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- **Meharwal and Trehan in 3977 cases\(^{[4]}\).

**Keywords:** Radial artery; Coronary artery bypass grafting; Allen test

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**Letter to the Editor**

Re: Is the Allen test reliable enough?\(^{[5]}\)

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Keywords: Radial artery; Coronary artery bypass grafting; Allen test

We agree with Kohonen et al.\(^{[1]}\) that a negative Allen’s test is safe to harvest the radial artery. This is well known. We have harvested the radial artery in 881 patients with a negative Allen’s test without postoperative hand ischaemia\(^{[2]}\). Barner has done the same in 1364 patients\(^{[3]}\) and Meharwal and Trehan in 3977 cases\(^{[4]}\).

What to do in the event of a positive test is not as straightforward. Kohonen et al. report 23% tests as positive and suggest further investigation prior to radial artery harvest\(^{[1]}\). Other series have reported much lower rates of positive tests. At our institution 3.5% of Allen tests are positive. In a study of 2940 arms Hosokawa et al. found positive tests in 3.6%\(^{[5]}\). The incidence of a positive test is dependent on the time allowed for capillary refill, hyperextension of the hand and the length of the ischaemic interval prior to the release of the ulnar artery. We have previously described our technique in detail\(^{[2]}\). We would suggest in the event of a positive test to immediately repeat it using an alternative technique and taking great care to prevent hyperextension of the hand. This should reduce the number of positive tests and still allow safe harvest of the radial artery reserving more complex investigations for cases with two positive tests with two different techniques.

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**References**


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**Letter to the Editor**

Re: Perivascular tissue of internal thoracic artery releases potent nitric oxide and prostacyclin-independent anticontractile factor

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Keywords: CABG; Perivascular tissue; Nitric oxide; Saphenous vein; Internal thoracic artery

We read with interest the recent article by Malinowski et al.\(^{[1]}\) on the release of a soluble anticontractile factor from perivascular tissue (PVT) of the internal thoracic artery (ITA). In this study the authors show that the PVT surrounding the ITA, the ‘gold standard’ graft in coronary artery bypass surgery (CABG), releases a nitric oxide (NO) and prostacyclin-independent anticontractile factor. The authors suggest that the presence of an active PVT might explain the functional difference between skeletonised and non-skeletonised ITA and influence vascular function after graft implantation. Possible drawbacks of removing PVT should be taken into account since preservation of this tissue might be beneficial.

Malinowski et al. suggest that the influence of PVT removal on the function of other vessels used for CABG, such as the saphenous vein, the radial or the gastroepiploic arteries should be analysed. Although we have not performed functional studies, we have recently shown that the PVT surrounding saphenous veins used as grafts in patients undergoing CABG exhibits positive endothelial nitric oxide synthase (eNOS) immunoreactivity, contains eNOS mRNA and
protein and possesses NOS activity [2]. This finding is of particular relevance to the improved early- and long-term patency rates shown in patients receiving saphenous vein grafts prepared using a ‘no-touch’ method of harvesting [3] where the vein is removed complete with its cushion of surrounding tissue, much of which is fat. Indeed, a long-term prospective follow-up study (mean time 8.5 years) showed the patency of ‘no-touch’ vein grafts comparable to the ITA [3].

While the PVT is likely to play an important role in the improved performance of ‘no-touch’ saphenous vein grafts its contribution to the superior patency of the ITA in CABG patients may be questionable. As mentioned by Malinowski et al., the ITA is traditionally harvested as a pedicle, complete with surrounding tissue. In some centres, ITA skeletonisation is performed that provides a longer graft with superior flow and reduced postoperative sternal wound infection. However, a review of the ITA graft points out that data from long-term angiographic studies comparing pedicled with skeletonised ITA is not currently available. Furthermore, in this review, Del Campo [4] suggests that skeletonisation of the ITA might adversely affect the long-term patency of this conduit since in this preparation the vasa vasorum, innervation and lymphatic drainage of the vessel might be compromised. Again, the preservation of PVT in ‘no-touch’ saphenous vein grafts is likely to have a protective role since the capillary network contained within the surrounding cushion of fat and the underlying vasa vasorum are not damaged. The identification of eNOS associated with perivascular fat and endothelial cells of the capillaries and vasa vasorum accompanied by the finding that it possesses NOS activity indicates its potential to release NO when used as a bypass conduit. We suggest that the PVT of ‘no-touch’-harvested saphenous vein plays an important role in its superior patency rate comparable to the ITA and agree with Malinowski et al. that skeletonisation of vessels used for CABG should be re-evaluated.

References


Reply to the Letter to the Editor

Reply to Dashwood et al.

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Keywords: Internal thoracic artery; ADRF; CABG; Perivascular tissue; Nitric oxide; Saphenous vein

We thank Dashwood et al. for their interest and comments regarding our manuscript [1]. We used to be enthusiastic regarding ITA skeletonization but with growing awareness of the active role of perivascular tissue we are becoming less and less so [2]. Our study showed that the factor responsible for anticontractile properties of perivascular tissue (PVT) in human internal thoracic artery (ITA) acts independent of NO and PGII [3]. It suggests that PVT releases agents, different to these well known relaxing factors that clearly affect vascular reactivity, adventitia/adipocyte derived relaxing factor (ADRF).

We appreciate Dashwood et al.’s findings on the importance of perivascular tissue of saphenous vein [4,5]. Their papers clearly show that preserving perivascular fat results in improved long term patency rates of SV grafts. Dashwood et al. proved that PVT of SV possesses strong NOS activity and argue it might contribute to the improved patency of SV harvested as a pedicle. Still, we do not know if this high NOS activity is found in PVT, nor whether SV PVT releases ADRF. Likewise, it remains to be shown if ADRF, similarly to NO, has the ability to affect patency rates of the vessels.

Meanwhile, we have analyzed the influence of internal thoracic artery’s PVT on the function of other vessels such as radial artery and saphenous veins and we failed to find any anticontractile effect. This may suggest that ADRF may be a vessel specific agent. (These data will be presented during the 57th ESCVS International Congress in Barcelona). It is crucial now to establish the nature and precise mechanisms of action of ADRF and check if this is truly a vessel specific factor which may affect clinical outcome of non-skeletonized grafts.

References


