

lumbar surgery and discuss the importance of early recognition.

A 22-year-old male underwent resection of L3 giant cell tumor in right lateral position. The patient weighed 96 kg with a body mass index (BMI) of 35.6 kg/m² with no comorbidities. General anesthesia was administered with oxygen, nitrous oxide, isoflurane, propofol, and morphine. Surgery lasted for 9 h.

On 1st postoperative day, he developed severe pain with a progressive increase in girth of the right thigh. Doppler study ruled out deep venous thrombosis. Next day, he developed tachycardia, tachypnea, and icterus. Concurrently, he had oliguria. Investigations showed a high serum creatinine (1.63 mg/dl), creatine phosphokinase (CPK) (29,100 U/L) and deranged liver function (total bilirubin 1.5 mg%, direct 0.5 mg%, aspartate aminotransferase 209 U/L, alanine aminotransferase 185 U/L, alkaline phosphate 372 U/L). A diagnosis of RM was made, and the patient was treated with liberal hydration to maintain urine output of at least 100 ml/h along with alkalinization of urine. Clinically and serologically, he started to improve and was ambulated and discharged in a week.

There are only a few reported cases of RM after neurosurgical procedures, with several risk factors being proposed. Lateral positioning in posterior fossa tumor resection and minimally invasive spinal surgeries have been reported as probable cause in 9 patients.^[1] Van Gompel *et al.* reviewed 10 cases of RM after neurosurgery in supine or prone positions for cranial and spinal pathologies, and found obesity and prolonged surgery as common risk factors.^[2] Woernle *et al.* studied 150 patients with routine CPK analysis before and after surgery to determine the effect of position. They correlated raised CPK not only with lateral position, but also with the use of intraoperative monitoring, and hypothesized it to be due to the absence of pharmacological relaxation during monitoring.^[3]

In our case, several of these factors contributed to the development of RM. The patient was obese (BMI of 35.8 kg/m²), had a long surgery (9 h) in right lateral position. Use of isoflurane is thought to stress an unstable sarcolemmal membrane causing increased permeability resulting in an influx of calcium and leak of intracellular potassium and creatinine kinase from myocytes.^[4] Acute renal failure (ARF) is the most dangerous complication of RM, with prompt recognition and early therapy determining the outcome. Adequate rehydration to maintain hourly urine output of 100–300 ml is the main component of

Rhabdomyolysis in lumbar spinal surgery: Early detection is crucial

Sir,

Rhabdomyolysis (RM) after neurosurgical procedure is a rare event. We report a case of RM following

management to prevent ARF, with alkalization of urine to maintain pH >7.5. The kidney disease improving global outcomes recommends against the use of diuretics to maintain an adequate output (level 1 B).^[5] Hemodialysis is required if the kidneys do not respond.

Rhabdomyolysis is a rare but potentially life-threatening postoperative complication in neurosurgery, with obesity, lateral position, and prolonged surgery being common risk factors. A high index of suspicion and early recognition helps prevent renal shutdown.

**Raghvendra Nayak, Bijesh Ravindran Nair,
Shalini Nair¹, Mathew Joseph¹**

Department of Neurosurgery, Christian Medical College, ¹Department of Neurological Sciences, Christian Medical College, Neurological ICU, Vellore, Tamil Nadu, India

Correspondence:

Dr. Shalini Nair,
Department of Neurological Sciences, Christian Medical College,
Neurological ICU, Vellore, Tamil Nadu, India.
E-mail: drshalininair@cmcvellore.ac.in

References

1. Dakwar E, Rifkin SI, Volcan IJ, Goodrich JA, Uribe JS. Rhabdomyolysis and acute renal failure following minimally invasive spine surgery: Report of 5 cases. *J Neurosurg Spine* 2011;14:785-8.
2. Van Gompel JJ, Khan YA, Bloomfield EL, Pallanch JF, Atkinson JL. Rhabdomyolysis after transnasal repair of anterior basal encephalocele. *Surg Neurol* 2009;72:757-60.
3. Woernle CM, Sarnthein J, Foit NA, Krayenbühl N. Enhanced serum creatine kinase after neurosurgery in lateral position and intraoperative neurophysiological monitoring. *Clin Neurol Neurosurg* 2013;115:266-9.
4. Farrell PT. Anaesthesia-induced rhabdomyolysis causing cardiac arrest: Case report and review of anaesthesia and the dystrophinopathies. *Anaesth Intensive Care* 1994;22:597-601.
5. KDIGO clinical practice guideline for acute kidney injury. *Kidney Int Suppl* 2012;2:37-68.

Access this article online	
Quick Response Code: 	Website: www.ijccm.org
	DOI: 10.4103/0972-5229.152786