perfusion was restored and good urine output confirmed a good general perfusion. The patient was cooled down to 18 °C and the operation was then completed in the usual fashion. Complete aortic arch reconstruction with elephant trunk and reimplantation of epiaortic vessels was performed using a 26 mm straight Dacron tube with an external 10 mm branch. Valve sparing aortic root reconstruction was then performed by means of a 28 mm straight Dacron tube according to the David procedure. The patient recovered uneventfully from the operation and was discharged home after 15 days.

3. Discussion

Cerebral malperfusion during CPB is a potentially dramatic situation which can be easily misunderstood if double radial artery wave and cerebral saturation are not monitored. Such a complication is related to the extent of the intimal flap and seems to be increased by the retrograde flow into the thoracic aorta following femoral artery cannulation [1, 2]. Despite, on the other hand, some studies having confirmed the safety of femoral artery approach [3]. To minimize the risk of malperfusion, axillary artery cannulation which avoids retrograde flow in the dissected aorta, has been proposed as first choice site of arterial cannulation [2, 4]. Alternative sites of cannulation, such as carotid artery, have also been proposed for selected patients [5]. In this case we were not able to achieve satisfactory perfusion neither using axillary cannulation (our first choice) nor using femoral approach. Fortunately, the use of this innovative method allowed us to uneventfully cool the patient down to deep hypothermia and complete the procedure in circulatory arrest as planned, thus solving the problems of malperfusion. We were inspired to such a technique by a paper by Neri et al. [6] who reported the use of an endotracheal tube as a ‘modified’ cannula to obtain an endo-clamping effect and to achieve cerebral perfusion during descending thoracic aorta surgery. We modified his technique to obtain physiological antegrade perfusion and easy systemic cooling. A similar concept using a new cannula and mild hypothermia was also recently reported by Bakhtiary et al. [7]. In this patient we were able to achieve a full flow with adequate perfusion of full body, nevertheless, we still decided for deep hypothermia for a comfortable distal end anastomosis. Following this successful case, however, we have employed the same technique in three further elective patients undergoing arch replacement, allowing for continued antegrade distal perfusion at 25 °C. We conclude that the use of an endotracheal tube as an alternative cannula to obtain antegrade perfusion and aortic endoclamping is a safe and low-cost technique, which could be extremely helpful in selected situations.

References


eComment: Carotid cannulation

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doi:10.1510/icvts.2007.160564A

I would like to ask if the left carotid artery was dissected in the CT scan. If not, the technique of Urbansky is really quick and effective. I have used it in 2 cases of dissected right axillary artery. As we can see, also femoral cannulation alone is not 100% safe, I also disagree with Elefteriades [1].

Reference


eComment. What is the best arterial cannulation site in a complicated patient with acute type A aortic dissection?

Author: Senol Yavuz, Bursa Yuksek Ihtisas Education and Research Hospital, Bursa 16330, Turkey
doi:10.1510/icvts.2007.160564B

In the article by Totaro and Argano [1], the authors performed antegrade perfusion using an innovative technique to treat cerebral and peripheral malperfusion occurring during acute type A aortic dissection (AADA) repair.