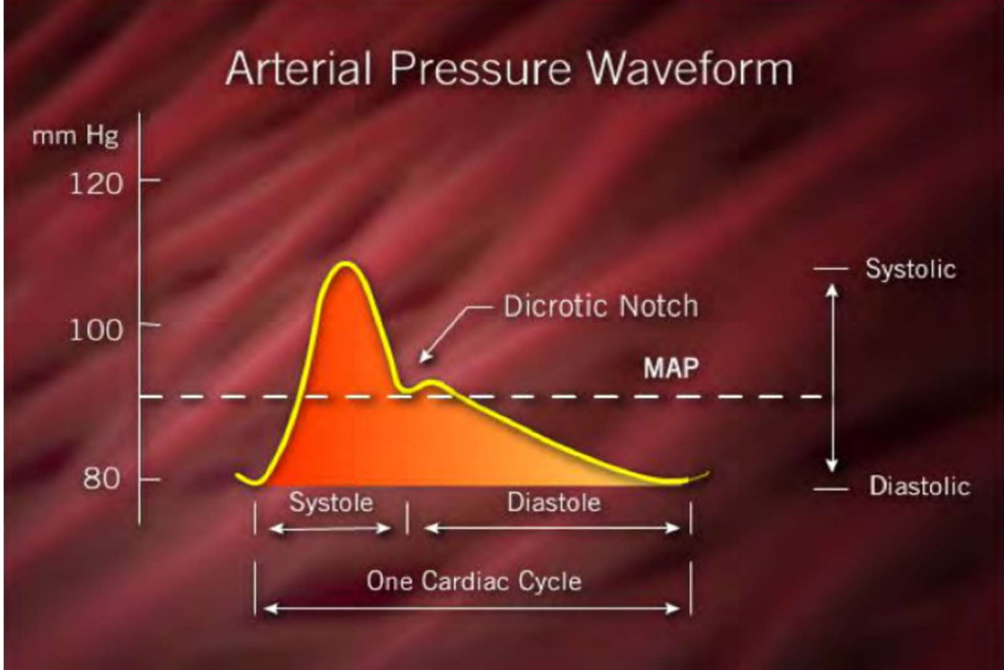
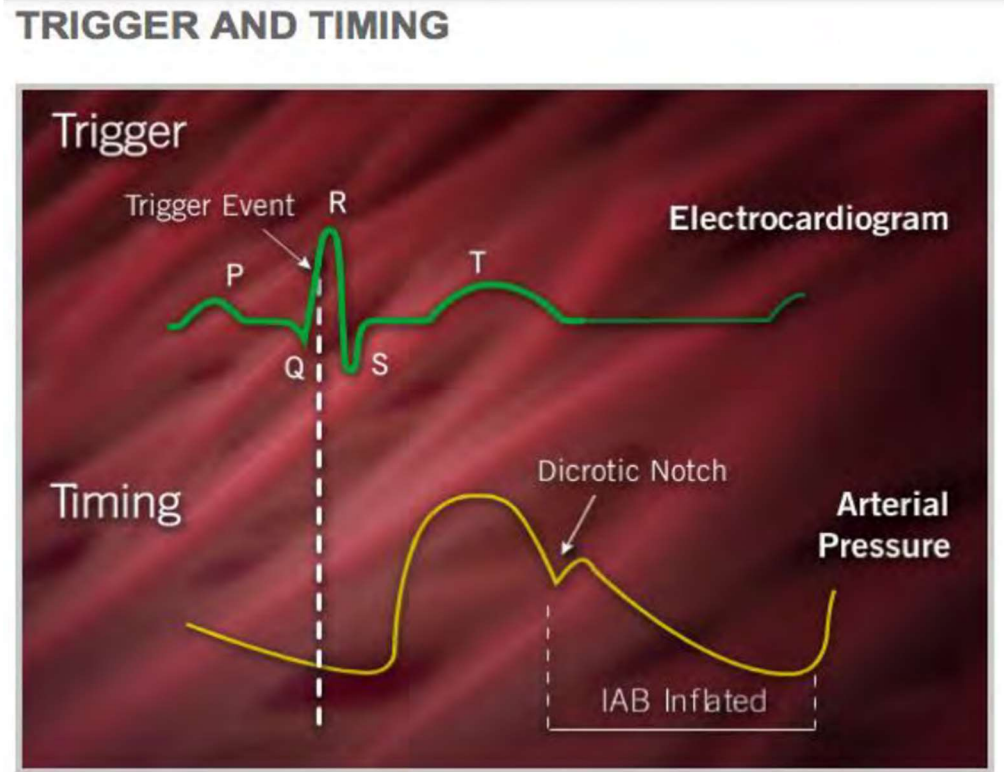
