

Peer review file

Article information: <http://dx.doi.org/10.21037/amj-20-151>

Reviewer's comment:

The paper titled "High-pressure continuous suction drainage for thoracic empyema with pulmonary fistula" is interesting. HCSD for patients with thoracic empyema and PF can be an alternative treatment to OWT. However, there are several minor issues that if addressed would significantly improve the manuscript.

Reply: Thank you very much for providing important insights. We have revised our manuscript according to reviewer's comments. We are pleased to submit the revised version of our manuscript: "High-pressure continuous suction drainage for thoracic empyema with pulmonary fistula".

- 1) The article describes that all patients had no postoperative readmission. Is there any follow-up after surgery? Does the patient have other complications?

Reply: The patients with PF treated for lung cancer were to be followed up for five years as our conventional manner. The patients without lung cancer were followed for roughly one year after discharge to see if there were any changes inside thoracic cavity. (P.8, L.8-11)

None of our patients enrolled in this study showed complications. (P.11, L.7-10)

- 2) What are the advantages and disadvantages of the high-pressure continuous suction drainage method used in this study compared with the open window thoracostomy?

Reply: There are two major advantages of this method. Firstly, the use of readily available devices, which do not require skilled specialists for operation. Secondly, continuous drainage can provide a relatively clean environment by keeping the

number of bacteria and fungi low. Thirdly, OWT can be avoided which causes complications such as postoperative pain associated with rib resection, neuralgia, unaesthetic appearance, and the necessity of later chest wall closure. Most of OWT cases could not achieve the closure. And it takes years after OWT to undergo the closure operation even though possible. (P.13, L.4 - p.14, L.9) (P.12, L.1–8)

The major disadvantage of this method, on the other hand, is its long hospitalization. It took 60.2 days on average for chest drain tubes to be removed. (P.16, L.5-7)

- 3) How does the high-pressure continuous suction drainage method used in this study control the time to withdraw the drainage tube? What will happen if the unplugging time is not handled properly?

Reply: The patients underwent chest CT scan every two weeks to see if thoracic cavity was filled with granulation tissue. The drainage tube was removed when the pleural cavity was completely filled with granulation tissue and no air leakage was detected. If the unplugging time is too early, recurrence of thoracic empyema will be likely as there still remains some space for air leaks from lung to come out. (P. 14, L.11 - P.15, L.5)

- 4) There are many uncertainties in retrospective research, which increase the deviation of research results. How to explain and solve this problem?

Reply: As you pointed out, our study includes lots of uncertainties because of the nature of retrospective one. We initially unified the way set pressure is changed, the timing of CT follow-up, and the condition for drain removal to decrease the deviation. To make our study more reliable, we need to collect more and more cases and verify our method. (P. 16, L.9-12)

- 5) What is the clinical effect of high-pressure continuous suction drainage? What corresponding nursing measures are needed?

Reply: The clinical effect of our method is that high pressure suction could facilitate lung expansion and proliferation of granulation tissue.

(P. 13, L.4 - P.14, L.9)

Corresponding nursing measure required is to observe the drain insertion site regularly. As the duration of drain placement is long (60.2 days on average), there is some possibility that the drain tube can fall off easily due to enlargement of the drain inserting stoma. (P.8, L.13 – P.9 L.3)

- 6) In this study, only 6 patients were enrolled. The number of patient samples in this study is too small, and a large sample study should be added for verification.

Reply: As you pointed out, the number of patients enrolled in this study is very small. To make our results more reliable, we are going to collect as many cases as possible. (P. 16, L.9-12)

- 7) The introduction is too simple. Many researches on thoracic empyema with pulmonary fistula are not involved in the introduction of this paper. It is suggested to supplement relevant information.

Reply: Relevant information was added to Introduction section in accordance with editor's suggestion. (P. 6, L.1-2)

- 8) If the patient has other underlying diseases, is the high-pressure continuous suction drainage still used in this study? If the patient cannot bear this kind of high pressure, will it worsen the disease?

Reply: Our method is conservative and minimally invasive, and we believe patients with other underlying diseases who may not be suitable for surgical intervention can tolerate this method. At least, all the patients in our study completed this therapy. As we incrementally increase the set pressure, it is less likely for our patients to be unable

to endure the high pressure and get worse. However, we will switch to OWT if patients show some symptoms which seems to be caused by our method. (P. 14, L.7-9)