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Letter to Editor

Transient Perioperative Hyperlactatemia in a Patient Undergoing Transnasal Transsphenoidal Surgery for Pituitary Macroadenoma

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Pituitary macroadenomas are among the most common suprasellar masses in adults and are frequently associated with hormonal dysregulation and mass effects such as visual disturbances [1]. Our patient was a 24-year-old female weighing 59 kg with a 6-month history of diminished peripheral vision and a 2-year history of hyperhidrosis, voice change, facial puffiness, and menstrual irregularities. Magnetic resonance imaging revealed a large heterogeneously enhancing sellar and suprasellar mass measuring 57 × 42 × 51.5 mm [Figure 1], suggestive of a pituitary macroadenoma. The patient was scheduled for transnasal transsphenoidal surgery (TNTS). Preoperative evaluation revealed stable vital signs: noninvasive blood pressure 116/72 mmHg, pulse rate 86 beats/min, and SpO_2 98% on room air. Physical and laboratory examinations were within normal limits. Premedication included intravenous (IV) glycopyrrolate 0.2 mg and midazolam 1 mg. Induction was achieved with IV propofol 120 mg and fentanyl 100 µg, then vecuronium 5 mg for tracheal intubation. Balanced anesthesia was maintained with sevoflurane and intermittent doses of vecuronium. Intraoperatively, arterial blood gas (ABG) analyses revealed elevated lactate levels of 3.1 mmol/L which further increased to 4.2 mmol/L [Figure 2a], despite stable hemodynamics, hypoxia, or hypoperfusion. For reversal sugammadex 200 mg was used, patient was extubated uneventfully, and shifted to the surgical intensive care unit. Postoperative lactate levels declined to 3.2 mmol/L on postoperative day (POD) 0 and normalized to 1.1 mmol/L on POD 1 [Figure 2b].. This pattern was consistent with type B hyperlactatemia, as tissue hypoxia and perfusion abnormalities were excluded. In neurosurgical patients, hyperlactatemia may arise from metabolic alterations rather than hypoxia. Shen et al. [2] reported intraoperative lactate elevation during craniopharyngioma surgery, possibly linked to glucocorticoid-induced insulin resistance and stress response. Similarly, Ioannoni et al. [3] observed elevated lactate in patients with glioblastoma multiforme, attributed to tumor glycolytic activity (Warburg effect). Pituitary macroadenomas, especially hormonally active ones, may induce comparable metabolic changes. Furthermore, de Smalen et al. [4] noted that total intravenous anesthesia (TIVA) was associated with a reduced risk of postoperative hyperlactatemia compared to balanced anesthesia. Importantly, our patient's transient hyperlactatemia was benign and not associated with adverse outcomes, aligning with literature suggesting that mild hyperlactatemia in neurosurgical patients is not prognostically significant [4-5]. Clinicians should thus interpret perioperative lactate elevations in context, recognizing that not all cases indicate hypoxia or poor prognosis.

The authors declare no conflicts of interest.

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Patient Consent

We certify that all certified patient consents were obtained. In the form, consent was obtained from the patient for her clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity.

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