

surgical procedure on the anulus," Fig. 2, B in our article clearly displays and states that 60% to 70% of the posterior mitral leaflet is excised, in essence, all of the central scallop of the posterior mitral leaflet. As such, about one third of the anulus of the posterior mitral leaflet is left without any leaflet attachments. By apposing the annular margins of the remaining leaflets, we reduce (plicate) the posterior anulus by at least 30%. As we state in the *Discussion*, "the placement of three to four interrupted, interlocking mattress sutures achieves this goal." The suture material is 2-0 polyester.

In essence, in our series this set of suture annuloplasties was sufficient to stabilize the posterior anulus. According to the article by Scrofani and associates,¹ they too "plicated with interrupted stitches (2-0 polyester)" the anulus "beneath the excised or transposed portion of the mural leaflet." What they do in addition is use the pericardial strip as a belt to further reinforce the basal mural suture plication.

I believe we do not strongly disagree with Drs. Scrofani and Santoli. Rather, we believe a localized series of inexpensive suture annuloplasties is sufficient in a vast majority of cases to produce a freedom from reoperation rate of 90% at 10 years in this retrospective, hence nonrandomized series of indeterminate selectivity (as all such series are wont to be). Drs. Scrofani and Santoli believe in their innovatively clever version of an annuloplasty ring, to be added to other believers of the half dozen or more other annuloplasty rings available on the market.

*John M. Alvarez, MB, BS, FRACS
Consultant Cardiothoracic Surgeon
Monash Medical Centre
246 Clayton Rd. 3168
Melbourne, Australia*

REFERENCE

1. Scrofani R, Moriggia S, Salati M, Fundaro P, Danna P, Santoli C. Mitral valve remodeling: long-term results with posterior pericardial annuloplasty. *Ann Thorac Surg* 1996;61:895-9.

12/8/79875

Pedicled pericardial flaps

To the Editor:

I congratulate Khoury and associates for the excellent results obtained with the Laennec group in Paris using pedicled pericardial flaps, a technique that we started together in the Bichat Hospital Paris in 1985.

I developed and used the flaps in eight patients (aged 6 months to 8 years) with tetralogy of Fallot for iatrogenic or congenital stenosis of their pulmonary artery branches (left pulmonary artery in four, right pulmonary artery in one, and bifurcation in four). The follow-up is now between 5 and 10 years, with superb results except for one failure resulting from technical difficulties during the operation.

Between July 1989 and July 1992, I also used pedicled pericardial tubes in 12 patients with tricuspid atresia to bridge the inferior vena cava to the main pulmonary artery for bicaval to pulmonary artery connections. The mean age of the patients was 4 ± 2.8 years and mean

body weight was 10.5 ± 4.9 kg. The follow-up is 4 to 7 years, with stable clinical results and enlarged conduits in the three patients who have had angiograms.

We stopped using the technique because our hospital no longer treats pediatric patients, so I can only show gratitude toward Wassim Khoury and Francine Leca for taking an interest in the technique and proving its results.

*Hvass Ulrik, MD
Hôpital Bichat
Chirurgie Cardiovasculaire
46 Rue Henri Huchard
Paris 75018, France*

REFERENCES

1. Hvass U, Khoury W, Pansard Y, Videcoq M. Repair of pulmonary artery branches with broadly based autologous pericardial flaps. *J Thorac Cardiovasc Surg* 1988;95:738.
2. Hvass U, Depoix JP, Pansard Y. Total cavopulmonary derivation with the use of a pediculated pericardial tube between the inferior vena cava and the pulmonary artery trunk in tricuspid atresia (letter). *J Thorac Cardiovasc Surg* 1992;103:1227-8.
3. Hvass U, Pansard Y, Boehm G, Depoix JP, Enguerrand D, Worms AM. Bicaval pulmonary connection in tricuspid atresia using an extracardiac tube of autologous pediculated pericardium to bridge inferior vena cava to main pulmonary artery. *Eur J Cardiothorac Surg* 1992;6:49-51.

12/8/80096

[Response declined]

Transmanubrial approach to the thoracic inlet

To the Editor:

We fully agree with Nazari's opinion¹ about the disadvantages of clavicle resection in the transcervical approach to apical chest tumors. Anyone who is familiar with the transclavicular approach has experience with the deformity (Fig. 1) and discomfort caused by (1) the shortening of the acromiosternal distance, (2) the paradoxical and painful movement of the free distal part of the clavicle, (3) the instability of the scapular girdle, of which the only point of attachment is the sternoclavicular joint, and (4) the disinsertion of the sternocleidomastoid and the pectoralis major muscles.

Our approach to avoid these deformities is quite different, for three reasons.

1. In our experience, the reinstallation of the disarticulated clavicle leads either to luxation of the sternoclavicular joint when fixed only with metallic stitches, because of the strength of the scapular movements, or to an arthrodesis, with important limitation of scapular mobility, when fixed with a screw or Sherman's plate.

