

Postoperative myoclonic movement following mandibular cyst enucleation under general anesthesia: A case report

ABSTRACT

Postoperative myoclonic movement (PMM) is an uncommon side effect after general anesthesia (GA), and the exact cause of this neurologic complication is still unknown. Many factors such as anesthesia, psychological stresses, and surgical stress could trigger PMM. We are here reporting a case of PMM in the post-anesthetic care unit (PACU) following general anesthesia in an apparently healthy patient.

Key words: Epilepsies, general anesthesia, myoclonus, propofol

Involuntary movements (including PMM), following GA, are rare and are caused by CNS pathology, hypoxic damage, cardiac arrest, neurodegenerative disorders, and encephalopathy.^[1,2]

Differential diagnosis of PMM includes adverse drug reaction, local anesthetic reaction, emergence delirium, hysterical response, and shivering. There have been some reports that showed a relationship between the different drugs used, such as propofol, ramosetron, or nefopam, and neurologic disorders, especially myoclonic movement.^[3-5]

We are here reporting a case of PMM in the PACU following GA in an apparently healthy patient.

Case Report


A 28-year-old male patient was scheduled for elective mandibular cyst for enucleation. He was 167 cm tall, 64 kg in weight, and had neither a family nor past medical history of the disease and was not taking any medication routinely before surgery. All results from preoperative routine laboratory tests including an electrocardiogram, a chest X-ray, as well as blood biochemistry results were within normal ranges.

General anesthesia was achieved following 3 minutes of pre-oxygenation with IV propofol 2 mg/kg body weight (b.w.) and fentanyl 2 µg/kg b.w. Tracheal intubation was performed after adequate neuromuscular blockade with

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rocuronium 0.5 mg/kg b.w. Anesthesia was maintained with 1 MAC sevoflurane in the O₂/air mixture. The patient was mechanically ventilated to maintain ETCO₂ between 35 and 40 mmHg. The patient received antibiotic cefazolin 2 gm, granisetron (1 mg), and dexamethasone (8 mg). He received morphine (2 mg), paracetamol (1 gm), and lornoxicam (8 mg) for postoperative pain management.

At the end of the surgery, neuromuscular block was reversed with sugammadex 2 mg/kg b.w. and extubation was done in the operating room.

After arriving in the PACU, the patient's vital signs were stable. Oxygen was supplied at a flow rate of 6 L/min via a simple facemask. His mental status changed from drowsy to alert after 10 minutes of arrival to the PACU. At this time, he suddenly complained of a myoclonic jerk, which lasted for 45 minutes and involved the upper part of the trunk and his left arm. The patient's orientation remained intact, and he was able to obey verbal commands. Fifteen minutes later, the same myoclonic movement recurred. Propofol (40 mg) was administered which again stopped the myoclonic movement. The third and the last attack of myoclonic movement occurred 30 minutes after his arrival to the PACU.

At 45 minutes from arrival to PACU, a neurologist physically examined the patient, with no abnormal findings except for the involuntary movement of his left shoulder and upper arm. According to the neurologist, the condition could be diagnosed as a partial seizure. As such, he ordered for EEG, complete laboratory investigation (electrolytes, complete biochemistry, and urine analysis). Laboratory results were within normal ranges, and EEG was normal. The patient was transferred to the general ward and administered oxygen 6 L/min via simple face mask. The myoclonic movement was stopped thereafter, and there were no significant abnormalities. The myoclonus did not recur during hospitalization, and the patient was discharged on the second day after operation without sequelae. No other medications except analgesics were given.

Discussion

This case is presented by PMM in a fully conscious healthy patient in PACU. There were several cases reported PMM also in the ward or even after discharge of the patient from the hospital.^[6,7]

There are many types of myoclonic movements such as physiologic myoclonus, epileptic myoclonus, secondary myoclonus, negative myoclonus, and PMM. Many factors such

as anesthesia, hypoxia, psychological stresses, and surgical stress could trigger PMM.^[8-10]

In a previous report, there was a strong association between propofol and myoclonus and the mechanism is still relatively unknown. Also, a few case reports described grand mal seizures after fentanyl administration in humans.^[11,12]

There is a possible relationship between myoclonic movements and the effect of IV anesthetic drugs on the gamma-aminobutyric acid (GABA) pathway. In GABA pathway, a balance is lost between the activity of excitatory and inhibitory neurons at high tissue concentrations of anesthetic drugs.^[13,14]

In conclusion, myoclonic movement can occur following GA in patients in healthy subjects without any obvious risk factors. Anesthetic drugs may be associated with postoperative myoclonic activity in the PACU. Immediate treatment of the abnormal myoclonic activity and adequate oxygenation are indicated followed by investigation of the cause to avoid any neurological deficit.

List of abbreviations

EEG = electroencephalography
GABA = gamma-aminobutyric acid
GA = general anesthesia
LA = local anesthesia
ASA = American Society of Anesthesia

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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