

Chest Tubes - Care and Maintenance

Female1: Hi Kirsten, what are we going to do today?

Female2: So today we're going to assess Apollo here. Good morning, Apollo, and take a look at a chest tube that Apollo has in today. So the first thing we want to think about is why Apollo might have the chest tube in in the first place. And so typically we insert chest tubes because there is either a build up of fluid or a build up of air in the pleural space which is preventing full expansion of the lungs. In the case of Apollo here we would introduce ourselves to him, do some good hand hygiene and come and take a look at our actual chest tube insertion site. You notice here that it is covered with a dressing. Typically when a chest tube is put in we can have a sense of the reason for the chest tube based on where it is placed anatomically. It's always going to be along the mid-axillary line and typically if it's air, and the reason for having the chest tube is a build up of air, air rises. So we're going to be looking for a chest tube that's inserted around the second intercostal space.

F1: So that's a pneumothorax.

F2: That would be a pneumothorax, absolutely. Now if a client had a build up of fluid for some reason we would expect that because fluid is a little heavier we would see the chest tube inserted lower down. About the eighth or ninth intercostal space.

F1: Can you have more than one chest tube?

F2: You absolutely can, yes.

F1: So they could have a combination of a hemo, pneumothorax, therefore have some

top/bottom, left and right.

F2: Absolutely, depends on the reason. Often trauma, but it can be related to cancers.

All kinds of different reasons that chest tubes need to be put in in the first place.

So the chest tube under the dressing here should be sutured in by the practitioner who inserted it. And there will be over top of the actual insertion site itself some sort of occlusive dressing. So some sort of Vaseline or petroleum impregnated gauze covered by a four by four and then you see here that it's taped down. So if we follow the chest tube down, we can see the area--

F1: Just before-- does this have to be, like, should this be down more?

F2: This should be sealed completely over here. That's a great question. And something else to be mindful of as well is the frequency with which you're going to change chest tube dressings. So chest tube dressing changes are not routinely indicated. However if they're not sticking properly. If there's a lot of exudate at the site, you may need to obtain an order to go ahead and change that. But it will be dependent on your agency protocol.

F1: Is there anything that could go wrong with this site? What happens if I get it caught in the side rails or the patient pulls it out.

F2: So there are two real emergencies that can happen with chest tubes. And the first is that the chest tube itself is ripped right out of the site. If that happens the emergency action as the bedside nurse is to cover it with an occlusive dressing and tape down on three sides. Not four, three. So you want to ensure that air can still exit from that pleural space.

F1: Oh, like a flapper valve.

- F2: Like a flapper valve, but you can't suck any air back in. So that's the first thing you want to think about. The second emergency that could potentially happen is that the patient, the actual chest tube itself, could become disconnected from the chest drainage system. In that case, again, the concern is that we can suck air, atmospheric air, into that space and so we want to prevent that with a water seal. So at your patient's bedside you should have a container of sterile water. And if the patient were to become disconnected you would immediately put the end of their chest tube into that sterile water to maintain that seal.
- F1: Oh, so I understand that. So it seals it off, but then air can still come out and bubble out, right?
- F2: Absolutely, you got it.
- F1: You talked about that Vaseline impregnated stuff right at the site there. What happens if there is air that's leaking out of that? Do we see anything here?
- F2: Absolutely. So the most important thing is when you're assessing your patient is yes, we're going to assess the system. But look at your patient first. So any patient with a chest tube in should have full cardiopulmonary assessment. Which is going to include vital signs, inspection, auscultation and palpation. So palpation what we're looking at specifically is for is subcutaneous emphysema. So if you are feeling around the chest tube site on your client and you feel little rice krispies under there, it feels a bit funny, that is what we refer to as subcutaneous emphysema. Air has escaped and is stuck in that subcutaneous tissue. What's really important as the nurse is that you mark the boundaries of where that is. This is a finding that you need to report, because the worst case scenario is that if our

subcutaneous emphysema moves up there is potential to compromise airway on a client. It is a finding that needs to be noted to the practitioner.

F1: Is there anything that we can do about that? I imagine that must feel kind of funny for the patient.

F2: Absolutely.

F1: They'd probably be very concerned.

F2: Absolutely. It does feel funny for clients and they will typically feel it. It's something you need to report to the practitioner for further direction. There may be a change with what they're going to be doing with the chest tube, but typically subcu emphysema will resolve on its own.

F1: Oh, okay. All right.

F2: So working our way down here, you'll note that the end of the chest tube is attached to our chest tube drainage system here. And at every single connection we're going to use plastic waterproof tape to make sure that this entire system is airtight the whole way through. And you'll notice that as we come down to our actual chest drainage system here on the floor, it needs to always be below the level of our client and certainly below the level of their chest. That's really, really important whether it's attached to suction or whether it's just running on gravity.

F1: So it's probably important that we don't put that on the side rail and keep doing this, right.

F2: Absolutely. So you'll notice that there is a little bar at the bottom of your chest tube system that's designed to allow it to sit on the floor. But there are also hooks here so while you can attach it to a bed or a side rail, I would recommend onto the

actual bed itself so that it's at a consistently low level below the chest and is not going to be moving up and down with the side rails going up and down.

F1: Okay. So if it's on the bed frame even if we raise the bed it's still going to stay at the same height.

F2: Exactly.

F1: As opposed to if we had it on the floor and raised the bed up, we could maybe put a little tension on here. Probably bed frame's the one, right?

F2: You got it.