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Non-dependent axillary artery compression during needlescopic thoracic sympathectomy

A fit young man with palmar hyperhidrosis underwent bilateral needlescopic thoracic sympathectomy. Initially, in the right lateral position, a temperature probe was taped to the left (non-dependent) hand to detect the temperature rise after left electrocautery sympathectomy. The left forearm was placed on a U support. A roll was placed under the right axilla and a pulse oximeter probe on the right thumb.

To allow introduction of the needlescope in the 3rd intercostal space in the axilla, the left shoulder was flexed to 120°. However, after the T2 and T3 ganglions were ablated, the hand temperature did not increase, even after 10 min. On examination, the left brachial and radial pulses were absent, while the right arm circulation was normal. The pulse oximeter probe was repositioned on the left thumb but no trace was obtainable. Left shoulder flexion was reduced and, immediately, the pulses returned and the hand temperature increased by 1°C.

When right sympathectomy was performed, the pulse oximeter was placed on the operative, nondependent, right hand. Axillary artery compression was detected early and corrected by reducing shoulder flexion.

Usually, precautions are taken to prevent compression of the dependent axillary artery and brachial plexus in the lateral position. However, when the non-dependent shoulder is flexed beyond 90° in high thoracic sympathectomy, the axillary artery may also be compressed. This prevents the increase in hand temperature following sympathectomy that is necessary to assess surgical success. We suggest that the circulation be monitored simultaneously with pulse oximeters in both hands during such surgery.

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