Reviewer's report

Title: Chemical meningitis in children as a risk factor following craniopharyngioma resection – a case report

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Reviewer: Puerta de Hierro University Hospital Spain

Reviewer's report:

Authors report a girl who was operated on from a large cystic craniopharyngioma and one week following surgery she developed meningitis. Based on the lack of positive cerebrospinal fluid cultures, meningitis was considered to be chemical.

Rarity of this case makes it potentially interesting for publication. Nevertheless, the authors should perform notable improvements before it can be accepted. There are several conceptual mistakes, so first at all, I would suggest the authors to read a general article about craniopharyngiomas in order to understand better this complex pathology before attempting to write a case report: "Craniopharyngiomas: An appropriate surgical treatment based on topographical and pathological concepts. OBM Neurobiology doi:10.21926/obm.neurobiol.1804012."

I suggest addressing the following points:

* General comments:
  o Overall, the article should be carefully revised by a native English speaker. It needs substantial editing for grammatical errors and use of confusing terms that makes difficult the adequate comprehension of its content. The authors should strive to use correct scientific language as it is full of vague statements such as: "...among benign tumors...", "...can cause complications..." or "...progressing hydrocephalus...". With regards to these three examples, I would recommend to change them for: "...craniopharyngiomas are defined by the World Health Organization as "benign", "...craniopharyngioma surgery may be associated with major complications, being the most common hypothalamic disturbances...", "...acute obstructive hydrocephalus...."

* Specific comments in the sections:

a. Background:

i. This section should provide information about the definition of chemical meningitis in craniopharyngioma patients as well as the its treatment and outcome. Authors should distinguish among spontaneous and postoperative cases. Please, also provide information about the number of postoperative cases
described in the literature to get an idea about the rarity of this problem. Which is the rate of postoperative chemical meningitis in craniopharyngiomas? Is this rate different depending on the consistency of the tumor?

ii. (page 3, line 40) Please, clarify what do you mean by the sentence "…patients rarely recover…".

b. Case presentation:

i. (page 3, lines 53-55) An accurate definition of tumor topography should be provided. The tumor occupy the region of the third ventricle (this term is better than "interthalamic region"). It is a large cystic tumor with peripheral calcifications expanding from the sella to the third ventricle area. Taking into consideration the age of the patient and the images provided, this tumor probably corresponds to a sellar-suprasellar pseudointraventricular topography - craniopharyngiomas expanding below the third ventricle floor but mimicking an intraventricular position, a category typically found in children. 

ii. (page 3, line 60) What does it mean "progressing severe hydrocephalus?" Please clarify whether the patient had impairment in her consciousness level.

iii. (page 3, lines 65) The correct anatomical term is pituitary stalk (instead of pituitary penducle)

iv. (pages 3-4) Regarding surgical description, please describe if the tumor capsule was totally removed and where was the tumor attached. What was the exact relation between the tumor and the third ventricle floor found during surgery?

v. (page 4, lines 70-73) Please, clarify if the pathological variant was adamantinomatous

vi. (page 4, lines 75) Please, clarify why did you use prophylactic antibiotics following surgery. Don't you think that it might have contributed to the result of sterile cultures? Please, clarify what was the result for CSF gram staining. Please, consider using broad range 16S ribosomal DNA polymerase chain reaction to completely discard the presence of organisms. In this sense, I would recommend to read DOI 10.25259/SNI_392_2019

vii. (pages 4-5) Please, clarify for how long antibiotic therapy was maintained.

viii. It is not clear whether the postoperative CT scan showed hydrocephalus. First, the authors state that "the result of head CT did no suggest the need for repeat surgery" (pg 4, line 85) but later (page 5, line 100) they write "since control CT of the head no longer showed the signs of hydrocephalus"
ix. (page 5, line 106) Please, instead of proving the exact date of the images, indicate the days/weeks they were taken following surgery.

x. It is confusing the type of drainage: At first (page 5, line 98) the authors write that an internal drainage was placed, but later (line 100), they explain that an "external drain" was removed.

c. Discussion:

i. Authors might consider including a table with all the case reports of chemical meningitis in patients operated on for craniopharyngiomas. Discussion about the treatment strategies and outcome should be included in the discussion section of the article.

ii. Please, provide Cushing’s original work about the first description of chemical meningitis.

iii. What do you mean by the sentence "chemical meningitis does not necessarily produce classical meningitis symptoms"?

iv. It is not correct that lumbar puncture is included among the routine follow-up study of craniopharyngioma surgery. It should only be performed when meningitis is suspected.

v. With regards to the limitations and strengths of this article, I do not agree that description of a case report is a limitation. In fact, well-described reports are very useful to understand a pathology, particularly when it is rare. On the other hand, what do you mean by saying that rarity of postoperative complications can be a limiting factor?

d. Conclusion

i. It is chemical meningitis (not encephalitits)

e. Figures: Please, provide images of the postoperative CT scan. In addition, please, provide preoperative T1 and T1 after contrast enhancement images.

f. more images of the preoperative and postoperative studies as indicate

g. Figure legends: interval between studies or following surgery should be indicated, instead of the exact date the study was taken.

h. Figure 1 legend: note the correct term is transpendymal edema (instead of "leak")

i. Figure 2 legend: please clearly indicate that it is a midsagittal T2 weighted MRI scan. Regarding the hydrocephalus findings, please clarify these images actually show
obstructive hydrocephalus. Transpendymal edema is not shown in the midsagittal image provided; that information is better identified on axial T2 or FLAIR images.

j. Figure 3 legend is confusing as only two midsagittal sections are shown. None of them are T1 images, and neither coronal or axial. Please limit to describe the images shown or provide more postoperative images.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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