Unexpected Elevated Blood Lactate in a Craniopharyngioma Resection
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Introduction

We describe a case of a ten-year-old patient who was found to have increased lactate during craniopharyngioma resection in absence of obvious reasons for anaerobic respiration.

Case Presentation

A 10-year-old female with 3-week history of vomiting, headache, and blurry vision and an MRI suspicious for craniopharyngioma presented for craniotomy and resection. Resection was performed under general anesthesia with desflurane and intermittent fentanyl. There were no major perturbations in hemodynamics, blood loss was minimal, and no transfusions were required. Despite this, intraoperative samples showed increasing blood lactate with a peak of 6.66 at specimen removal, then decreasing blood lactate for the remainder of surgery and normalization by the next morning.

Discussion

Our case provides an illustration of unexpected lactate elevation during an otherwise uneventful neurosurgical procedure. The time course of our intraoperative blood gases provides strong evidence that the elevated lactates were related to the manipulation of the craniopharyngioma. Pediatric brain tumor manipulation as a cause of elevated lactate has not become well recognized, and literature review shows only scarce case reports (1). Although lactate may have a variety of sources, it is usually created as a byproduct of anaerobic respiration (2). However, recent literature suggests intracranial lesions and intracranial hemorrhages may have unique sources for elevated blood lactate levels (3) including the cyst fluid of some tumors themselves (4). In our case, there was no evidence for anaerobic cellular respiration production of lactate as seen by the lack of hypoperfusion, hypoxia or significant triggers for metabolic disorders. Additionally, frequent arterial blood gases allowed us to observe the lactic acid curve and how it closely mirrored surgical progress with elevations in lactate as the mass was increasingly manipulated and down trending lactate following specimen removal. The recognition that lactate elevation may be due to intrinsic tumor source could help prevent unnecessary testing and treatment both during and after surgery.

References