Diaphragmatic and pericardial reconstruction by heterologous pericardial patch after extrapleural pneumonectomy for mesothelioma: technique and outcomes

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Background

Extrapleural pneumonectomy (EPP) with resection of pericardium and diaphragm offers acceptable therapeutic results in patients with mesothelioma

Study Objective

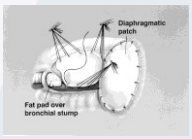
We analyzed the efficacy of biological bovine pericardial patch (BPP) versus artificial materials (Marlex/Goretex, Vicryl) for diaphragmatic and pericardial reconstruction after EPP

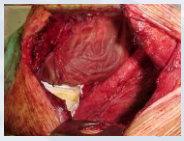
Methods (I)

- We retrospectively reviewed 62 consecutive patients operated on for EPP after induction chemotherapy between January 2003 and December 2015.
- We distinguished two groups: Group 1, in which BPP (12 cm x 25 cm patch) was used, and Group 2, in which artificial materials were used
- We evaluated operative and clinical outcomes related to diaphragmatic and pericardial reconstruction

Methods (II)

- Technically, the diaphragmatic patch was sewn circumferentially to diaphragmatic remnant posteriorly, chest wall anteriorly, and hiatal musculature medially by separated stitches
- Pericardial patch was sewn circumferentially to pericardial remnant by separated stitches



Results (I)

- Group 1, 28 patients (43.1%), right side in 15 (53.6%) and left in 13 (46.4%): BPP was used for pericardium and diaphragm in 22, only pericardium in 4, and only diaphragm in 2
- Group 2, 34 patients (56.9%), right in 15 (44.1%) and left in 19 (55.9%): Marlex/Goretex for diaphragm and Vicryl for pericardium in 28, Goretex for diaphragm and Vicryl for pericardium in 2, only Goretex or Vicryl for both in 1 and 3 patients, respectively
- In Group 1, a single BPP was used for pericardial and a double patch for diaphragm

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Results (II)

- Two patients (7.1%) in Group 1 and 2 (5.9%) in Group 2 (p=0.56), all on the left side, had early dehiscence of diaphragmatic prosthesis requiring re-intervention
- No early complication for pericardial patch occurred
- At follow-up (Group 1: median 28.7 months, range 0-72; Group 2, median 27.2 months, range 0-76), no late complications were observed for pericardial /diaphragmatic prostheses

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Conclusions

- Reconstruction of pericardium and diaphragm using BPP, is safe, easy, and may be considered a viable alternative to synthetic materials
- Attention should be used in fixing the BPP on the left side (costo-phrenic and costo-vertebral angles) to avoid BPP dehiscence and visceral herniation

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