Reviewer’s report

Title: Case Report: shock septic from multidrug resistant descending necrotizing mediastinitis - intensive multimodal approach IgM enriched immunoglobulins and Polymyxin B hemoperfusion

Version: 1 Date: 25 Oct 2017

Reviewer: Otabek Yangibaev

Reviewer's report:

1. Do you believe the case report is authentic?

Yes/No

Yes.

2. Do you have any ethical concerns? Please consider if local Institutional Review Board approval or ethical approval was obtained (if appropriate) and if the patient (or their parent or guardian in the case of children under 18) gave written, informed consent to publish this case and any accompanying images. A statement to this effect should appear in the manuscript.

Comments:

No ethical concerns identified.

Ethical approval for publication of this manuscript is not required.

Informed consent was declared to publish this case and any accompanying images.

3. Does the Introduction explain the relevance of the case to the medical literature?

Yes/No

Not entirely

Summary:

I am afraid that introduction explains to a limited extent the relevance of the case to the medical literature.
Introduction mainly focuses on Acute Mediastinitis (AM) and its related classifications and epidemiology. However, the main topic of this manuscript is a successful treatment of Descending Necrotizing Mediastinitis (DNM) by using IgM and Polymixin B Haemoperfusion, in my opinion, it would be better to open the introduction with highlighting the role of these treatment options as it stands in the currently available literature. Therefore, in my humble opinion, there is a slight deviation from the main topic.

The first opening paragraph is considered as quite acceptable and shedding light onto information about AM.

The second paragraph focuses on the "origins" of DNM.

As authors state "The origin of DNM was pharyngeal in 204 patients (45%), odontogenic in 163 patients (36%)…", instead, it would be very important to indicate what was pharyngeal or odontogenic - infection, disease, lesions etc.? instead "bacterial infectious process" or similar alternative would sound better.

The third paragraph discusses the classification of DNM by Endo et al. It is difficult to point out if this classification is very important to mention in the introduction.

The fourth paragraph quite superficially discusses levels of evidence on currently available treatment, while details of these treatment options were not disclosed to the readers, however, readers can find a little more about it in the discussion.

The fifth paragraph also very briefly covers the epidemiology of causative bacteria, but unfortunately, nothing was mentioned about the epidemiological findings on multidrug-resistant organisms.

Lastly, no information on the roles of IgM and Polymixin B in the management of DNM was given.

As it was mentioned above, since the manuscript is about the usage of these treatment options it would be very good to discuss currently available literature on these treatment modalities to catch the readers’ attention.

4. Does the article report the following information? Where information is missing, please specify.
a. The relevant patient information, including:

- De-identified demographic information (age, gender, ethnicity)
  
  Yes

- Main symptoms of the patient
  
  Not mentioned

- Medical, family and psychosocial history
  
  Not mentioned

  - Relevant past interventions and their outcomes
  
  Not mentioned

b. The relevant physical examination findings

Not mentioned

c. Important dates and times in this case (if appropriate, organized as a timeline via a figure or table); if specific dates could lead to patient identification, consider including time relevant to initial presentation, i.e. initial presentation at T = 0, follow up at T = 1 month.

Case report does not clearly provide the information about time-related sequences of events.

d. Diagnostic assessments, including:

- Diagnostic methods
  
  CT neck and chest.

  - Challenges (e.g., financial, language/cultural)
  
  Not discussed

  - Reasoning and prognostic characteristics (e.g., staging), where applicable
Not mentioned or discussed

e. Types and mechanism of intervention
Mentioned briefly and abruptly.

f. A summary of the clinical course of all follow-up visits
Sadly, Clinical course and sequence of events were not presented in an appropriate way. No follow up information is available. It is very difficult to read the article overall.

Comments:
In my subjective opinion, Case report does not meet acceptable standards for publication

5. Is the interpretation (discussion and conclusion) well balanced and supported by the case presented?

Comments:
Overall, discussion requires major revision.
The discussion section is written on 5.5 pages, and it is not well balanced there is no logical flow of ideas and most paragraphs need significant revision, shortening and in some places contains unnecessary sentences and statements.

There is no mentioning comparatively about other treatment options on the management of DNM, despite presenting a quite long reference list showing that quite extensive literature search was conducted.