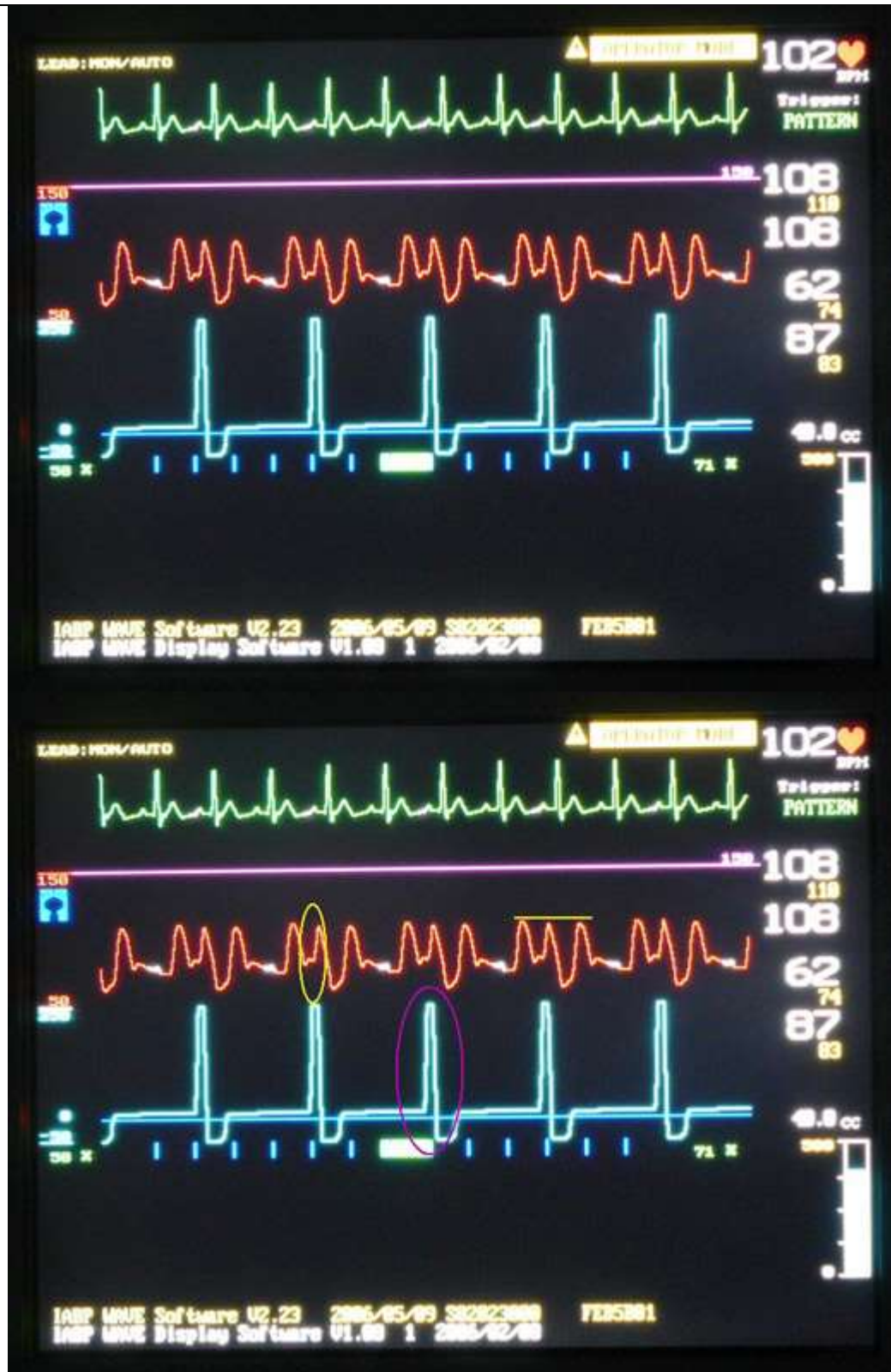


