

PEER-REVIEW REPORT

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Title: Paradoxical herniation associated with hyperbaric oxygen therapy after decompressive craniectomy: A case report

Provenance and peer review: Unsolicited Manuscript; Externally peer reviewed

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Reviewer's code: 02548034

Position: Peer Reviewer

Academic degree: MD

Professional title: Professor

Reviewer's Country/Territory: Taiwan

Author's Country/Territory: China

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Reviewer chosen by: Huo Liu

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Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input checked="" type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Novelty of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No novelty
Creativity or innovation of this manuscript	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Good <input checked="" type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No creativity or innovation

Scientific significance of the conclusion in this manuscript	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Good <input checked="" type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No scientific significance
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input checked="" type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Peer-reviewer statements	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SPECIFIC COMMENTS TO AUTHORS

This case report explores the potential link between hyperbaric oxygen therapy (HBOT) and paradoxical herniation in a 65-year-old brain trauma patient. Following decompressive craniotomy, the patient regained consciousness but experienced speech impairment. 22 days later, he received HBOT, followed by paradoxical herniation on the second day. Mannitol treatment did not improve the situation, but subsequent skull repair resolved the herniation, restored consciousness, and led to good recovery. The authors conclude that paradoxical herniation is a rare potential complication of HBOT with an unknown mechanism and recommend caution with its use in similar cases. They also suggest avoiding mannitol while timely skull repair can be a life-saving treatment for this rare complication. This case report adds to the limited literature on paradoxical herniation as a potential complication of HBOT for patients after decompressive craniotomy. While single cases cannot establish causality, it raises awareness of this potential risk and prompts further investigation. Some minor comments are shown below. 1. The writing style is clear and informative, but with some minor adjustments, it can be further refined for increased conciseness, accuracy, and readability. Some

sentences could be shortened or rephrased for improved conciseness. For example, instead of "Cranial CT examination revealed paradoxical herniation, and 125 ml of mannitol was intravenously infused for 8 hours in the neurorehabilitation department as a dehydration measure to lower cranial pressure, which led to drowsiness," consider splitting into two sentences: "Cranial CT examination revealed paradoxical herniation. An attempt to lower cranial pressure using mannitol resulted in drowsiness." Moreover, some parts of the discussion could be tightened by removing unnecessary repetition and simplifying sentence structure. For example, the sentence "Excessive cerebrospinal fluid drainage...results in a decrease in pressure gradient, and bilateral gradient differences lead to midline displacement, resulting in paradoxical herniation" could be rephrased as "Excessive drainage reduces the pressure gradient and creates bilateral imbalances, ultimately leading to paradoxical herniation." The repeated use of "It is also possible that..." can make the discussion feel repetitive and less impactful. Instead of listing them separately, consider grouping related ideas and expressing them in a single sentence. This can tighten the writing and avoid redundancy. 2. Although the discussion explores various potential causes, it would benefit from clearer statements about the specific cause in this case. Is the authors' primary conclusion that HBOT directly caused the herniation, or could other factors like decompression or pre-existing conditions have played a role? 3. Briefly acknowledge the limitations of the single-case report and emphasize the need for further research to confirm the exact role of HBOT in paradoxical herniation. 4. Certain phrases could be replaced with more precise verbs or nouns. For example, "local doctors considered it to be normal" could be rephrased as "the bone window collapse was deemed non-concerning by the local medical team." 5. Please amend "Paradoxical herniation caused by high-pressure oxygen therapy after decompressive craniectomy: A case report" in the title as "Paradoxical herniation associated with hyperbaric oxygen therapy after decompressive craniectomy: A case

report". While the report suggests a link between HBOT and paradoxical herniation, it's a single case study and can't definitively establish causality. "Associated with" reflects this uncertainty more accurately than "caused by". 6. Minor grammatical errors, such as subject-verb agreement or missing commas, can be corrected for improved clarity.