

## Composite graft in cases of insufficient length of internal thoracic artery

### *İnternal torasik arter uzunluğunun yetmediği durumda kompozit greft*

Dear Editor,

We read with great interest a recent article by Tütün et al. in which they analyzed composite grafting in cases of insufficient length of internal thoracic artery (ITA) (1). The authors presented their experience with ITA and saphenous vein composite grafts used in 8 patients because of insufficient length, inadequate flow and inadequate diameter of the distal third of ITA. The authors should be congratulated for overcoming such a difficult problem during the operation with such a simple solution.

In their article we could not read an explanation about the lengths of the ITA's used and lengths of the saphenous veins those are interposed between free end of ITA and LAD.

Improved patency rates and long-term survival of ITA when compared with saphenous vein grafts have made ITA to be the best choice of conduit for coronary artery bypass grafting (CABG). These lead many surgeons to more frequent use of arterial grafts and sequential arterial anastomoses. Increase in usage of ITA bring out some problems; such as perioperative arterial spasm, insufficient flow and length. To overcome such problems besides pedicled harvesting technique of the ITA, skeletonization is described by Keeley, which improves length and blood flow of the conduit and allows easier construction of sequential anastomoses (2). There are various clinical studies supporting these findings (Table 1). We wonder if skeletonization of the ITA was used by the authors to improve length and flow of the ITA's.

After skeletonization if there is still insufficient length or flow in the ITA graft than, saphenous vein interposition can be used to overcome such a difficult problem for the no-touch aorta technique.

As a conclusion, we propose that with these reported amounts of increase in flow and length of ITA, skeletonization of ITA might be another alternative for more comfortable use of ITA in patients with insufficient length and flow.

**Tamer Türk, Yusuf Ata, Hakan Vural, Şenol Yavuz, Ahmet Özyazıcıoğlu**  
**Çlinic of Cardiovascular Surgery,**  
**Bursa Yüksek İhtisas Education and**  
**Research Hospital, Bursa, Turkey**

### References

1. Tütün U, Çiçekçiöğlü F, Aksöyek A, Parlar Al, Ulus AT, Katırcıoğlü SF. Composite graft in cases of insufficient length of internal thoracic artery. *Anadolu Kardiyol Derg* 2006; 6: 369-71.
2. Keeley SB. The skeletonized internal mammary artery. *Ann Thorac Surg*. 1987; 44: 324-5.
3. Türk T, Tiryakioğlü O, Vural AH, Ata Y, Selimoğlü Ö, Yavuz S. Effect of skeletonization on flow and length of internal thoracic artery. *Turkish J Thorac Cardiovasc Surg* 2005 ; 13: 112-4
4. Calafiore AM, Vitolla G, Iaco AL, Fino C, Di Giammarco G, Marchesani F, Teodori G, D'Addario G, Mazzei V. Bilateral internal mammary artery grafting: midterm results of pedicled vs. skeletonised conduits. *Ann Thorac Surg* 1999; 67: 1637-42.
5. Wendler O, Tscholl D, Huang Q, Schaffers HJ. Free flow capacity of skeletonized versus pedicled internal thoracic artery grafts in coronary artery bypass grafts. *Eur J Cardiothorac Surg* 1999; 15: 247-50.
6. Deja MA, Wos S, Golba KS, Zurek P, Domaradzki W, Bachowski R, Sptt TJ. Intraoperative and laboratory evaluation of skeletonized versus pedicled internal thoracic artery. *Ann Thorac Surg* 1999; 68: 2164-68.

**Table 1. Flow and length measurements of skeletonized ITA from different articles**

Study	Parameters	Pedicled ITA	Skeletonized ITA	p
Turk (3)	Length, cm	16.8 ±0.7	18.9±0.5	<0.001
	Flow, ml/min	59.4±5.4	96.3±5.3	<0.001
Calafiore (4)	Length, cm	16.4 ±1.7	20.1 ±1.6	<0.001
Wendler (5)	Flow, ml/min	147.1±70.5	197.2±66.6	<0.05
Deja (6)	Length, cm	17.8±1.14	20.3±0.52	0.11
	Flow, ml/min	66.3±7.42	100.3±14.84	< 0.05

## Author's reply

Dear Editor,

We would like to thank the author of the letter for his kind contribution to our paper.

In our small patient's population, we interposed saphenous vein to internal thoracic artery (ITA) graft, only in cases where middle part of the ITA was severely injured during harvesting and skeletonization only would not suffice. After taking down the ITA we carefully examine the ITA's, and if any haemorrhage is observed, we cut it from this level. If the intimal part of the ITA is intact, it is used. However if we observed any reduction in the flow, we

used vasodilator agents, or skeletonized the ITA for a better inspection which we do not use frequently. We believe that if there is any reduction in ITA blood flow especially in the middle part, possible injury should be considered.

Internal thoracic artery - saphenous vein composite graft can be useful if ascending aorta is severely calcified, and we agree with the authors; skeletonization increases the length and flow of the ITA.

**S. Fehmi Katırcıoğlu, Ufuk Tütün, Ali Ihsan Parlar  
Clinic of Cardiovascular Surgery,  
Türkiye Yüksek İhtisas Training and  
Research Hospital, Ankara, Turkey**