<p>IABP chks</p>	<ul style="list-style-type: none"> • Check limb circulation observations and document • Check CXR for proper positioning of catheter 2 cm below the origin of the left subclavian artery, or between the second and third ribs and above the renal arteries.
<p>IABP tracing</p>	 <p>Arterial Pressure Waveform</p> <p>The graph displays a typical arterial pressure waveform. The vertical axis represents pressure in mm Hg, with markings at 80, 100, and 120. The horizontal axis represents time, divided into Systole and Diastole, with a bracket indicating 'One Cardiac Cycle'. The waveform shows a sharp rise during systole, peaking at approximately 120 mm Hg, followed by a small dip (the Dicrotic Notch) and a gradual decline during diastole. A dashed horizontal line indicates the Mean Arterial Pressure (MAP) at approximately 93 mm Hg. The difference between the peak systolic pressure and the diastolic pressure is labeled as 'Systolic' and 'Diastolic'.</p>
<p>IABP trigger and timing</p>	 <p>TRIGGER AND TIMING</p> <p>This diagram illustrates the relationship between an ECG and an arterial pressure waveform for IABP timing. The top portion, labeled 'Trigger', shows an ECG with P, Q, R, S, and T waves. A vertical dashed line marks the 'Trigger Event' at the R-peak. The bottom portion, labeled 'Timing', shows an arterial pressure waveform. A vertical dashed line marks the 'Dicrotic Notch'. A bracket below the pressure waveform indicates the 'IAB Inflated' period, which begins at the R-peak and ends at the Dicrotic Notch.</p>

