ARC Journal of Anesthesiology
Volume 9, Issue 1, 2024, PP 17-20
ISSN 2455-9792
DOI: http://dx.doi.org/10.20431/2455-9792.0901003
www.arcjournals.org

Anesthetic Management of Multiple Traumas for Trauma Surgery in the Moroccan 5thMSC in Errachidia

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Abstract

Multiple traumas are frequently encountered in the Intensive Care Unit and Emergency Department and constitute a major public health problem world wide. They require rapid and appropriate management to avoid high morbidity and mortality related to inadequate and/or delayed management.

We report the case of a 35-year-old patient admitted for multiple traumas with forearm and femur fractures requiring osteosynthesis.

We performed spinal anesthesia for traction and nailing of the femur, followed by an ultrasound-guided axillary block for reduction and fixation of the forearm fractures. Combined spinal anesthesia and ultrasound-guided nerve block for uper allowed a tailored anesthetic approach that minimized risks and maximized benefits avoiding general anesthesia and its associated risks, particularly airway management, hemodynamic instability, and postoperative nausea and vomiting.

Neuroaxial and regional anesthesia allow for earlier patient mobilization and rehabilitation, promoting faster recovery and functional restoration.

Keywords: *Multiple traumas; spinal anesthesia; ultrasound-guided nerve block; regional anesthesia.*

1. Introduction

Multiple traumas are frequently encountered in the Intensive Care Unit and Emergency Department and constitute a major public health problem worldwide [1]. They are defined by the presence of at least two traumas [2] [3]. They require rapid and appropriate management to avoid high morbidity and mortality related to inadequate and/or delayed management, which leads to a long hospital stay with high hospital costs and significant mortality [5].

We report the case of a 35-year-old patient admitted in the 5th Medical-Surgical Complex MSC in Errachidia for multiple traumas with forearm and femur fractures requiring osteosynthesis.

The objective of this case study is to propose adapted and satisfactory anesthetic management for the patient as well as for the surgeon, avoid the use of general anesthesia and ensuring patient safety throughout the procedure.

2. Case Presentation

This is a 60-year-old male patient, injured in a road accident. He was a smoker who had quit 5 years ago, admitted to the 5th CMC of Errachidia for the management of multiple traumas.

On admission, the patient was conscious with a GCS of 15/15, hemodynamically and respiratory stable with a blood pressure of 130/60 mmHg and a heart rate of 76 beats/min, eupneic, and with normocolored conjunctiva. He had pain and functional impotence of the left forearm and left lower limb. The vascular and neurological examination was normal.

Initial radiological assessment revealed a fracture of radial and humeral bones and a displaced fracture of the left femur. The initial biological assessment was normal.

The pre-anesthetic appointment was brief and consisted of an assessment of the upper airway for signs of difficult ventilation and/or intubation, an assessment of general condition using the ASA score, quantifying functional capacity and searching comorbidities and allergies. On the morning of surgery, after securing an 18G intravenous line, an infusion of saline solution was started and antibiotic prophylaxis with cephalozolin 2 g. Routine monitoring were used (electrocardiogram, pulse oximeter, non-invasive blood pressure cuff.

Spinal anesthesia was performed initially with 12 mg of bupivacaine and 100 ug of morphine for traction and nailing of the femur. Additional sedation was provided with 2 mg of midazolam and 50 gamma of fentanyl.

In a second phase, an ultrasound-guided left axillary peripheral block was performed for surgical reduction of the fracture of the humerus and radius with fixation of the distal fractures with screws.

The surgery was uneventful and lasted 3.5 hours.

Postoperative analgesia was multimodal, including paracetamol, nefopam and NSAIDs. Postoperative management is straight forward and painless: he had a good recovery.

