

Permission to print:	Yes
Catagory	Air in circuit
Near Miss or Accident	Accident
Type of incident:	Management
Knowledge Error	Yes
Rule Error	Yes
Skill Error	No
Team Issue	No
Violation	No
Description:	<p>Air entrapment in axillary arterial line to the brain.A 58 Year old male was undergoing a Bentalls and aortic arch replacement (Previous AVR 2012) Right axillary artery cannulation (running from a second cardioplegia circuit sans cardioplegia) and right femoral cannulation were performed.</p> <p>Here is the time line:</p> <p>10:29 - Femoral bypass initiated 10:43 - Axillary bypass initiated 10:44 – Cooling to 25oC 12:02 - Femoral bypass clamped and pump recirculated at 0.8LPM 12:04 - Rotation of Perfusionist 12:22 - Return of Perfusionist 12:22 – Maintenance dose of cardioplegia given 12:22 – Air bubbles noticed in axillary arterial line.</p> <p>The Antegrade Cerebral Perfusion circuit is connected [from the] Recirc line that in turn in y-ed [from] our arterial line, distal to our arterial filter. Just proximal to the ACP connector is our connector for our cardioplegia..</p> <p>We had commenced DHCA and the arterial line and venous line were both clamped off. I was re-circulating at 0.8LMP and ACP was commenced at 0.6 LPM. After 22 mins of DHCA, the surgeon asked for a dose of cardioplegia, which was delivered at 0.25 LPM. I noticed several seconds later that there was air in the ACP line, I immediately informed the surgeon whilst also stopping the ACP line, that there was air in the line and asked for the second Perfusionist to be brought back for assistance.</p>
Contributing factors:	<p>New procedure(only 3rd time right axillary artery cannulation had been used. Also inadequate knowledge base. What had happened was that the combined flow of 0.6 LMP and 0.25 LPM was greater then the circulating flow of 0.8 LPM and air was drawn back from the [hard-shell] reservoir into the recirc line and then into the ACP line. We do have a non-return valve in the recirc line but it is distal to the arterial filter and proximal to the connector for the cardioplegia.</p>
Corrective action:	<p>The patient was placed in the head down position and his carotids were compressed by the anaesthetist. I clamped the arterial line to the patient and deaired my portion of the axillary arterial line, while at the same time the Surgeon had disconnected the axillary arterial line to the patient. I then unclamped the axillary arterial line and deaired the rest of the line leading to the patient. This procedure took approximately 3 minutes, during which the patient was without cerebral perfusion and at 25oC. Axillary arterial bypass was re-initiated and the operation proceeded without any further incidences.</p>
Preventative action plan:	<p>Protocol review was put into place stating that the minimum re-circulation flow was to be 1.5 LPM</p>

Manufacturer advised: No
Discussed with team: Yes
Ext Authority Advised No
Hospital incident filed: Yes
Patient outcome variance f Nil
Commentary