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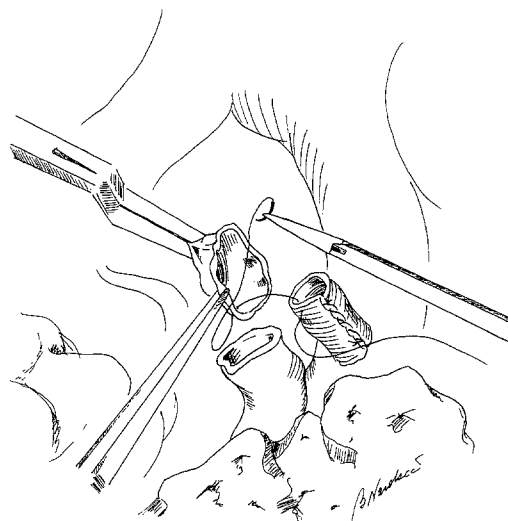
## RECONSTRUCTION OF THE PULMONARY ARTERY BY A CONDUIT OF AUTOLOGOUS PERICARDIUM

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In patients with lung cancer, lobectomy associated with resection and reconstruction of the pulmonary artery (PA) has numerous advantages over pneumonectomy.<sup>1-3</sup> Technically, after the infiltrated portion of the PA has been excised, the vessel can be reconstructed by end-to-end anastomosis,<sup>4</sup> by a pericardial patch,<sup>1</sup> or by the interposition of a prosthetic conduit,<sup>5</sup> according to the extent of the defect. For extended circumferential defects in which end-to-end anastomosis is not feasible, we have used a conduit of autologous pericardium. This technique, which has not been previously described, forms the subject of our report.

The technique was used in two patients with bronchogenic carcinoma of the upper lobe of the left lung with massive infiltration of the PA. The upper lobe bronchus was free from tumor infiltration, however, and therefore bronchial sleeve resection was not performed. This unusual situation (PA sleeve without bronchial sleeve) produced a long bronchial segment separating the two widely spaced PA stumps, so that an end-to-end anastomosis would not be possible.

We<sup>1</sup> have described in detail the preparation of the operative field for PA resection and reconstruction. After the surgical specimen has been removed and the feasibility of an end-to-end anastomosis excluded, a patch of pericardium of 3 by 3 cm is harvested.<sup>1</sup> The pericardium is then trimmed to a rectangular shape, wrapped around a 28F chest tube with the epicardial surface inside, and sutured longitudinally with 6-0 monofilament nonabsorbable material. A pericardial conduit of approximately 1.5 to 2 cm is thus created. The conduit is then pulled out of the chest tube, laid in the operative field, and anastomosed to the proximal stump of the PA with running 5-0 monofilament sutures (Fig. 1). The distal anastomosis is performed last (Fig. 2), after the conduit has been trimmed to the appropriate length by overlapping the



**Fig. 1.** The pericardial conduit is first anastomosed to the proximal stump of the PA.

suture margins. With tension, the dimensions of the conduit increase by 20% to 30%. Therefore care must be taken to avoid excessive lengthening of the PA, because a long PA could result in kinking of the vessel, impaired blood flow, and ultimately thrombus formation. Anticoagulation is performed as reported elsewhere.<sup>1</sup> Operative time was 3 hours in both cases.

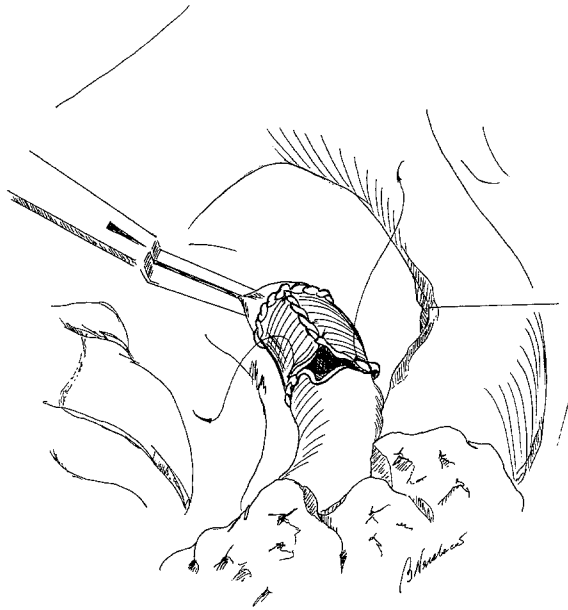
Between March 1990 and August 1994 we performed 25 PA reconstructions, and in two of these (8%) we used the pericardial conduit. As we<sup>1</sup> previously reported, end-to-end anastomosis or a pericardial patch is usually appropriate to reconstruct the PA. However, in some cases the tumor involves the PA so extensively that extended resection of the vessel is mandatory, and the PA stumps are not long enough for end-to-end anastomosis. A vascular segment therefore must be replaced. The use of spiralled saphenous grafts and polytetrafluoroethylene prostheses has recently been described.<sup>5</sup> However, harvesting and tailoring the saphenous graft

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**Fig. 2.** The distal anastomosis is performed after the conduit is trimmed to appropriate length.

adds time and trauma to the procedure, and the polytetrafluoroethylene prosthesis might increase the risk of thrombosis, especially in a low-pressure vessel. Read and coworkers<sup>5</sup> reported on three patients in whom polytetrafluoroethylene has been used with no

complications. Our two patients receiving the pericardial conduit had an uneventful recovery, and the patency of the PA was confirmed 6 months after the operation by computed tomography. Read and associates<sup>5</sup> did not specify their anticoagulation schedule; in our patients we discontinued anticoagulation on discharge from the hospital (seventh and twelfth postoperative days) with no problems. We conclude that in the rare case in which the PA must be replaced by a prosthesis, a conduit of autologous pericardium is an advantageous solution.

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## ENOXIMONE IN INTERNAL MAMMARY ARTERY HYPOPERFUSION

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Internal mammary artery (IMA) spasm is a recognized cause of left ventricular dysfunction in the early postoperative period and is associated with increased morbidity and mortality.<sup>1,2</sup> Approaches that have been advocated for the management of severe IMA spasm include imme-

diate reoperation with topical application or intraluminal injection of a vasodilator or the performance of an additional vein graft to the coronary artery involved. We recently reported a study comparing the effect of four systemic vasodilators on IMA flow and showed that enoximone, a phosphodiesterase-III inhibitor, produced a 100% increase in IMA flow, significantly greater than that produced by sodium nitroprusside, dobutamine, or glyceryl trinitrate.<sup>3</sup>

Recently, a 45-year-old man was admitted to our hospital for coronary artery bypass grafting. Coronary angiography had shown normal left ventricular function and a

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