Late balloon inflation



Visible aortic valve closure notch with a delay to the onset of balloon inflation (Yellow ellipse)

Assisted systolic pressure peak approaching the same height as the unassisted systolic pressure peak (Horizontal yellow line). Additionally, the augmented diastolic peak has dropped to the same height as the unassisted systolic pressure peak.

Narrow balloon inflation waveform (Purple ellipse).

Other IABP thoughts

Timing should be checked on a 1:2 or 1:3 ratio so you can see a normal beat and press the inflation interval key

The width of the waveform corresponds to the duration of balloon inflation during the cardiac cycle

The plateau of the waveform reflects pressure within the aorta when the balloon is inflated. The balloon pump has to overcome the pressure within the aorta to fill the balloon with gas. Since the balloon material is very compliant, the pressure on either side will be approximately the same.

Therefore the plateau pressure on the BPW should be within ± 20 mmHg of the diastolic on the arterial pressure waveform

Early inflation means balloon inflates b/4 LV contraction is finished. That forces AV closed, and \uparrow afterload as LV contracts against closed AV. Can also get AR.

Late inflation causes loss of diastolic augmentation, appears as loss of sharp V and a clearly visible dichrotic notch prior to augmentation.

Late deflation

Assisted EDP > unassisted EDP

Prolonged, slurred upstroke

Increased afterload results in \uparrow work, impaired O₂ supply-demand balance

Early deflation

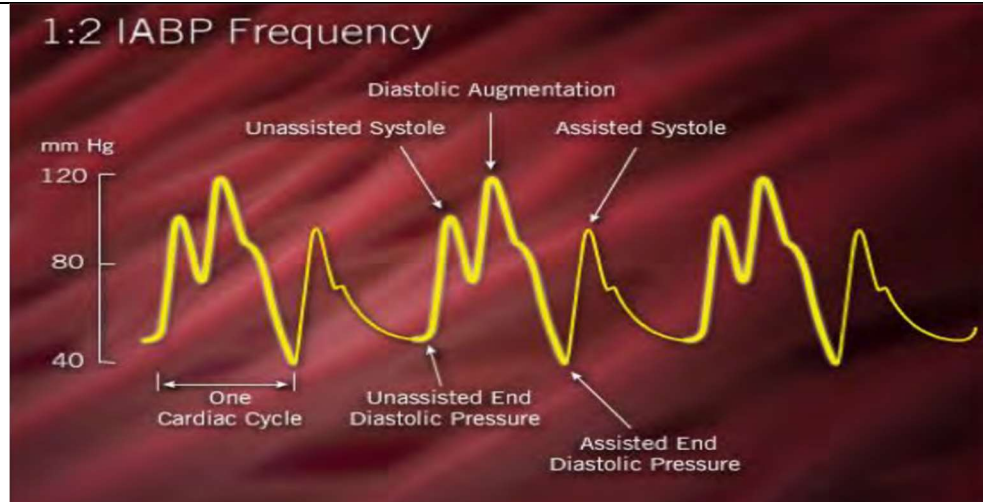
Sharp drop in augmented pressure wave

Loss of beneficial effects of afterload reduction

- Assisted EDP *not* less than unassisted EDP
- Assisted systole *not* less than unassisted EDP
- Increased myocardial work, impaired O₂ balance

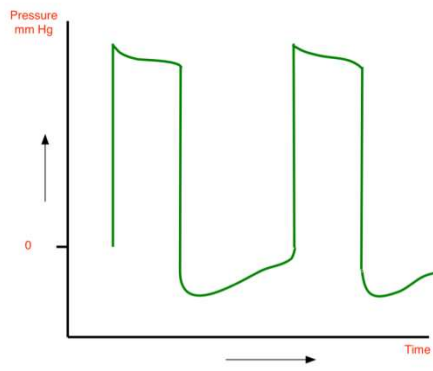
Coronary steal phenomenon

1:2 freq

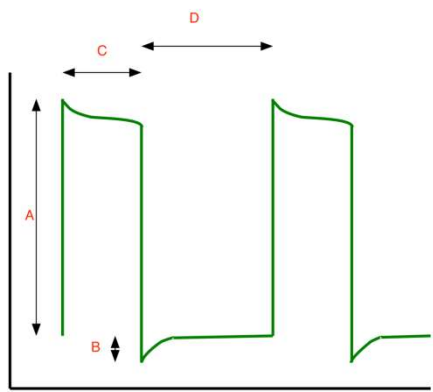


<p>IABP troubleshooting</p>	<p>Inadequate augmentation</p> <ul style="list-style-type: none"> • Pump factors • Pt factors <ul style="list-style-type: none"> ○ Tachyarrhythmia ○ Hypovol ○ Hotn ○ Vasodil • Catheter <ul style="list-style-type: none"> ○ Position ○ Size ○ Volume
-----------------------------	--

IABP Pressure-Time tracing. What does it show?



Below is a normal tracing:

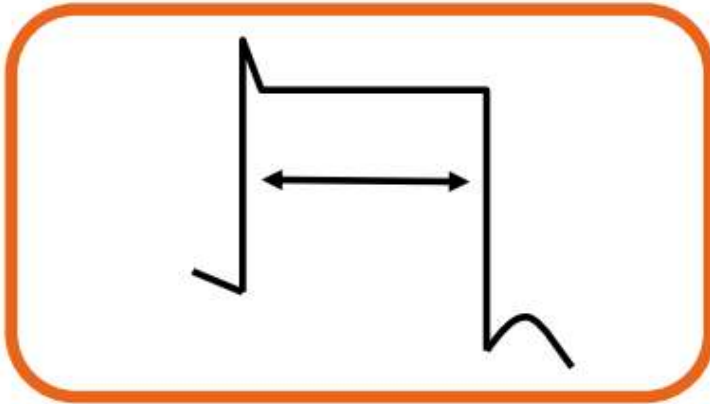


Leak in the balloon (e.g. from rupture or loose cxn) causes the balloon pressure to become negative when it is deflated.

