We read with interest El Oumeiri’s formidable experience of utilizing deep hypothermic circulatory arrest for re-do surgical repair of ascending aorta false aneurysms in seven patients [1]. Inadvertent breaching of the false aneurysm at sternal re-entry is a real and well-cited risk with potentially fatal catastrophic exsanguination. The strategy of instituting low flow hypothermic extra mediastinal cardiopulmonary bypass (CPB) prior to chest re-opening via axillary cannulation or more commonly via the femoral route affords a degree of safety [2].

The authors’ technique to perform sternal re-opening under deep hypothermic circulatory arrest only once the core rectal temperature has reached 18 °C clearly affords superior protection from cerebral air embolism and massive haemorrhage. It is fortunate they did not experience any episodes of deep hypothermia induced ventricular fibrillation with associated ventricular distension. This would be a serious problem with a closed sternum. Defibrillation is unlikely to be successful with a distended heart. Although persistent fibrillation per se is not a problem with hypothermic CPB, ventricular distention is detrimental to cardiac myocyte function.

One solution would be to emergently or prophylactically insert a left ventricle (LV) apical vent directly via a small left anterolateral thoracotomy, not dissimilar to the access utilized for a TAVI (transcatheter aortic valve implantation) procedure via the apical route. Several authors can attest to the value of an LV vent in this situation to control ventricular distension [3, 4].

References


eComment: Re-do sternotomy for complex aortic surgery under deep hypothermic circulatory arrest: left ventricular vent – an invaluable adjunct

Authors: Anand Sachithanandan, Cardiothoracic Center, Serdang Hospital, Kuala Lumpur 43000, Malaysia; Balaji Badmanaban
doi:10.1510/icvts.2010.262378A

We read with interest El Oumeiri’s formidable experience of utilizing deep hypothermic circulatory arrest for re-do surgical repair of ascending aorta false aneurysms in seven patients [1]. Inadvertent breaching of the false aneurysm at sternal re-entry is a real and well-cited risk with potentially fatal catastrophic exsanguination. The strategy of instituting low flow hypothermic extra mediastinal cardiopulmonary bypass (CPB) prior to chest re-opening via axillary cannulation or more commonly via the femoral route affords a degree of safety [2].

The authors’ technique to perform sternal re-opening under deep hypothermic circulatory arrest only once the core rectal temperature has reached 18 °C clearly affords superior protection from cerebral air embolism and massive haemorrhage. It is fortunate they did not experience any episodes of deep hypothermia induced ventricular fibrillation with associated ventricular distension. This would be a serious problem with a closed sternum. Defibrillation is unlikely to be successful with a distended heart. Although persistent fibrillation per se is not a problem with hypothermic CPB, ventricular distention is detrimental to cardiac myocyte function.

One solution would be to emergently or prophylactically insert a left ventricle (LV) apical vent directly via a small left anterolateral thoracotomy, not dissimilar to the access utilized for a TAVI (transcatheter aortic valve implantation) procedure via the apical route. Several authors can attest to the value of an LV vent in this situation to control ventricular distension [3, 4].

References


eComment: Re-do sternotomy for complex aortic surgery under deep hypothermic circulatory arrest: left ventricular vent – an invaluable adjunct

Authors: Anand Sachithanandan, Cardiothoracic Center, Serdang Hospital, Kuala Lumpur 43000, Malaysia; Balaji Badmanaban
doi:10.1510/icvts.2010.262378A

We read with interest El Oumeiri’s formidable experience of utilizing deep hypothermic circulatory arrest for re-do surgical repair of ascending aorta false aneurysms in seven patients [1]. Inadvertent breaching of the false aneurysm at sternal re-entry is a real and well-cited risk with potentially fatal catastrophic exsanguination. The strategy of instituting low flow hypothermic extra mediastinal cardiopulmonary bypass (CPB) prior to chest re-opening via axillary cannulation or more commonly via the femoral route affords a degree of safety [2].

The authors’ technique to perform sternal re-opening under deep hypothermic circulatory arrest only once the core rectal temperature has reached 18 °C clearly affords superior protection from cerebral air embolism and massive haemorrhage. It is fortunate they did not experience any episodes of deep hypothermia induced ventricular fibrillation with associated ventricular distension. This would be a serious problem with a closed sternum. Defibrillation is unlikely to be successful with a distended heart. Although persistent fibrillation per se is not a problem with hypothermic CPB, ventricular distention is detrimental to cardiac myocyte function.

One solution would be to emergently or prophylactically insert a left ventricle (LV) apical vent directly via a small left anterolateral thoracotomy, not dissimilar to the access utilized for a TAVI (transcatheter aortic valve implantation) procedure via the apical route. Several authors can attest to the value of an LV vent in this situation to control ventricular distension [3, 4].

References