"Lower door open thoracotomy": a feasible approach for extra-pleural pneumonectomy

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We read with great interest the article by Bedirhan *et al.* (1) reporting on a series of 76 patients undergoing surgical treatment for malignant pleural mesothelioma (MPM). Nowadays, although different therapeutic options are available (chemotherapy, radiotherapy, surgery, photodynamic, immune- and gene therapy), a definitive treatment for patients affected by MPM remains controversial (2). As well, in order to compare different surgical strategies, randomized clinical trials with a large number of patients are hardly feasible due to high morbidity rate related to each surgical procedure (3). To date, radical surgery with extra-pleural pneumonectomy (EPP) and adjuvant treatments has become the preferred option in early disease, but the benefits of such an aggressive approach have been discussed because of significant treatment-related morbidity and mortality (4). Cao *et al.* (5) advocated a preoperatively accurate patient selection because non-epithelial MPM and nodal involvement have consistently demonstrated to have a worse prognosis after EPP (5). In this debate, different surgical options for EPP have been reported in literature. In order to obtain a tumor-free resection margins, a radical resection of MPM should be performed. Concerning EPP, many authors advocated a posterolateral thoracotomy: although this approach allows a good exposure of chest, a radical resection could be not feasible because the edge of the diaphragm is located in the "dead angle" of the pleural cavity. In this setting, a second thoracotomy in the 7th to 9th intercostal space is usually required but it does not provide a continuous exposure of the surgical field to surgeon.

In the period between 01/05 and 12/11, we have performed an EEP by using a "lower door" open thoracotomy (LDOT) in 11 consecutive cases. In particular, we started with a standard posterolateral incision and an extra-pleural dissection, starting from the 5th intercostal space, was performed. The 6th and 7th costal cartilages were subsequently resected when the dissection reaches the anterior chest wall. After exposure of the peritoneum, we performed a blunt dissection dividing the peritoneum from the diaphragmatic muscle. A radical resection was so carried out, with en bloc removal of the lung, parietal pleura, pericardium and diaphragm. Finally, prosthetic reconstruction of the diaphragm and pericardium was achieved with polytetrafluoroethylene (PTFE) prosthesis Gore-Tex® dual-mesh fixed with non-absorbable polypropylene interrupted sutures. A right and left EEP by LDOT was executed, respectively, in 8 and 3 cases. Ten patients were affected by epithelial MPM; the diagnosis of mixed histology was carried out in one patient only. There were no postoperative complications that were directly attributable to the LDOT. Postoperative complication, non requiring surgical procedure, occurred in eight patients (atrial fibrillation in three, ptosis in two, anemia in two and pulmonary embolism in one patient). In our series, one patient experienced an acute cardiac herniation (6) caused by a partial dehiscence of the pericardial prosthesis suture: the defect was immediately repaired by re-fixing the prosthesis with new interrupted sutures. 30-day mortality was nil.

Our results are in line with those reported elsewhere (7) confirming that LDOT provides an adequate exposure of the chest "blind zones" and, in particular, of the diaphragmatic edge. This procedure is an effective approach for EPP and allows a radical and safe surgical resection of lung, pleura, pericardium and diaphragm.

We would really appreciate the Authors' opinion and reaction on this, whereas the surgical approach adopted by themselves in 31 patients could often give a difficult exposure of chest cavity and prevent a radical resection.

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