



## Anaesthetic Management of COVID-19 Suspected Patient Posted For Proximal Femoral Nailing – A Case Report

Authors

Dr J.Sivagurunathan<sup>1</sup>, Dr B.Balamurugan<sup>2</sup>

<sup>1</sup>Post Graduate, <sup>2</sup>Professor

Chettinad Hospital and Research Institute, Kelambakkam-Chennai, India

### Abstract

Overall 1.6 million patients suffer from hip fracture every year, and it has increased by 25% every decade as the population continues to grow. After hip fracture, in-hospital mortality ranges from 2.3 to 13.9%, yet the danger continues beyond the immediate surgical period with 6-month mortality rates ranging from 12 to 23%<sup>1</sup>. Hip fractures are the commonest reason for older people to require emergency surgery, hospital admission and account for more orthopaedic trauma beds occupied than all other fractures combined<sup>2</sup>. Combined spinal epidural anaesthesia stands an effective mode of analgesia for these patients with hip fractures after the COVID -19 pandemic. Studies have shown that there is a possible connection between COVID-19 infection and fragility hip fracture in elderly patients<sup>3</sup>. It could be induced by fatigue and weakness due to COVID-19 disease. Management of geriatric patients can be a challenge to anaesthesiologist due to limited organ reserve, the compromised organ function, and the unique disease predispositions<sup>4</sup>. The safety of the medical personnel, including the overall safety of the medical team participating in the rescue, must also be prioritized. All personnel involved in the emergency traumatic orthopaedic surgery should select different levels of personal protective equipment (PPE) according to their risk assessment.

**Keywords:** hip fractures, elderly patients, COVID-19.

### Introduction

Hip fracture can be viewed as a symptom of declining physiological function with age, in combination with other co-morbidities such as diabetes, hypertension, bronchial asthma, seizures and renal problems, 70% of patients are ASA III or IV, 25% have at least moderate cognitive impairment<sup>5</sup>. The elderly patients with hip fracture who come for surgical treatment remains a medical challenge for the anaesthesiologist, mainly because of the frequent and numerous comorbidities encountered. Moreover, the incidence of these comorbidities has increased

during the past years. Elderly patients are weakened by the presence of at least one of the following conditions: (1) advanced age, the “oldest old” (*i.e.*, >90 yr); (2) presence of several comorbidities and (3) new acute medical conditions<sup>1</sup>. Studies show there is a possible relationship between COVID-19 infection and fragility fractures due to weakness and fatigue arising from the underlying disease<sup>4</sup>. Hip fracture repair presents numerous challenges to anaesthetists and perioperative physicians. There is a need to enable timely surgery in these frail patients who are at high risk of complications. But

quite often, they are unable to participate fully in the decision-making process, which presents clinical, ethical and organisational dilemmas<sup>2</sup>.

### Case Report

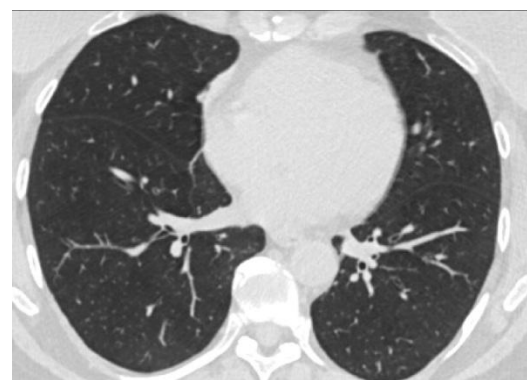
We report a case of 70-year-old female admitted with right sided intertrochanteric femoral fracture (figure 1). Routine preoperative laboratory exam showed anemia, other investigations were reported normal. She had complaints of recent generalized weakness and cough. She was a known diabetic and hypertensive on regular medications. During preoperative assessment bilateral crepitations were present on auscultation. Patient was started on metered dose inhalers as per pulmonologists orders. AFB analysis was negative (2 samples). Her room air saturation was around 96%. Pre-operative echo was normal. On airway assessment MMP was II, mouth opening and thyromental distance was adequate and multiple tooth was missing. Her chest HRCT was diagnostic of COVID -19 (figure 2&3) although RT-PCR was negative. Proximal femoral nailing under combined spinal and epidural anaesthesia was planned. All the safety measures were taken to avoid direct contact to the patient body fluids. After shifting the patient to operation theatre, all the monitors were connected (SpO<sub>2</sub>, ECG, blood pressure). Intravenous cannula was secured. In sitting position, parts painted and draped, under aseptic precautions, using 18G Tuohy needle, the epidural space was identified in the L3- L4 space using Loss of resistance (LOR) technique, catheter was secured at 11 cm after a test dose of Injection 2 % lignocaine with adrenaline (3ml). Spinal anaesthesia was given in the same space as epidural using a 26 G quincke needle with 0.5% heavy Bupivacaine (3 ml) and buprenorphine (60mcg) 0.2 ml as additive making total volume of 3.2 ml. Surgery lasted of about 3 hours. Intraoperatively patient vitals were stable. She was transferred to recovery ward for further monitoring and rehabilitation.



