

AN ALTERNATIVE METHOD FOR PERICARDIAL PATCH CLOSURE*

*Sinan Arsan MD**, Yurdakul Yurdakul MD****

To the editor,

Primary closure of the pericardium may lead to cardiac tamponade in cases having an extracardiac conduit or outflow patch, especially in cases of Fallot's tetralogy¹⁻⁴. In such cases the pericardium may be closed to the mediastinal pleura with prepericardial fat tissue as described below to protect the retrosternal cardiac structures, conduits or patches during sternal reentry without the potential disadvantages of primary closure^{2,3}.

Technique: At the end of surgery, the right or left pleura spaces are longitudinally opened beneath the sternum (Fig. 1a). The mediastinal pleura itself is first incised horizontally along the phrenic nerve, and dissection is then continued medially toward the right or left border of the pericardium. The trapezoidal mediastinal pleural flap with fat tissue is thus formed broad-based on the right or left border of the pericardium. The graft may be used as described above or may be used with dissection completely from the pericardium as a free graft. If the pedunculated graft is used, it is reversed and sutured to the other side of the pericardium and thymic tissue (Fig. 1b); if the free graft is used, it is sutured to both the pericardial border and thymic tissue.

We believe that the surgical risk of elective reoperation does not differ from that of primary operations, particularly if the pericardium had been closed during the first operation. If primary closure of the pericardium is impossible, different prosthetic materials and heterologous pericardial substitutes may be used to cover the heart³, or the pericardium may be closed using patch mediastinal pleura as an alternative material for closure with no cost. The patient's own tissue is more resistant to mediastinal infections, and the elasticity of such a graft is superior to that of others. This new technique has been used for two years on nearly 50 patients without complications such as tamponade or constriction; however two patients required reoperation on postoperative day

* From the Department of Thoracic and Cardiovascular Surgery, Hacettepe University Faculty of Medicine, Ankara.

** Assistant Professor of Thoracic and Cardiovascular Surgery, Hacettepe University Faculty of Medicine.

*** Professor of Thoracic and Cardiovascular Surgery, Hacettepe University Faculty of Medicine.

12 and 14 because sternal instability and viability of the free graft were detected. We believe that the new technique described in this letter is applicable to all congenital cases, particularly in cases having an extracardiac conduit or outflow patch.