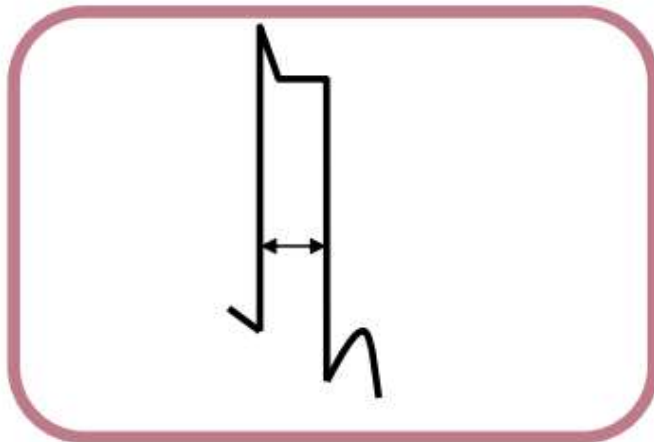
Variations in balloon pressure waveforms

Changes in balloon pressure waveforms may be due to the following:

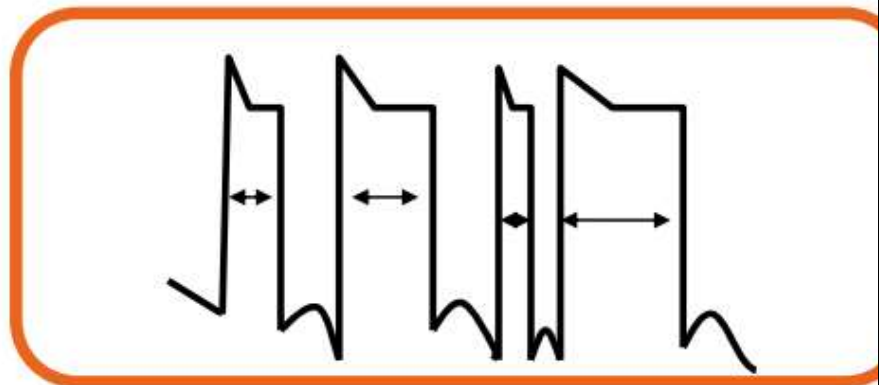
- Bradycardia: increased duration of plateau due to a longer diastolic phase



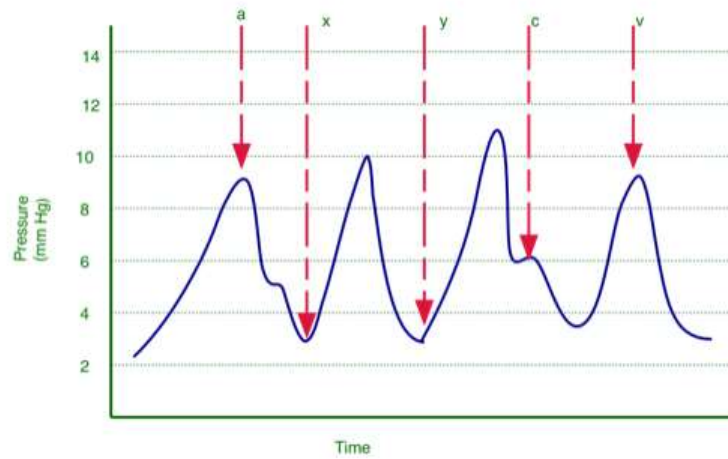
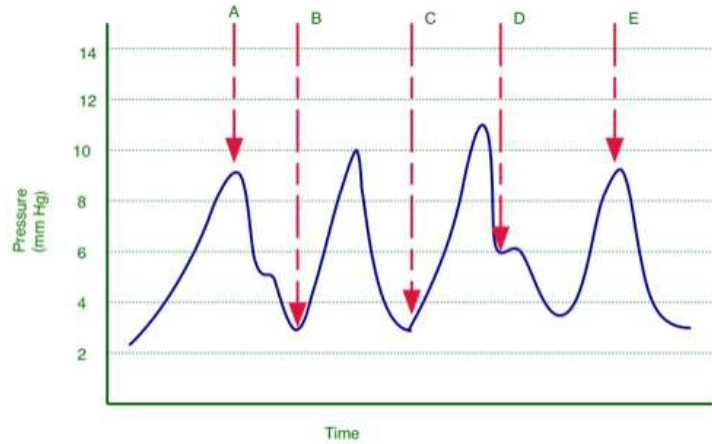
- Tachycardia: decreased duration of plateau due to shorter diastolic phase



