

PIRS 2016 - Circuit disruption

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| Permission to print: | Yes |
| Incident type | No Harm Incident |
| Type of incident: | Management |
| Catagory | Circuit disruption |
| Description: | [Using a Sorin Inspire 6 oxygenator and hard shell reservoir] I noticed venous air which was quickly forming an air lock. Informed the surgeon. He looked for the source of air at the venous cannulae and the cannulae then completely came out of the right atrium. I quickly attached my giving set to the venous line and pushed plasmalyte up the venous line to reprime. The surgeon put the venous cannulae back in and we were back on bypass within 60 seconds. Used a S5 heart lung machine and Inspire 6 oxygenator. The venous cannulae was put in by the registrar so not sure if some of those factors relate to imexperience. |
| Preventive actions | erto priming the venous line can be done as described (attaching the prime line to the venous line luer near the reservoir OR can be done by transferring line from the top of the HSVR to the luer on the venous line, clamping the arterial line (with pump of) and using the arterial pump to retrograde reprime the venous line. |
| GOOD CATCH - what went | A good catch is that we now have a luer connector manufactured in our venous lines for this situation. I will be using this with a tap from now on to make it more user friendly. |
| Protocol issue | No |
| Rule issue | No |
| Skill issue | No |
| Team Issue | No |
| Violation | No |
| Manufacturer advised: | No |
| Discussed with team: | No |
| Hospital incident filed: | No |
| Ext Authority Advised | No |
| Procedure acuity: | Elective |
| Commentary | |

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|--------------------------|--|
| Permission to print: | Yes |
| Incident type | Near Miss |
| Type of incident: | Management |
| Catagory | Circuit disruption |
| Description: | <p>It was noted that there was a leak on the floor from a primed circuit- the 3 way tap to the empty blood bag on the Sorin Vanguard heat exchanger. (liva nova tubing circuit) The line to the bag was clamped, and the luer from the bag reconnected to the three way tap... the leak ceased, cross threading of the connection was assumed. This circuit was used clinically a day later. Bypass had commenced and the cardioplegia circuit was flushed, at this time the cardioplegia alarm was set off, and it was discovered that the line to the flush bag was clamped (obviously from the day before when the leak was found, and it was not left open as per ususal protocol) . The clamp was opened, and blood was noticed pouring from the 3 way tap/ blood bag connection on the vangard cardioplegia heat exchanger. Flushing was ceased and the surgeon notified that there was a leak that was quite major. Another perfusionist called for to replace the bag, this was undertaken when it was realised that the nipple on the luer was broken off and actually stuck in the 3 way. The 3 way tap was replaced and another blood bag attached. Flushing of cardioplegia recommenced, and the proceedure continued uneventfully.</p> |
| Preventive actions | <p>when a leak is found like this during/ after priming - a note should be place on the pre primed check list to note that there was an issue, and to ensure it was fixed. In this case the connection could have been re checked prior to clinical use and the clamped blood bag would have been noted, opened and hence the leak would once again have been detected. manufacturer not advised as it may have been a one off event , but batch number noted in the event that other packs leak.</p> |
| GOOD CATCH - what went | <p>realising that there was an issue when the alarm went off, calling for help having backup equipment near by for a speedy change of connections, notifying surgeon to wait</p> |
| Protocol issue | No |
| Rule issue | No |
| Skill issue | No |
| Team Issue | Yes |
| Violation | No |
| Manufacturer advised: | No |
| Discussed with team: | Yes |
| Hospital incident filed: | No |
| Ext Authority Advised | No |
| Procedure acuity: | Elective |
| Commentary | |

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|--------------------------|--|
| Permission to print: | Yes |
| Incident type | Near Miss |
| Type of incident: | Management |
| Category | Circuit disruption |
| Description: | On bypass with an extra sucker line firmly attached to the top port of the Medos reservoir. The patient surgery was undertaken at naso temp 34 degs. There was a large amount of open heart return coming through the extra sucker line. I heard a variance of noise and realised that the yellow line had become detached from the reservoir and a small amount of blood had been lost on the equipment. The patient Hct was good so no blood products were required to replace the lost blood. The line was then snap tied on reattaching it to the port. This however did not prevent the same thing happening about 40 mins later. High flow and warm blood may have contributed to loosening the connection of the tubing to the port and time constraint making this connection during CPB. . Reattached the line and continued on with the case |
| Preventive actions | snap tie connection. Attention to firm application of additional tubing to ports during a procedure as would be the case in a routine set up without time constraint. |
| GOOD CATCH - what went | alertness to a change in sound that identified the disconnection immediately (experience) averted significant blood loss and possible unnecessary transfusion. |
| Protocol issue | No |
| Rule issue | Yes |
| Skill issue | No |
| Team Issue | No |
| Violation | |
| Manufacturer advised: | No |
| Discussed with team: | Yes |
| Hospital incident filed: | No |
| Ext Authority Advised | No |
| Procedure acuity: | Emergent |
| Commentary | |

Permission to print: Yes

Incident type: No Harm Incident

Type of incident: Management

Catagory: Circuit disruption

Description: 3) Full and detailed description of incident or variance:
Emergent CABG case, patient on IABP Preop. Patient was on full cardiopulmonary bypass . post cross clamp removal, temperature normothermic, n/p temp 36.8 bladder temp 36.0 - flow rate of 2.3-2.5 LPM/M2. MAP 50-65 mmHg. Patient did not have a cardiac rhythm at the time of incident, rhythm was asystole.

