Critical Care Intra-Aortic Balloon Pump Guidelines

Critical Care Guidelines
FOR CRITICAL CARE USE ONLY

Set-up

Ensure post-insertion ECG, CXR, limb circulation check completed and reviewed

Ensure:	Power on Helium tank open and full Tubing check – connections tight and tubing patent Pressure bag – inflated and transducer zeroed Monitoring – ECG, arterial pressure, balloon pressure
Initial settings:	Mode - Auto Frequency - 1:1 Augmentation – Max Trigger - ECG

Monitoring

Bedside chart should be completed for every patient

Avoid having pump on standby - risk of clot formation after 10minutes
If the balloon remains on standby for more than 20minutes it should be removed

Continuous monitoring:	ECG Arterial trace Balloon pressure waveform Tubing patency Patient – insertion site, alignment of affected limb
Hourly checks:	MAP (from IABP monitor) Augmented diastolic pressure (from IABP monitor) frequency trigger (should be ECG when available) increasing inotrope requirements right pedal pulse and foot colour/warmth left pedal pulse and foot colour/warmth left radial pulse and hand colour/warmth
Daily checks:	platelets and U+Es ECG CXR

Weaning

Consider when stable MAP>65, stable heart rate and rhythm, CI >2.2 (if measured)

Process:	frequency decreased from 1:1 to 1:2 then 1:4 medical review before and following each reduction **augmentation of the balloon should not be altered**

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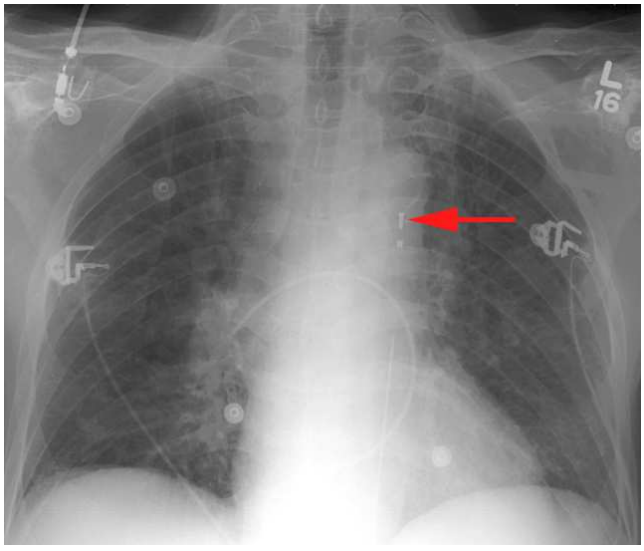
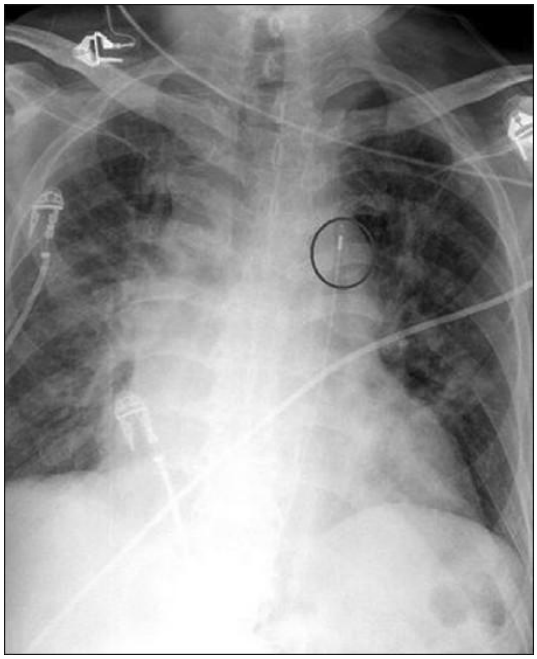
Reviewing the CXR

Positioning of the balloon tip is important as too proximal a placement risks occlusion of the left subclavian artery while too distal a placement risks renal artery occlusion.

The tip of the balloon pump can be identified on CXR as a small linear metallic marker. During inflation of the balloon, an air filled structure within the descending thoracic aorta may also be visible.



Traditionally the aortic knuckle is used as a CXR landmark, with optimal positioning being 2-4cm below the upper point of the aortic knuckle.



In cardiac failure this is often not easily seen. A position 2cm superior to the carina can also be used to ensure correct position of the balloon tip.

If you have any concerns, please ask a senior colleague to review.
A formal radiology report MUST be obtained and reviewed.

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Troubleshooting

Loss of trigger
- check ECG trace and replace ECG electrodes or cable if required
- try alternative ECG lead
- ensure pressure waveform visible and arterial line patent
- check pressure bag inflated and transducer height appropriate

Blood seen in balloon tubing
- STOP pump
- clamp helium line and disconnect balloon tubing from pump
- notify medical team immediately

Increasing inotrope requirements
- do not stop pump
- if no obvious cause (e.g. increased sedation) then notify medical team
- if increased 2 consecutive hours then notify medical team

Absent pulse or abnormal limb colour/warmth
- do not stop pump
- notify medical team immediately

New or sudden onset limb/shoulder pain
- do not stop pump
- notify medical team immediately
- assess limb pulses, colour, temperature

Low helium message or helium tank noted to be low
- no need to stop pump
- pump may need to be restarted if alarm has caused it to pause
- close helium cylinder fully, remove cylinder, check plastic washer is present and not damaged, install new cylinder and slowly open valve, verify new cylinder is full

Cardiac arrest
- it is safe to perform DC cardioversion if staff are clear of patient and IABP
- select arterial trigger to continue pump counter-pulsation with CPR effort
- if CPR is not triggering pump then the balloon pump should be switched off and manual inflation considered
  - *this involves manually injecting 50ml of air into the balloon and immediately deflating it 5 times every 30minutes. It should only be attempted by staff trained to do so.* ***If the balloon remains deflated for more than 20minutes – it should be removed***