Correspondence

The omentum flap for empyema treatment: indications and disadvantages

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Dear Sirs,

We read with great interest the article of Shinohara *et al*. "Benefits of using omental pedicle flap over muscle flap for closure of open window thoracotomy "in which they compare the muscle and omentum flaps (1). The authors compare the omentum pedicle flap with the loco-regional muscle flaps for the treatment of empyema. They conclude that the omentum is superior in reducing local recurrence and shortening postoperative hospital stay after open-window thoracostomy (OWT) closure with mortality, morbidity and success rates remaining the same in both groups (1).

The basic principles of treatment of empyema are well-defined today and include adequate drainage, closure of any broncho-pleural fistula and empyema cavity obliteration in any established, chronic cavities. In this sense the OWT is one of the last resorts of adequate drainage and decreasing the infection of the empyema and not infrequently in these cases a flap is needed for the obliteration of the empyema cavity (2). Following all these principles Shinohara *et al*. achieved remarkable results to our opinion (1).

In this series, however, we find that the information about the type of treated empyema localization and duration of both empyema and OWT remains scarce. There is only one or 2 cases of post-pneumonectomy empyema, with the rest of the cases not clearly described as type of empyema (duration, localization) (1). We feel that this latter question is primordial when choosing the type of flap for empyema cavity obliteration. We completely agree that choice of the flap is made in relation to the volume of the thoracic cavity, location, and previous operation (type of thoracotomy, history of previous abdominal surgery), and status of thoracic infection. That is why the lack of enough information about some of these details renders the analysis and the choice of flap somewhat difficult to understand (3,4).

In our practice over the last 15 years we have elaborated a certain decisional approach when choosing the flap for empyema reconstruction (3,4), that we would like to share briefly.

We follow the same principles as Shinohara *et al*. and use basically the same flaps. However, we prefer muscle flaps as a first choice since they are close to the operative field, there is no need to change patient position during the surgery (as is usually needed in omentum flaps) and provide well vascularized tissue to obliterate the infected empyema cavity. Furthermore, the abdominal procedure for harvesting the abdominal flap increases the post-operative trauma which is particularly important for critically ill patients with already deteriorated respiratory function.

As mentioned above our first-line choice are the regional muscle flaps. The latissimus dorsi flap is our first choice when available, followed by the other loco-regional flaps – pectoralis major and minor muscles, serratus anterior muscle, intercostal muscles separately or in association (3,4).

We feel that the omentum flap should be reserved for large cavities (post-pneumonectomy empyema, post-bilobectomy empyema) where the latissimus dorsi flap is not available (5) and/or the combination of other vascularized muscle flaps (as pectoralis major, pectoralis minor, serratus anterior muscle flaps) is insufficient (6). In such cases we use the omentum flap as a second line option. It is particularly suitable for left cavities but can also be used

for right empyema cavities although the liver may present a considerable obstacle to pass the omentum in the thoracic cavity.

Second, we prefer the omentum flap for cavities in the inferior thoracic space where the omentum flap can easily and comfortably reach and for which there is no muscle flap available.

Third, the omentum flap becomes our first choice in cases where all muscle flaps are unavailable or insufficient. This is in relation to the statement of Shinohara *et al*. that "omental pedicle flap for OWT closure is the most radical surgical treatment for thoracic empyema and is used for very severe cases" (1).

The omentum flap has some disadvantages that are not negligible. As mentioned above, the patient position should be changed, which prolong the surgery. Second, the harvesting of the omentum flap requires a laparotomy with all potential intra-abdominal complications. Furthermore, the laparotomy can deteriorate the respiratory function of these already critically ill patients. We have not infrequently used in our practice the laparoscopic flap harvesting both for empyema and sternal defects reconstruction, which seems to limit these disadvantages. However, laparoscopy is not always technically feasible.

Finally, we would like to thank Drs Shinohara *et al*. for their very interesting study which will undoubtfully add important information to the difficult problem of empyema treatment.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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