Case had been an uneventful CPB period , cooled to 34.0 C 4 distal graft anastomosis performed (distal and proximal anastomosis performed under a single cross clamp. CPS [cardioplegia solution] initially normothermic (warm) arrest with enriched CPS followed by cold and intermittent CPS administration at 15-22 minute intervals and hot shot prior to cross clamp removal.

Surgeon, suddenly (at low voice level) requested "pump off". I turned off the CPB flow to zero and clamped the aortic (inflow) line to the patient. At the same time the low level alarm sounded (or just prior to my turning the CPB flow off). I noted that the venous line had become deaired, as far as I could see was empty. I then clamped the venous line. I had about 150 ml in the reservoir at that time (above the low level alarm line) I took off the arterial line clamp and transfused the 150 ml into the patient (in the hopes that refilling the patient with volume would assist in allowing the venous line to be refilled).At that time I asked the surgeon if it "was an air lock" and the response was to the effect of that the venous line was completely empty. The surgeon was speaking with the nurse and assistant regarding the refilling of the venous line and I said "I can refill the venous line from my end". I clamped (2nd clamp on the venous line proximal to a luer lock connection) the venous line. I attached the prime line to the luer lock connection and I said "disconnect the venous line from the cannula and I will refill the line".

The response was "the line is disconnected". I squeezed the prime line bag and refilled the venous line (unfortunately I only had a part bag of 150 ml and then I squeezed a seconf full bag but then noted that the flow had stopped up the venous line...(the surgeon said "hurry",) and I then noted the clamp on the 2nd bag of prime line solution, and I unclamped it and filled the rest of the venous line.

The surgeon then recannulated the RA/IVC with the venous cannula an instructed me to go back on CPB. I immediately went back on to full flow , increasing the FiO2 , sweep gas and CPB flow rates to greater than 2.4 LPM/M2 for a few minutes and then drew a blood gas.

The surgeon asked me for the time, I said I did not know the exact time but from my level event chart and bypass flow chart I noted that the time period appeared to be a maximum of three (3) minutes (of no CPB flow and asystole with no patient blood pressure). This was later confirmed to be exactly three minute by the automated chart system.

Later on during the case the surgeon mentioned to the anaesthesiologist that he did not know why the venous cannula had been dislodged and fallen out during the case. The rest of CPB was uneventful and the patient was

successfully weaned off CPB on the IABP at 1:1

Preventive actions I now hook my prime line onto the venous line luer lock during CPB in order to refill the venous line very quickly if required.

GOOD CATCH - what went expeditious retrograde repriming of the venous line

Protocol issue No

Rule issue No

Skill issue No

Team Issue Yes

Violation No

Manufacturer advised: No

Discussed with team: Yes

Hospital incident filed: No

Ext Authority Advised No

Procedure acuity: Emergent

Commentary

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|--------------------------|--|
| Permission to print: | Yes |
| Incident type | Harmful incident |
| Type of incident: | Management |
| Catagory | Circuit disruption |
| Description: | <p>The aortic cannula dislodged from the ascending aorta during CPB. CABG patient that was warm and with all grafting completed, the heart was perfused and beating. The aortic cannula was joined to the 2 stage venous (cavo-atrial) cannula and blood was transfused back the patient venous circulation. Blood was continually transfused using a \'sucker bypass\' technique whilst the aortotomy site was repaired. [The surgeon deliberately left blood in the pericardial space to provide an underwater seal to prevent aspiration of air]. The patient required adrenaline and cardiac massage due to VF and massive blood loss. The aorta was re-cannulated and patient returned to bypass for stabilisation. Blood gases were normalised on bypass but required increased gas sweep flow and FiO2 and 50mmol of sodium bicarbonate to correct base deficit. A heamoconcentrator was also used to remove volume since a large degree of fluid resus had been required at the time of the incident. 9 minutes downtime from bypass. SVO2 ~ 26% on resumption of CPB. No blood products transfused, Hb was 85g/L at time of separation from bypass.</p> |
| Preventive actions | None |
| GOOD CATCH - what went | Decisive action from surgeon and clear instructions as to what was required from each team member. |
| Protocol issue | No |
| Rule issue | No |
| Skill issue | No |
| Team Issue | No |
| Violation | No |
| Manufacturer advised: | No |
| Discussed with team: | Yes |
| Hospital incident filed: | No |
| Ext Authority Advised | No |
| Procedure acuity: | Elective |
| Commentary | |