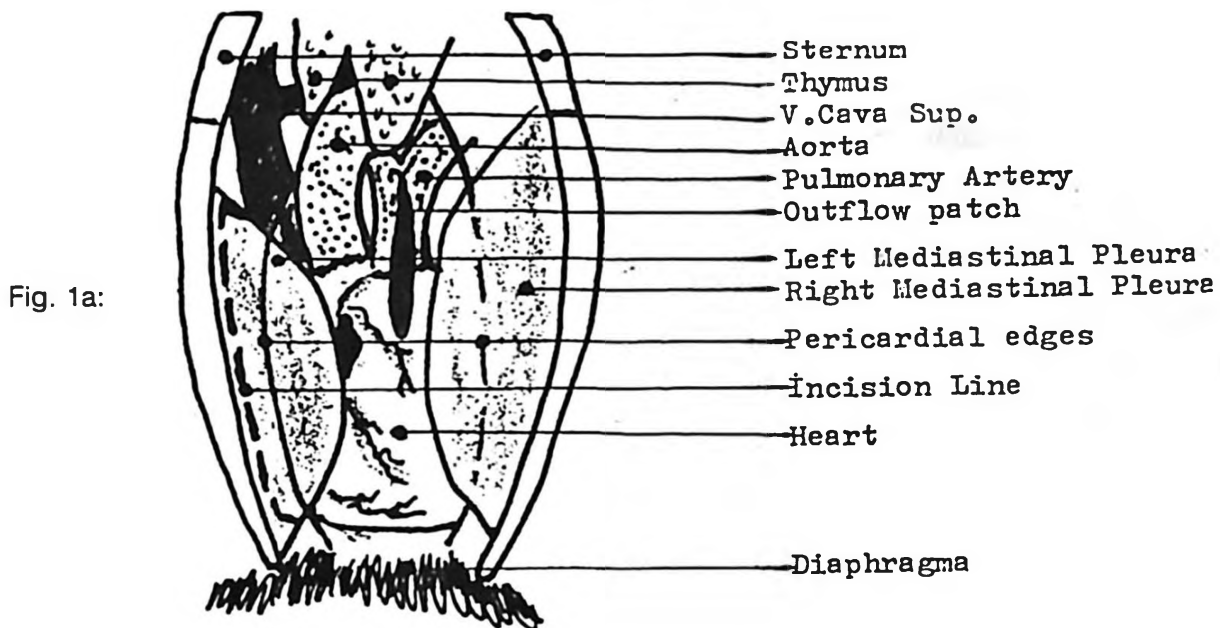
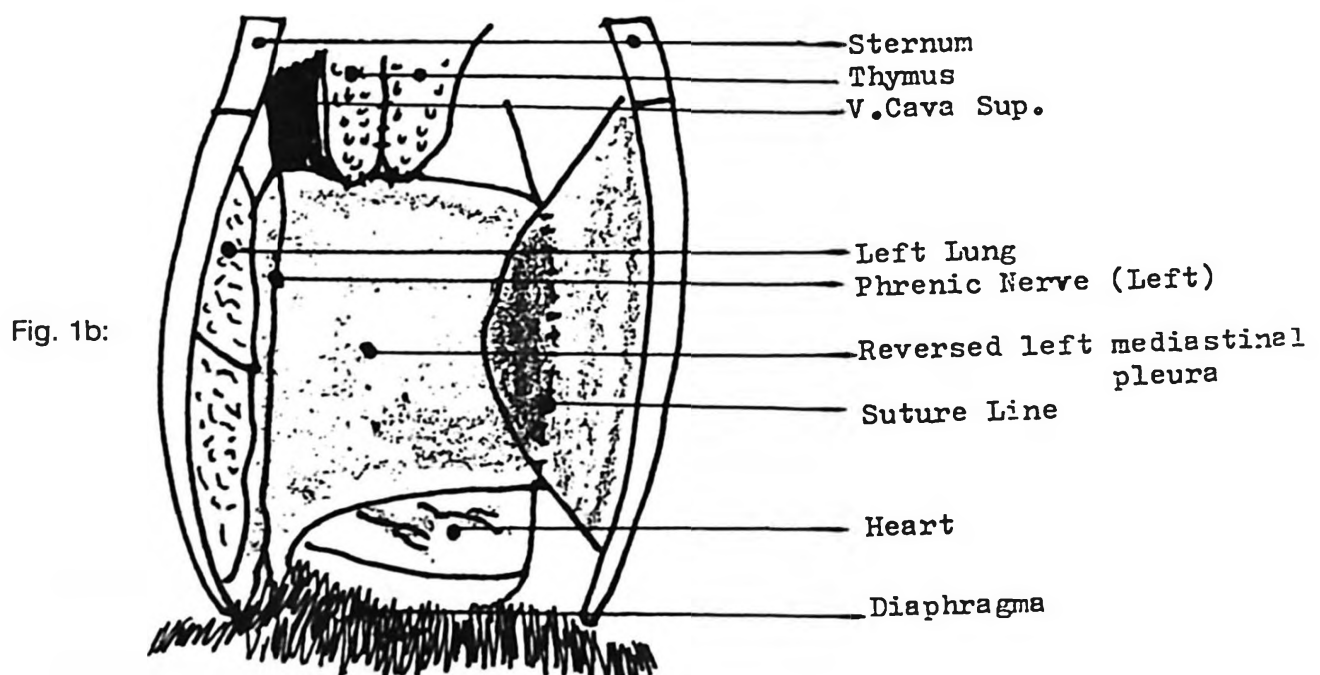


Fig. 1: Schmatic drawing of the closure of the pericardium.
(a) showing the left pleural incision (just beneath the sternum); (b) showing the suture line between the reversed left mediastinal pleura and right pericardial edge.



REFERENCES

1. Dobell AR, Jain AK: Catastrophic hemorrhage during redo sternotomy. *Ann Thorac Surg* 1984; 37: 273-278.
2. Eng J, Ravichandren PS, Abbott CR, et al. Reoperation after pericardial closure with bovine pericardium. *Ann Thorac Surg* 1984; 48: 813-815.
3. Heydorn WH, Ferraris VA, Berry WR. Pericardial substitutes: a survey. *Ann Thorac Surg* 1988; 46: 567-569.
4. Zapolanski A, Fishman NH, Bronstein MN, Ellertson DG, O'Connell TJ, Siegel S. Modified pericardial closure to protect cardiovascular structures during sternal reentry. *Ann Thorac Surg* 1990; 50: 665-666.