

CASE REPORT

Anaesthetic Management in Octogenarian with Alzheimer's, Kyphoscoliosis and Prognathism Posted for HernioplastyBhumika R.¹, Suresh Kumar N.², Ravi Madhusudhana³, Gagan M.⁴

HOW TO CITE THIS ARTICLE:

Bhumika R., Suresh Kumar N., Ravi Madhusudhana, Gagan M. Anaesthetic Management in Octogenarian with Alzheimer's, Kyphoscoliosis and Prognathism Posted for Hernioplasty. Ind J Anesth Analg. 2025; 12(2): 111-113.

ABSTRACT

Introduction: Kyphoscoliosis, a condition characterized by forward and lateral bending of the thoracolumbar spine. The most common cause of kyphoscoliosis is idiopathic, which occurs in 70% of the population. The secondary causes may include neuromuscular, congenital, or traumatic. Patients with thoracolumbar kyphoscoliosis present unique challenges to anaesthesia.

Case Report: A 72 year old male, with kyphoscoliosis diagnosed with left sided complete indirect inguinal hernia was posted for hernioplasty. He was a known case of Alzheimer's disease. On examination vitals were stable. Airway examination showed Mallampati grade 4. An examination of the spine revealed a lateral curvature along with thoracolumbar kyphosis. Blood and routine investigations were within normal limits. The surgery was planned under spinal anaesthesia. On the day of surgery, the patient was shifted to the operation theatre, standard monitoring was ensured perioperatively. Patient was given subarachnoid block through paramedian approach. Intra operative vitals were stable. Standard monitoring was continued in post operative care unit for 30 mins. There was no surgical or anaesthetic complication.

Conclusion: When both the airway and spine are involved in the disease process the anaesthetic options are limited and technically difficult. Subarachnoid block with proper preoperative planning can be a useful technique of providing safe and effective anaesthesia in patients with severe thoracolumbar kyphoscoliosis.

KEYWORDS

• Anaesthetic management • Alzheimer • Kyphoscoliosis • Spinal anaesthesia

AUTHOR'S AFFILIATION:

¹Junior Resident, Department of Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Karnataka, India.

²Professor, Department of Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Karnataka, India.

³Professor, Department of Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Karnataka, India.

⁴Junior Resident, Department of Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Karnataka, India.

CORRESPONDING AUTHOR:

Ravi Madhusudhana, Professor, Department of Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Karnataka, India.

E-mail: ravijaggu@gmail.com

➤ Received: 31-01-2025 ➤ Revised: 10-02-2025 ➤ Accepted: 04-04-2025



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution NonCommercial 4.0 License (<http://www.creativecommons.org/licenses/by-nc/4.0/>) which permits non-Commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the Red Flower Publication and Open Access pages (<https://www.rfppl.co.in>)

INTRODUCTION

Kyphoscoliosis, a condition characterized by forward and lateral bending of the thoracolumbar spine. The most common cause of kyphoscoliosis is idiopathic, which occurs in 70% of the population and secondary causes may include neuromuscular, congenital, or traumatic. Patients with thoracolumbar kyphoscoliosis present unique challenges to anaesthesia.¹

Kyphoscoliosis can cause a decrease in functional residual capacity, inspiratory capacity, vital capacity, and total lung capacity leading to restrictive pattern. There could be an increase in pulmonary vascular resistance causing pulmonary hypertension. Subarachnoid block in patients with kyphoscoliosis presents a unique challenge to anaesthesiologists due to spinal deformities that can complicate both regional anaesthesia and airway management. The abnormal spinal curvature also complicates the administration of spinal anaesthesia.²

CASE REPORT

A 72 year old male, with kyphoscoliosis diagnosed with left sided complete indirect inguinal hernia was posted for left lichen stein tension free hernioplasty. He came with the complaints of swelling in the left inguinal region since 8 months. He was a known case of Alzheimer's disease not on medications. On examination vitals were stable. Airway examination showed Mallampati grade 4. An examination of the spine revealed a lateral curvature along with thoracolumbar kyphosis. Blood and routine investigations were within normal limits. The surgery was planned under spinal anaesthesia. The patient was kept nil per oral for 2 h for water and 8 h for solid food. Written, informed, and explained consent was obtained from the patient and his family.