3. Discussion

This text discusses the case of a 60-year-old man who sustained multiple fractures, including a displaced fracture of the left femur and a fracture of both bones of the left forearm, in a road traffic accident. The patient underwent spinal anesthesia for traction and nailing of the femur, followed by an ultrasound-guided axillary block for reduction and fixation of the forearm fractures. In fact, Road traffic accidents are a common cause of traumatic injuries in developing countries[6]. Associated fractures of the upper and lower extremities are frequently seen in these cases[7]. The incidence of a concomitant fracture of the upper limb and the lower limb in an elderly subject is close to 5%[8]. The patient's age (60 years) was a risk factor for complications, but the absence of comorbidities facilitated anesthetic management nailing is considered the gold standard for treatment of isolated femur shaft fractures because of its undeniable advantage of weight-bearing structure, even if it is an invasive surgical technique[9]. Early surgical fixation of the femur can provide pain relief, promote early mobilization[10] and rehabilitation, and prevent complications such as pulmonary embolism[11,12].

Ultrasound-guided nerve blocks can provide effective anesthesia and postoperative analgesia.

Combined spinal anesthesia and ultrasound-guided nerve blocks allowed a tailored anesthetic approach that minimized risks and maximized benefits avoiding general anesthesia and its associated risks, particularly airway management, hemodynamic instability, and postoperative nausea and vomiting.

Neuroaxial and regional anesthesia allow for earlier patient mobilization and rehabilitation, promoting faster recovery and functional restoration.

Overall, this case highlights the importance of prompt and appropriate surgical and anesthetic management for patients with multiple traumatic injuries.

We emphasize the effectiveness of neuroaxial and regional anesthesia in managing patients with concomitant femur and upper limb fractures. This approach, which avoids general anesthesia, offers several advantages such as **effective pain management; reduced risks of** general anesthesia, **early mobilization and rehabilitation and tailored approach** to the specific needs of each patient, ensuring optimal pain control and minimizing risks.

4. Conclusion

Concomitant femur and upper limb fractures are one of the most common serious injuries seen today.

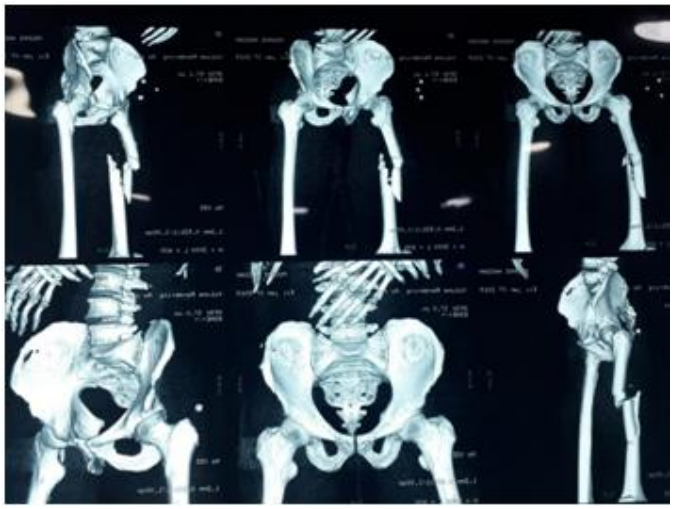
The authors highlight the potential of neuroaxial and regional anesthesia as a viable alternative to general anesthesia for patients with concomitant femur and upper limb fractures. This approach offers a safer and more patient-centered approach to managing these complex injuries.

The findings of this case study contribute to the growing body of evidence supporting the use of neuroaxial and regional anesthesia in trauma patients. This approach has the potential to improve patient outcomes, reduce complications, and accelerate recovery.

5. Future Directions

Further research is warranted to explore the long-term outcomes and cost-effectiveness of neuroaxial and regional anesthesia in patients with concomitant femur and upper limb fractures. Additionally, studies investigating the use of ultrasound-guided nerve blocks for more precise pain control and reduced procedural invasiveness are of interest.

Overall, the conclusion reinforces the importance of considering neuroaxial and regional anesthesia as a first-line choice for patients with concomitant femur and upper limb fractures, offering a safer, more effective, and patient-centered approach to pain management and recovery.



Figures . *Displaced femur fracture*

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Citation: *Ayoub Maaroufi. Anesthetic Management of Multiple Traumas for Trauma Surgery in the Moroccan 5th msc in Errachidia. ARC Journal of Anesthesiology. 2024; 9(1):17-20. DOI: http://dx.doi.org/10.20431/2455-9792.0901003.*