2. The sternomastoid muscle is the major component of cervical spine stability. Its disinsertion, even after careful reconstruction, leads in all cases to a progressive cervical scoliosis.

3. The radical treatment of lung cancers, including apical tumors, must respect oncologic principles. At the very least an upper lobectomy, associated with a medias-

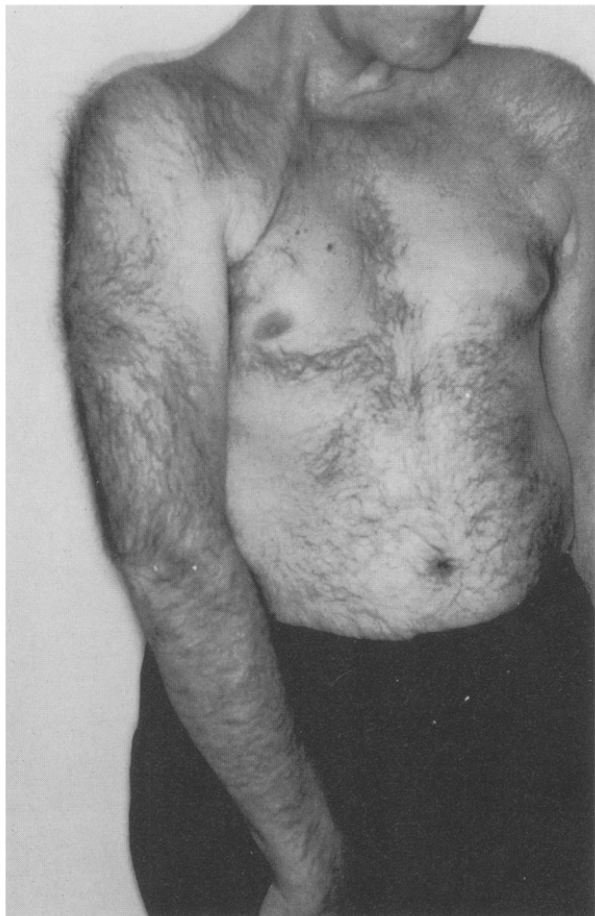


Fig. 1. This patient was submitted to anterior transclavicular approach. The median half of the clavicle was removed and the sternomastoid muscle divided, as was the clavicular part of the major pectoralis muscle. The shoulder deformity is evident, and this caused an important deficit and patient discomfort.



Fig. 2. Transmanubrial L-shaped incision and section of the first cartilage.

tinal lymph node dissection, is necessary. The access proposed by Nazari, pulling the clavicle downward, seems too limited for these procedures.

The transmanubrial approach that we² described recently, which spares entirely the osteomuscular components of the cervical and shoulder articulations (Fig. 2), affords an excellent exposure to the thoracic inlet and mediastinal great vessels. This approach, respecting the muscular attachments to the clavicle, progressively elevates an osteomuscular flap and even allows a regular lobectomy to be performed with lymph node dissection, provided that one is familiar with the anterior approach to the pulmonary hilum. Reposition and fixation of the manubrial "edge" is very easy and retains the clavicular mobility.

This technique, addressing the same objective as Nazari's, seems to us even less harmful and permits an even better access to this complex area.

*Dominique Grunenwald, MD
Lorenzo Spaggiari, MD
Philippe Girard, MD
Pierre Baldeyrou, MD
Thoracic Department
Institut Mutualiste Montsouris
Paris, France*

REFERENCES

1. Nazari S. Transcervical approach (Dartevelle technique) for resection of lung tumors invading the thoracic inlet, sparing the clavicle. *J Thorac Cardiovasc Surg* 1996;112:558-9.
2. Grunenwald D, Spaggiari L. Trans-manubrial osteo-muscular sparing approach for apical chest tumors. *Ann Thorac Surg* 1997;63:563-6.

12/8/79873

Endorsement for sparing the clavicle in the transcervical approach to the thoracic inlet

To the Editor:

We read with interest the exchange of letters between Nazari¹ and Dartevelle and Macchiarini² in the August issue of the *Journal*. We also have changed our surgical technique to the anterior transcervical approach for oncologic resections of the thoracic inlet and apex of the lung. We agree that this approach allows excellent exposure of the cervical expansions of the neoplasm, as well as better removal of the supraclavicular lymph nodes. Visualization of the trunks of the brachial plexus and control of the subclavian vessels is also easier through this approach.

We are grateful to Nazari for reminding us of the advantages of sparing the clavicle. We applied his technique to our next case, using the anterior transcervical approach to the thoracic inlet. The patient was a 36-year-old male truck driver with a neurofibroma extending along the anterior surface of the T-1 to T-4 vertebral bodies. He had pain in the left side of the chest, arm pain, and numbness. Some specifics of the technique we used in preserving the clavicle are described here.