2021 Oxygenator

Permission to print:	Yes
Category	Oxygenator
Incident type	Good Catch No Harm Incident
Duration of incident:	minutes
Description:	Normal prime and setup with nothing unusual, no leaks, heater cooler functioning correctly. After going onto bypass for a AVR and CABGS x 3 (BSA was 1.74, Flow was 4.2 L/min) it was noted that the oxygenator (Inspire 6- Liva Nova) appeared to be not filling completely with blood at the end where the heater/ cooler taps were connected. It was also noted that a large amount of condensation had formed at this end (much more than usual) and was leaking out from the small single vent on the underside of the oxygenator and pooling on the floor at a high rate. It usually has the smallest amount of water near it (<0.5 mls) in this case it was pooling on the ground. The patient was still warm and ventilation continued as I investigated. FiO2 was increased to 1.0 and arterial and venous blood gas samples were sent. There was no inline gas monitoring except the SvO2 sensor. PO2 was around the 300mmHg mark with a very transient (20s) nadir SvO2 of 58. Although the PO2 was “normal” it was decided to change the oxygenator out (in consultation with a second perfusionist) as structurally the oxygenator did not look 'right' (the oxygenator was filling up to about 80% of its volume and the FiO2 was 1.0), the patient was quite sick preoperatively (surgery had been postponed numerous times in the preceding weeks) and a long bypass time was expected along with the idea of 'playing it safe' among the team members given the patient was warm, stable and had not been cross clamped. Once off bypass the circuit was emptied into a bag for reinfusion and the oxygenator was noted to be not emptying no matter how hard I tried to push the blood through therefore only half the circuit was given back to the patient which was also noted to be unusual. (When we normally bring people off bypass, once the lines are handed back if the patient is stable we empty the circuit into a bag by emptying the circuit with just air being pushed through). Of interest the PaO2 was similar on the second circuit but at only 0.6 FiO2.
GOOD CATCH - what went well	No preventing actions could have foreseen this problem under clear prime circumstances as this was potentially a structural issue with the oxygenator itself only picked up once filled with blood. The manufacturer has been notified and the oxygenator has been sent off to Italy to be pulled apart and inspected for defects
What could we do better	I could have waited for a bit longer to see if any other changes occurred decreasing FiO2 with lung ventilation off and done another arterial gas as a challenge to see if there was any definite defect in the oxygenator.
Preventive actions	No preventing actions could have foreseen this problem under clear prime circumstances as this was potentially a structural issue with the oxygenator itself only picked up once filled with blood. The manufacturer has been notified and the oxygenator has been sent off to Italy to be pulled apart and inspected for defects
Hospital incident filed:	No
Ext Authority Advised	No
Rule issue	No
Skill issue	No
Discussed with team:	No
Patient outcome variance f	Nil

Commentary	This report exemplifies good team work insomuch as the decision making occurred before a much more time constrained emergency changeout may have been required. The author queries in hindsight delaying coming off bypass and further testing the faulty oxygenator, however the action taken was clearly the safest and without risk to the patient. Too often we see a rush to cross clamp the aorta sometimes when the perfusionist is concerned of a subtle feeling all is not quite right. A pause pre cross clamp for the surgeon and perfusionist to confirm “is the bypass is good” is a very worth while mini time-out where, as in this case, potential badness can be averted. PIRS Ed