Intra operative management

On the day of surgery, the patient was shifted to the operation theatre. Standard monitoring was ensured perioperatively which include pulse oximetry, electrocardiography, non-invasive blood pressure and pulse rate. Patient was given subarachnoid block through paramedian approach, it was difficult and got in the third attempt. As he was apprehensive, Inj. Midazolam was given Intra operative vitals were stable. Standard monitoring was

continued in post operative care unit for 30 mins. There was no surgical or anaesthetic complication.

DISCUSSION

Alzheimer's disease(AD) is the most prevalent neurodegenerative disorder and most common form of dementia in elderly people. Only a small portion of AD is due to genetic variants, the large majority of cases are late onset and sporadic in origin. The causes of sporadic AD is likely to be multifactorial, with external factors interacting with biological or genetic susceptibility to accelerate the manifestation of the disease.³

The main risk factor for the AD is age, and the persons over 85 have six-fold increase of getting the disease. Postoperative cognitive dysfunction, confusion, and delirium are common after general anaesthesia in the elderly. Currently there is no direct evidence that anaesthesia has a negative influence on the clinical course and outcome of patients with AD.⁴

General anaesthesia may be avoided in these cases as post-operative cognitive deficits can happen, patients can be very irritable in immediate postoperative period.

The most common cause of kyphoscoliosis is idiopathic. Th secondary causes include neuromuscular, congenital, or traumatic. Kyphoscoliosis causes a decreases in functional residual capacity leading to restrictive pattern. In the cardiovascular system, there is an increase in pulmonary vascular resistance causing pulmonary hypertension. The Role of radiological evaluation is important in planning the approach for Sub arachnoid block.⁵

It is challenging to give regional or subarachnoid block in these patients as there is anatomical variation or defects, difficulty in positioning, to access the SAB space and patchy block can happen. Due to restrictive lung , the patient may need respiratory support in the post-operative period if GA is given.

Prognathism is the forward protrusion of the mandible. When providing anaesthesia to patients with prognathism, the primary concern is managing a potentially difficult airway due to the altered facial anatomy, which often leads to challenges with mask ventilation laryngoscopy during intubation;

however, depending on the severity of the prognathism, intubation may not be as difficult as anticipated, and careful pre-operative assessment is crucial to anticipate and manage potential airway issues.⁶

A thorough pre-operative evaluation is essential to assess the degree of jaw protrusion, mouth opening, and ability to visualise the soft palate, which helps predict the difficulty of intubation. Due to protruding mandible, achieving a good seal with a facemask can be challenging, leading to inadequate ventilation.

CONCLUSION

When there is a challenge of airway, spine and age in a patient posted for elective surgery, the anaesthetic options are limited and technically difficult. A meticulous approach in evaluating, planning of anaesthesia is to be tailored for a successful outcome. Subarachnoid block with proper preoperative planning can be a useful technique of providing safe and effective anaesthesia in patients with severe thoracolumbar kyphoscoliosis. General anaesthesia and complications are avoided with regional, that to when the patient has Alzheimer's disease.

Conflict of Interest: None

Support: self

REFERENCES

1. Roberta H., Katherine M. Stoelting's Anesthesia and Co-existing Disease. 5th ed. Philadelphia: Churchill Livingstone; 2008. pp. 459-60.
2. Misra S., Shukla A., Rao K.G. Subarachnoid block in kyphoscoliosis: A reliable technique? Med J DY Patil Univ. 2016; 9: 761-4.
3. Papon M.A., Whittington R.A., El-Khoury N.B., Planel E. Alzheimer's disease and anesthesia. Front Neurosci. 2011; 31(4): 272.
4. Di Nino G., Adversi M., SamolskyDekel B.G., Fodale V., Rosa G., Melotti RM. Peri-operative risk management in patients with Alzheimer's disease. J Alzheimers Dis. 2010; 22 Suppl 3: 121-7.
5. Kaur M., Aujla K.S., Gosal J.S. Anesthetic Challenges in a Patient with Severe Thoracolumbar Kyphoscoliosis. Anesth Essays Res. 2020;14(1):170-172.
6. Karm M.H., Chi S.I., Kim J., Kim H.J., Seo K.S., Bahk J.H., Park C.J. Effects of airway evaluation parameters on the laryngeal view grade in mandibular prognathism and retrognathism patients. J Dent Anesth Pain Med. 2016; 16(3): 185-191.

