

C6L32 - Ashley Hay

(0:05 - 0:22)

Hi, Ashley Hay again with Health Tech Academy. And we are going to be looking at cardiac surgery. So for the prior lesson, we talked about thoracic surgery and how cardiac is separate.

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And that is definitely true, but I will tell you that cardiac surgery, it builds on and is generally involved in many surgeries. So vascular, just general surgery, thoracic, because it is such a major system. And often there is involvement for any sort of other case, cardiac surgery often needs to be included.

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So cardiac surgery involves open techniques as well as minimally invasive. It's related to the heart and any sort of associated great vessel diseases. I think it's definitely important to know your surgical anatomy of the heart, but I don't think that you have to get really kind of in the weeds and into the super detail of all the different nodes and bundle branches and what have you.

(1:19 - 1:51)

It's important to be aware of them and know their function, but I think it's far more important to make sure that you one, know the location. So in your patient's chest, where is the heart located? It's within the mediastinum and it's posterior, so the backside to the sternum, behind the sternum, right? And then it's predominantly left of the midline. So it probably will look backwards on this video, but yes, it's to the left of the midline.

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It is enclosed by something called a pericardium. So these are layers of the heart wall and it has three. So you should know that the pericardium has three different layers, epicardium, myocardium, endocardium.

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You should also be aware that the heart has four separate chambers. Do you know what those are? If not, definitely go and check your ebook. And like I said, just being aware that there are different types of AV valves, knowing that all the different kinds of valves maintain a direction of blood flow to properly move the blood through the heart.

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Know that they're the basic names of the valve, so tricuspid, bicuspid. Also knowing that there's

a pulmonary and aortic valves are important to know as well. So there are two phases of the cardiac cycle and those are really important to know.

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So what is it called when the heart contracts and what is it called when the heart relaxes? Make sure that you look those up. So there's two phases of the cardiac cycle. And so that when we hear that heartbeat, that's exactly what you're hearing.

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So that boom, boom, you're hearing the contraction and the relaxation. So know that deoxygenated blood, so kind of old blood, if you will, that's coming back up through the venous system enters through the right atrium and then it kind of flows down through the vena cava into the right ventricle and then to the lungs, gets reoxygenated and then does the whole system again. You know, down and out through the body and then back up.

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It is important to know in particular one really important node, the SA node. So if there's a pacemaker that is, you know, the node that that affects particularly. Different diagnostic procedures, just really knowing kind of the basics there.

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There's some cardiac imaging we can do and geography is one of them looking at that will assess your ejection fraction. And it's really just looking at different functions of the heart and how well each area is working. We can also do some lab tests looking for, well, looking at rather blood, urine, cardiac enzymes, different waste products and how it's being filtered.

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We can also do ultrasound for the vascular system. We can look at oxygen saturation. So that's really important to make sure that, you know, oxygen is getting to where it needs to go.

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Cardiac output measurement. So this calculates the ejection of blood per minute. So what cardiac output, right? So how much is the blood? How much blood is the heart putting out per minute? And then there's also a obviously invasive cardiac muscle biopsy.

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And that's often used to see if there's any sort of tissue rejection after a heart transplant. It can be seen for other things, but that's generally the case. Catheterisation, also a pretty popular procedure.

(5:45 - 6:02)

So what it basically involves is inserting a cardiac catheter into the heart chambers and the large vessels. So we can kind of get a better look at what's going on there. Basically the approach varies depending on which side of the heart you're trying to look at.

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So if you want to get into the left side of the heart, often the access will be the femoral. So kind of in the groin area by the femur, radial or brachial arteries. And then for the right side of the heart, you can also access it through the femoral, but you can look at it through the femoral vein, but it will also be available for access through the subclavian or the internal jugular vein as well.

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There is a cardiac catheterisation video, so that will really help you make sure that you kind of go through that. And just overall, be aware of the purpose of the procedure, any kind of preparation, right? Like fasting, medications that need to be stopped prior, preparation of the area, and then a mild sedative offered to the patient. And then kind of just during and post procedure.

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I don't know what needs to be done there and relayed to the patient in terms of information. So recovery, knowing that that involves lying flat for several hours and encourage to drink fluids. Obviously they can elevate a little bit to be able to drink, so that way they don't aspirate anything because we certainly don't want that.

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For case planning, again, just really being aware of kind of common positions. So often supine or lateral, knowing that the whatever affected side should be upward, you know, up. Common incision sites.

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So a median sternotomy kind of right down the middle and then different anterior or posterior lateral positions. Skin prep, definitely well beyond the incisional area is often necessary. Yeah, and just, you know, case planning basics, right? So the type of instruments that you'll likely need, knowing, you know, that there are special tourniquets that we should have on hand for vessel occlusion.

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And then just general setup as well. Here you may see some particular kinds of graphs being

used. So that can include a vessel or patch graphs.

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So these are often knitted or woven types. It can, you know, the graphs will really greatly depend on the procedure requirements. So really what's being done.

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And then of course, as always, surgeon preference. So, you know, just knowing that the graph details always need to be recorded on the operative record. You may see some prosthetic valves being used, mechanical or biological types, and you may see pacemakers as well.

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So a pacemaker for sure, be aware of the function of a pacemaker and generally how it works. There are different types of electrode insertion methods. We can use a temporary and or permanent.

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And basically what a pacemaker does is it produces electrodes, rather electrical impulses to stimulate the heart muscle to contract and relax. So it helps the patient in that way. Know that a defibrillator, very different.

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There are such thing as internal defibrillators as well. We can also have external defibrillation, which is sometimes required to convert the patient into a normal rhythm if they're not. So being aware of defibrillator use, very important, knowing specific placement of where it should go.

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So generally the upper right, so kind of opposite of where the heart is and lower left. So just under the breast tissue there. We also show a nice cardiopulmonary bypass video as well as what they call CABG.

(10:45 - 11:03)

So CABG is abbreviation for coronary artery bypass. So coronary artery bypass surgery, and it is used for patients with CAD. So coronary artery disease.

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So take a look at that. It's basically where we have a vein or an artery that we use to bypass whatever blockage may be there. We also went over a atrial septal defect.

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So this is known as a congenital defect. It's present at birth. So just being aware of paediatric preparation for surgery as well.

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And yep, chapter 32 for your ebook here. And you're doing great. You're almost done.

(11:49 - 11:52)

So keep at it, just a few more lessons and you'll be all set.