Tomta et al [5] in Togo in 2016 had found 60.4% hemorrhagic wounds, 38.61% cranioencephalic injuries, 30.7% lower limb fractures, 18.81% upper limb fractures, 8.91% cervical spine fractures and 4.95% pelvic fractures. The violence of trauma caused by road traffic accidents would justify the occurrence of all these injuries.

Our patient underwent reduction + C5-C6 arthrodesis + immobilization of the spine with a rigid collar; reduction by external maneuvering and placement of an external fixator in the pelvis under scopic control; and finally, reduction + osteosynthesis with a plate screwed to the leg. Tchaou et al [2] in Benin in 2012 had performed trimming and suture in 54.3% of cases, reduction and osteosynthesis in 23.8% of cases, and reduction and plaster cast immobilization in 11.9% of cases. The management of polytrauma is multidisciplinary and specific according to the diagnosed injuries.

The postoperative course was simple in our patient. Obame et al [3] in 2019 in Gabon reported in their study that the postoperative course was marked by complications such as shock in 27.8%, brain death in 22.2% and sepsis in 16.7%. Ozoilo et al [6] in Nigeria in 2012 had recorded 30 cases of complications of which wound infections were the most represented, i.e. 33.3%.

The length of hospital stay was 20 days. Monkessa et al [4] in 2022 in Congo found an average length of hospital stay of 8.7 ± 10 days. This difference could be due to the sample size and the difference in the management services. In their study, patients stayed in an intensive care unit before being transferred to the surgical specialties.

CONCLUSION:

Polytrauma is a common reason for hospitalization in our department. This condition generally affects young male subjects and occurs most often after road traffic accidents. The management of polytrauma patients is difficult because

of the complexity of the clinical pictures. This management must be early, multidisciplinary by a trained team and a significant technical platform to prevent the occurrence of complications that can be fatal.

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