**Figure 1.** X-ray showing intertrochanteric fracture



**Figure 2.** Chest x-ray showing increased bronchovascular markings



**Figure 3** HRCT chest showing ground glass opacities with CORADS-IV

### Discussion

Hip fractures have devastating consequences and poor outcome in the elderly patients. Anaesthetic management and surgery is highly risky due to their advanced age, frailty and associated with various comorbidities. Most patients with fragility lower extremity fractures are old and have other underlying conditions such as hypertension, diabetes, and heart disease, which lead to a lengthy hospital stay as well as requiring monitoring in the PACU. In COVID -19 positive

patients there is increased chance of transmitting the infection to the health care workers and other patients. Death rate is higher in elderly people, due to a weaker immune system that permits faster progression of viral infection<sup>3</sup>. Additionally, the stress associated with the fracture and the surgery itself can trigger a series of oxidative responses and excessive inflammation making them vulnerable to a more severe course of the disease. So, the elderly patients with fragility lower extremity fracture need to be carefully evaluated during an outbreak of COVID-19 in order to protect the health and safety of the health care workers. Extracapsular fractures (i.e. those requiring dynamic hip screw or proximal femoral nail operations) are more painful than intracapsular fractures (i.e. those requiring hemiarthroplasty or hip replacement), due to the greater degree of periosteal damage. Analgesia should be provided throughout the perioperative period, beginning in the pre-hospital setting with immobilization and intravenous analgesic administration. Combined spinal epidural analgesia is the safest analgesic method preferred in these patients. Multimodal analgesia is necessary, but with an emphasis on avoiding opioids and non-steroidal anti-inflammatory drugs (NSAIDs). Based on these findings, the SIGN guide lines suggested that Spinal/epidural anaesthesia should be considered for all patients undergoing hip fracture repair, unless contraindicated.

### Conclusion

In elderly patients, hip fracture remains a frequent and devastating process with a high long-term mortality and a deleterious effect on daily life activities and quality of life in survivors. By building capacity and expertise in anaesthesia for the elderly, we can enable our specialty to accommodate the changing demographics of patients with hip fracture and address the challenges that this presents.

### References

1. Boddaert J, Raux M, Khiami F, Riou B. Perioperative Management of Elderly Patients with Hip Fracture. *Anesthesiology*. 2014;121(6):1336-1341.
2. Shelton. C, White. S. "Anaesthesia for Hip Fracture Repair." *BJA Education*, 2020;20(5): 142–149.
3. Shariyate MJ, Kachooei AR. Association of new coronavirus disease with fragility hip and lowerlimb fractures in elderly patients. *Arch Bone Jt Surg*. 2020 4;8(suppl 1 ): 297-301.
4. Gupta A, Kulshreshtha A, Kalra P, Sharma M, Nanda S. Anesthetic management of a 137-year-old patient fracture of neck femur. *Journal of Anaesthesiology Clinical Pharmacology*. 2012;28(1):143.
5. Maxwell L, White S. Anaesthetic management of patients with hip fractures: an update. *Continuing Education in Anaesthesia Critical Care & Pain*. 2013;13(5):179-183.
6. Guay J, Parker M, Gajendragadkar P, Kopp S. Anaesthesia for hip fracture surgery in adults. *Cochrane Database of Systematic Reviews*. 2016.