Author’s response to reviews

Title: Lumbar Puncture as Possible Cause of Sudden Paradoxical Herniation in Patient with Previous Decompressive Craniectomy: Report of Two Cases

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Author’s response to reviews:

Dear Richard Alan Rison and Reviewers

Thank you for your letter and for the reviewers’ comments concerning our manuscript entitled “Lumbar Puncture Provokes Acute Onset Paradoxical Herniation in Hydrocephalus Patient with Decompression Craniectomy: A Case Report” (ID: NURL-D-16-00571). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as flowing:

Responds to the reviewer’s comments:

Reviewer #1

Comments: The first observation is on the language. As Italian, I'm the less entitled to say it, but the manuscript requires a linguistic review by an English mother language reviser.

Response: The language has been improved. Thanks for your suggestion.
Comments: The second observation to the paper is on the Title: .....A case Report…while Authors are reporting Two cases. Then: Title is peremptory….Lumbar Puncture provokes Acute Onset…etc etc

I think the Title should be proposed in a different manner; for example: " Lumbar Puncture as possible cause of sudden cerebellar herniation in patients with previous decompressive craniectomy. Report of two cases".

Response: The titles has been changed to “Lumbar Puncture as Possible Cause of Sudden Paradoxical Herniation in Patient with Previous Decompressive Craniectomy: Report of Two Cases”.

Comments: In the Abstract the Authors are saying " Lumbare Puncture is always performed…..". I think it's better to say ".is often performed....". Furthermore, LP is more commonly performed in the suspect of Subarchnoid hemorrhage in some patients, not only in patients with suspected infection of Cerebro-spinal Fluid (CSF), or hydrocephalus.

Response: It was changed to “Lumbare Puncture is often used....” Besides, LP performed in subarchnoid hemorrhage was added. It was changed to “…with subarchnoid hemorrhage, infection of Cerebro-spinal Fluid (CSF), hydrocephalus....”

Comments: The Authors are writing always "paradoxical herniation", without to explain what does it mean, and what is the difference with a common cerebellar herniation, for example.

Herniation of what? The Authors should clarify in the manuscript what they are saying.

In my eyes, it should be useful to add briefly in the Introduction what is a paradoxical herniation, and why is different from a Chiari Malformation

Response: The introduction has been rewritten to answer the above questions.

Comments: The Introduction of manuscript is starting with an argument that is not requested: the paper is on the paradoxical herniation, and not on the Guidelines of management of head trauma.
Maybe is enough to explain what is a decompressive craniectomy in case of Traumatic Brain Injury (TBI).

Response: It has been rewritten in the introduction.

Comments: The Authors describe the cases of two patients with Glasgow Coma Scale (GCS) of 3. In my Hospital, patients with GCS 3 are nearly dead, or anyway not suitable for a surgical procedure, that commonly is delivered when GCS is at least 5-6 or more.

Are Authors sure the patients had GCS 3 when were submitted to the surgical procedures?

Response: Thanks for your suggestion. We are very sorry for our mistake. It is a typing error in the first case, the GCS is 5 (E1V1M3). We are sorry for that. The GCS of the second case is 3. In our hospital, we also have a similar operating condition. Usually, the patient will not be operated unless GCS is at least 5 and blood pressure is stable. However, the treatment such as mannitol failed to improve the GCS for a long time. Besides, a gradual deterioration of respiratory rhythm irregularities resulting from brainstem compression was coming. Poor prognosis of him was inevitable. Thus, a life-saving surgery was approved by his guardian.

Comments: What does it mean bilateral anisocoria? We commonly consider anisocoria when a pupil is different from the other. Maybe the Authors saw bilateral mydriasis, with difference in diameter of pupils.

Response: We are sorry that the words “bilateral anisocoria” confused you. It means that there is a difference in diameter of pupils. It has been rewritten in first case section.

Comments: In first case, the Authors are reporting that patient remained without a cranioplasty until the last follow up check, for five years?

I think that something of wrong there was in the management of the patient, after the lumbar puncture, because the basic problem of the patient was properly the missing skull flap.

Response: Cranioplasty is always performed in few months after the primary surgery. The patient did not have a cranioplasty for some reasons. Firstly, the paradoxical herniation occurring in the last time made the patient be scared. Secondly, he has a good recovery without cranioplasty; the missing skull flap does not make his life difficult. Finally, cranioplasty is expensive in China. As a result, the patient refused to have a cranioplasty.
Comments: In the second case, Authors are describing "...intracranial hematoma cleaning...". Which hematoma? In which cerebral lobe, and in which side?. Authors are so accurate in describing the degree of pupillary dilation, while They don't say what kind of cerebral hematoma, and in which location.

Response: A subdural hematoma in the right frontal temporal lobe was removed.

Comments: In the first case, and in the discussion Authors are reporting the term " sink flap". Why thay don't describe briefly what is a "Sinking flap syndrome" in the discussion, when they recorded Nakamura et Al?

Response: Thanks for your suggestion. A brief description of Sinking flap syndrome was added in the discussion section.

Comments: In the Discussion, string 112, Reference Viela : the name is wrong. Vilela is the right one.

Response: It has been corrected.

Comments: Finally, some personal considerations: in patients like Authors reported, the complication of paradoxical herniation is clearly possible, and not unexpected.

The pathophysiology of paradoxical herniation has been postulated to be secondary to a large craniectomy defect exposing the intracranial contents to the external positive atmospheric pressure. With a reduction in intracranial pressure postsurgery, the intracranial contents deviate under a pressure gradient away from the site of craniectomy. Therein lies the reason why CSF drainage procedures are uncommonly performed in patients post craniectomy, unless under exceptional circumstances.

Therefore, Authors should put in their manuscript a clear message of warning, suggesting to do not perform LP if not strictly necessary

Response: Thanks for your suggestion. Your advise was adopted and was shown in the last paragraph.
Reviewer #2

Comments: Language needs to be improved
Response: The grammar was improved by an English native speaker.

Comments: Please put a diagram to show the "Trendelenburg position" and lumbar puncture operations, which could be helpful for readers.
Response: It was added as Fig 1 and 2.

Comments: Please indicate the Figures in "Case report" section, it would be easy for the readers to locate the pictures.
Response: “Figures” were inserted in “Case report” section. And the figures were uploaded as separate files what the introductions for authors of BMC Neurology required.

Comments: Which is Fig-1F? What was that low density area in case1 CT-"left frontotemporal" after 5 years?
Response: The last figure of Fig 1 should be Fig-1f. It was a mistake. Sorry. The low density area is softened cerebral tissue after the trauma and surgery.

Comments: Page4, line72- "and the man fell in consciousness gradually..." please rephrase this sentence.
Response: It has been rephrased.

Comments: Please define the Glasgow Coma Scale (GCS) in the paper for the readers.
Response: A brief definition of GCS was added in “Case one” section.

Comments: Please include other healthy index for Patient1 in the paper before surgery, after surgery, 5 years later. Just one Ct cannot fully indicate the health status for the patient.
Response: GOS, ADL were reported if the data was available.