PNEUMOENCEPHALUS AND SEIZURES AFTER SEQUENTIAL ANESTHESIA:

CAUSE OR INCIDENTAL FINDING – A CASE REPORT

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BACKGROUND

Pneumoencephalus (PC) is the presence of intracranial air; its development following neuroaxial anesthesia is extremely rare and most cases due to epidural block have been associated with loss-of-resistance to air (LORA) technique.

Seizures in the post-operative setting have multiple causes (hypercapnia, pneumoencephalus, electrolytic abnormalities).

CASE REPORT

- 60-year-old female, ASA III (class III obesity, hypertension, diabetes mellitus)
- Admitted electively for total knee replacement surgery

- 0h Beginning of anesthesia: **sequential anesthesia with the LORA technique** (5 attempts). No opioid in the spinal anesthesia
Sedation (midazolam 4mg in boluses) – spontaneous ventilation and hemodynamic stability
- 2h End of surgery. Patient transferred to the PACU
- 4h30 Analgesia with 3mg of **epidural morphine**
- 7h Discharged from PACU without incidents
- 13h **Generalized tonic-clonic seizure** → **intubated** and **ventilated** by the emergency medical team
Pneumoencephalus on CT-scan of the head → Cooperation from anesthesiology, ICU and neurosurgery

Reevaluation → **severe hypercapnia** (pCO₂ 96 mmHg) and **respiratory acidosis** (pH 7.02) admitted as **possible causes** for the seizure

- Patient showed no other symptoms for pneumocephalus (headache, vomiting)
- Prolonged time lapse between the sequential anesthesia and the symptoms

Resolution of the **respiratory acidosis** and **hypercapnia**. **Extubation** uneventful (intubated during 14h)

History of **obstructive sleep apnea** (OSA) recognized later. Follow-up by pulmonology and remained asymptomatic. Discharged home 8 days later.

DISCUSSION

The **probable cause of the seizure** was **multifactorial** with the **OSA**, **sedation** and **opioid** as major possibilities. PC is very rare, even when using the LORA technique, usually has early symptoms and seizure is an infrequent sign. Although the patient was asymptomatic for PC and there were more probable causes for the seizure, the PC finding was incidental and may have induced a **fixation error**. A **multidisciplinary approach** of post-operative complications allows for early recognition of its real causes and minimizes the fixation errors.

REFERENCES

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