- Rhythm: changes in width due to erratic diastolic phase.
If the heart rate is erratic, as in atrial fibrillation or there are frequent premea complexes, the waveform will have varying widths

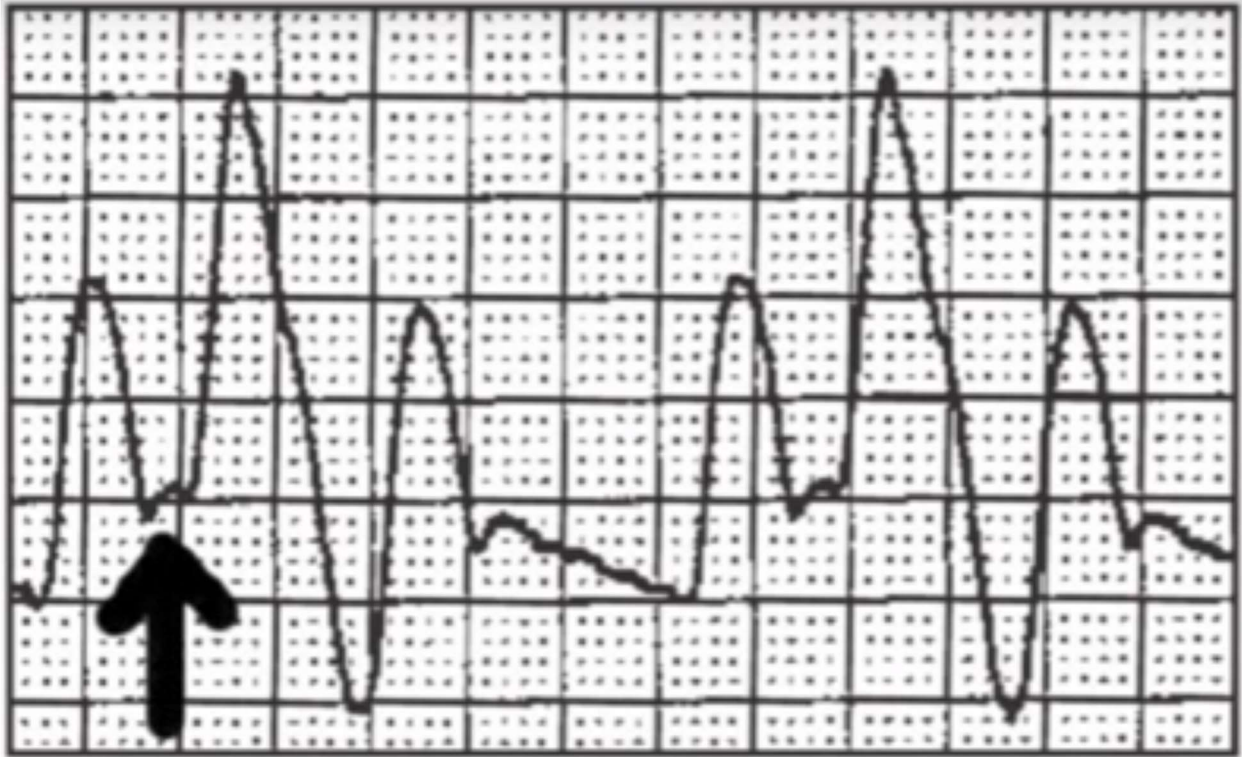


CVP tracing

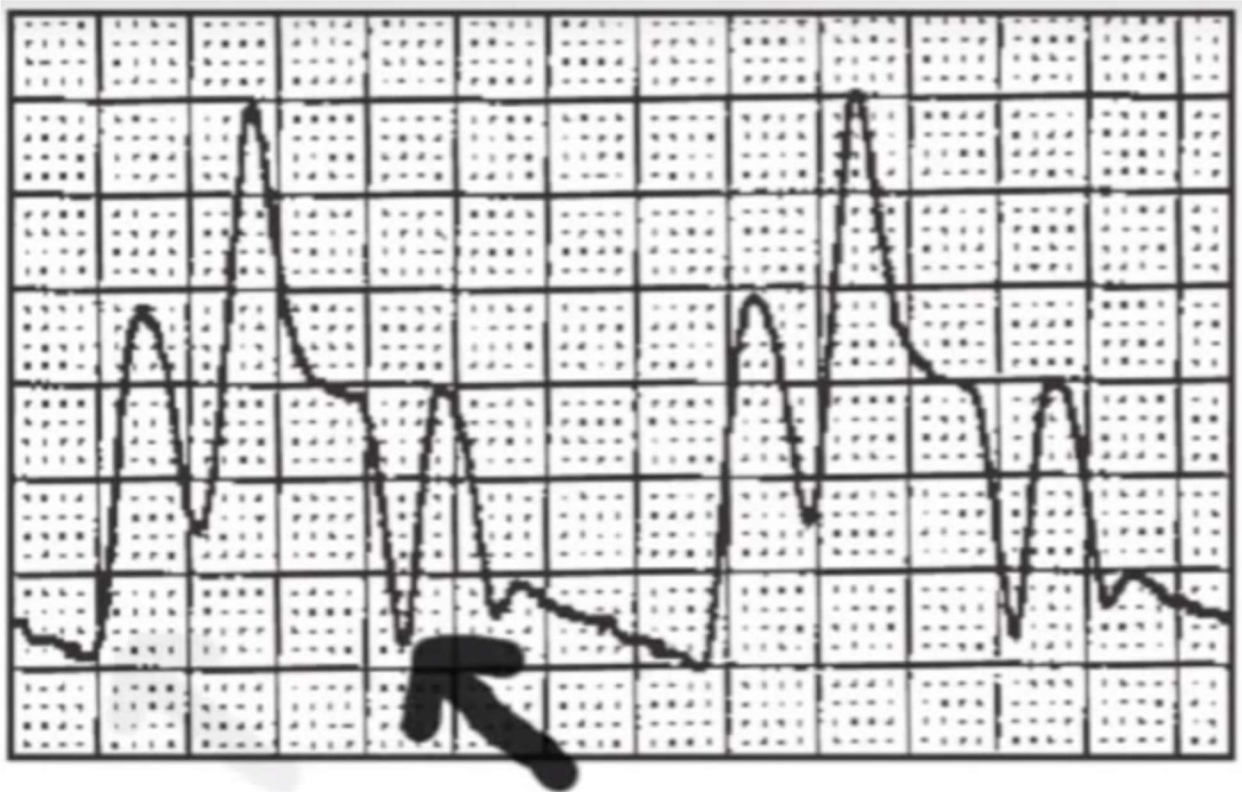


Waveform Component	Phase of Cardiac Cycle	Mechanical Event
a wave	End diastole	Atrial contraction
c wave	Early systole	Tricuspid bulging (IVC)
v wave	Late systole	Systolic filling of the atrium
x descent	Mid systole	Atrial relaxation
y descent	Early diastole	Early ventricular filling

IABP Late inflation



Late deflation



Early deflation