The opening paragraph is better to be placed at the end of the introduction.

The second paragraph discusses the definition and pathophysiology of the AM.

In my opinion, the third paragraph can be shortened and included into the second paragraph or can be removed completely.
The fourth paragraph opens with a discussion of causative bacteria of mediastinitis, but the author missed to mention whether these are in relation to AM or DNM. Authors interchangeably use AM and DNM as if they are exactly the same entities. The second half of this paragraph seems to be containing unnecessary statements.

The fifth paragraph again could be removed completely

In the sixth paragraph, authors talk about the pathophysiology of SIRS and the role of the Polymixin B (PMX) in the management of sepsis. Authors would like to remind the readers about the role of some immune-related cytokines and bacterial toxins in the pathogenesis of SIRS at the same time authors point out that removing these factors from circulation with use of PMX can improve the outcomes. I think most of this paragraph can be shortened since it is quite lengthy, abrupt, sentences do not flow logically.

Here, using this, sixth, paragraph and some from the next paragraph, I would like to provide an example of how this paragraph may look after shortening:

"It is well known the significance of interplay of immune system related substances and bacterial toxins in the pathogenesis of sepsis and subsequent deleterious effects of them on organ function. Apparently, Endotoxins/LPS and Lipoteichoic acid are the key toxins produced by Gram-negative and Gram-positive bacteria, respectively, that play a great role in inducing a systemic inflammatory response (26,27) and it was found that removing them from circulation can have beneficial consequences. In 1994 Japanese used Polymyxin B (Toraymyxin TM, Toray, Tokyo, Japan) in order to remove the endotoxins from the circulation by extracorporeal absorption into polymyxin B containing fibers. It has been shown that extracorporeal endotoxin absorption using this method is beneficial in the management of septic patients (---), especially in managing the septic shock and in a reversal of organ dysfunction, as it is shown in meta-analysis and many experimental studies (30,31). Some researchers (30,31) report that selective removal of Endotoxins/LPS can specifically improve hemodynamic and respiratory functions, and this was explored in a systematic review by Cruz et al (32) who concluded that it is associated with an improved MAP, inotrope use, levels of FiO2/FiO2 ratio, and decreased mortality.".

Next, the Seventh paragraph, taking the whole page, mainly focuses on benefits of PMX hemoperfusion and on the available evidence that demonstrates beneficial outcomes. This paragraph is also lengthy and can be shortened significantly.

In the tenth paragraph, starting with "The composite effect, …", it opens with the sentence that is difficult to understand it's purpose, and then authors start a discussion on immunoglobulins. After that, sentences coming next are very hard to read, especially describing ATMI Trail.
Conclusions are quite weak and again too long and hard to read and to understand.

Additionally, list of references is quite long, despite these references were not utilized efficiently in the manuscript.

Table 1.

The informative value of table 1 is questionable since only three readings were given and only after commencing the treatment with immunoglobulin infusion and haemoperfusion with PMX. There some typo mistakes missed in the table ("T1" and "T1" repeated twice, "Beginnis").

Figures

Figure 1 and 2

I would recommend also giving sagittal view of the neck and mediastinum

Also, figures 3&4 are not bearing any useful information unless they are revised with a complete information and appropriately presented in the manuscript.

6. Is the anonymity of the patient protected? Please consider any identifying information in images such as facial features or nametags, whether the patient is named etc. If not, please detail below.

Yes/No

Yes

7. Is the Abstract representative of the case presented?

Comments:

Not completely fulfill the abstract criteria.

8. Does the case represent a useful contribution to the medical literature?
Comments:

No, it is unlikely would be of any benefit for the potential readers, because the way the case was presented.

9. Additional comments for the author(s)?

Dear authors

Unfortunately, the manuscript is quite limited quality and requires extensive revision. I have provided my subjective and humble comments above for your kindest consideration.

In addition to above-mentioned comments:

In my humble opinion, the whole manuscript requires extensive paraphrasing to improve the readability of the manuscript and requires extensive proofreading to eliminate large number typos and mistakes.

It would be extremely useful to seek an advice from native English speakers or to get a support from professional English Language services in order to improve the language quality of this manuscript.

With the best wishes

Reviewer.

Level of interest
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

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

Not suitable for publication unless extensively edited
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

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