Reviewer’s report

Title: Vacuum-Assisted Closure Therapy in the Management of Lung Abscess

Version: 2 Date: 22 July 2014

Reviewer: Tamas F Molnar

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Minor Compulsory Revisions: (MiCR)

Main point of correction: a sharp differentiation is to be made between thoracic empyema and lung abscess – in the text it is mixed in some places. - needs clarification.

Page 2
Methods –
should read something like this:

…vacuum sponges were inserted in the abscess cavity at the most proximal point to the pleural surface. The intercostal space of the chest wall above the entering place was secured by a soft tissue retractor…

(i.e. lung abscess must be differentiated from empyema thoracis, which is a different entity)

Page 3
Background –
line 6 – lung abscess is more complicated than this. As it is sitting well within the parenchyma, a simple chest tube does not work as it has to go through a „relatively” healthy lung tissue. This is the main technical difference between an abscess and a thoracic empyema. There are two approaches to solve a lung abscess – inside-out or outside in. Inside out: transbronchial (per vias naturales) clearance, via (rigid) bronchoscope – if there is a draining secondary/tertiary bronchus. (Friedel- drainage). Than the patient will „cough out”- the contain of abscess. You obviously did not have the time doing so as the patient’s general condition deteriorated quickly. The other option is to follow the Monaldi’s drainage (Italy, 1936, originally for tuberculotic abscesses) – when a layer of healthy tissue had to penetrated to let the contain come out: either directly via a hole on the adherent chest-wall (overlying roof), or creating a circumscribed empyema – an abscess-pleural space-chest wall-skin communication. That was the way, when the abscess sat quite close to the (visceral)pleural surface. Your patient had this sort of pathology, and what you did it is a 21st century modification of Monaldi’s drainage. (Suppose, German thoracic surgery developed their own similar technique in those days – Sauerbruch, Nissen others – it would make sense to mention it in your references.)

I would advise to give a short introductionary description of the pathoanatomical
differences between abscess of lung and empyema thoracis. (You refer to it in
the conclusion, but it is too late and does not carry your main message) Having
experienced the success of VAC in ET, it was logical to expand the indication for
lung abscess cases. I would emphasize, that this has been a “no go area” so far.
An abscess is infected in itself (per se) – it would be better to write: „conventional
therapy resistant lung abscess.” (delete: infected abscess)
Bronchoscopy – suppose there was no visible draining bronchus of the abscess:
this fact is to be mentioned, to give a reason of the choosen new method.

Page 4
It would be useful to mention the distance between the wall of the abscess and of
the inner chest wall. (Proximity/adjacent to…)
„and the pH of the putrid PLEURAL effusion…” – if it was a pleural effusion, than
this is an empyema thoracis. I would use the expression „contain of abscess”.
Or, you can state the presence of concomitant pleural effusion – but it can cause
a sort of confusion.
Suppose, the small drain (Ch 14) was kept under continuous suction. Any
change during CXR check ups over the 7 days? Clinical course? (Fever, CRP
e tc…)?
How was surgery performed: under ultrasonography guidance? using preop CT
mapping/ marking?
One entered the chest cavity, and than – I suppose – the involved lung surface,
with the abscess behind it, a thin layer of swollen, oedematous pulmonary
parenchyma divided the abscess and the incision site itself. (This is usually, how
it looks like, otherwise one would talk about empyema thoracis instead of
abscess of the lung. The difference is substantial). Not very rare, that the
surrounding lung is adherent to the parietal pleura, creating an isolation barrière.
(Actually this was the mechanism of empyema necessitatis, a forgotten
phenomen of a pleuro-pulmonary cutaneous sinus, wellknown in the ancient
times of tuberculosis.)

Page 5:
Lung abscess is not characterised by a membrane, this is the main problem.
Empyema thoracis is characterised by a preformed layer as a membrane (as all
empyemas do – see empyema vesicae felleae etc) Abscess of lung is
characterised by a pseudomembrane, with poorly defined borders. It is also
characterised by microfistulas, invisible but functioning „holes” on the destroyed
lung surface. (Destroyed by inflammatory process). It will be covered by
granulation tissue during the healing of the surrounding parenchyma.
Apart from the removal of the necrotic material, one needed incentive spirometry
to facilitate remaining lung expansion. However it had to be cautious, not to use
excessive pressure at the end of inspiration, so supporting healing process on
the inner layers of the now healing abscess. I am sure, you used it – please
mention if yes.
As for the convenience of the procedure: please mention the nurses/staff also
along patient and doctor, as the average fragile empyema thoracis patient needs a really complex care – nurses, physiotherapist and dietitian (manlurishment!) also.

Discretionary Revisions:

For your reference, please see:


Siraj O Wali: An update on the drainage of pyogenic lung abscesses Annals of Thoracic Medicine 2012;7 (1) 3-7

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare, that I have no competing interests.

Prof Tamas F Molnar