C6L35 - Ashley Hay

(0:05 - 0:35)

Hello and welcome back. We are going to be covering the lesson on emergency trauma surgery along with some additional surgical techniques, but congratulations because we are in the last course of this entire boot camp and we're in kind of the final lessons here. So in some of the lesson objectives, you know, we wanted to help explain just kind of the trauma system in general, the different designations of that, which we'll get into in a moment.

(0:36 - 0:49)

Look at the lethal triangle of trauma physiology. We will discuss compartment syndrome, which can come up quite often actually. Also talk about advanced trauma life support known as ATLS.

(0:49 - 5:14)

So that's kind of trauma management. You may hear ATLS kind of used frequently in that type of setting. What is meant by damage control surgery? We'll go into that a little bit and then discuss the elements of case planning for common trauma surgeries.

So hopefully if you, you know, when you go through this lesson, you'll be able to hit all of those objectives. And I really encourage you to watch the life in a trauma centre video. It'll help give you a really great real world idea of what it's like to work in that kind of a centre.

So designations of trauma centres, they're designated by a numerical system. So level one through level five. And they are based on criteria that are established by the committee on trauma of the American College of Surgeons, as well as certain state laws.

So the criteria really takes a number of factors into account. Things like, you know, what kind of equipment do you have available? The type and number of trauma specialists you have available. What are the capacity requirements? Like how many patients can you accommodate? Has there been any community education and trauma prevention? And just really communication requirements.

So let's talk a little bit about what the levels mean for a trauma centre. So a level one trauma centre really just has the greatest capacity to handle really any and all types of trauma. So that means, right, that they definitely must have great equipment, hopefully state of the art, as well as ability for real time communication with whoever's in the field, right? Because sometimes patients are getting medevaced in or, you know, obviously brought in by ambulance and what have you.

So a level one trauma centre is really capable of providing total care, and that's the real takeaway there. So they can provide care for every aspect of injury. So from prevention all the way through to rehabilitation.

So generally they will have like 24-hour coverage of surgeons and different specialities like orthopaedics, emergency medicine, radiology, plastic surgery even, just because of everything that you might need. It's also important to note that the trauma categories can vary a little bit from state to state, but there's generally common criteria that are used to define a level one through a level five. It's also important to know that a trauma centre can have one level for adult care and also be designated as a different level for paediatric care.

So for example, you can have a trauma centre that is a level one adult facility, so they can accommodate any trauma for adult patients, but then maybe they are only a level two paediatric facility. So just, you know, kind of keep those things in the back of your mind. And we'll go into the other levels in a moment.

But if you want a bit more information on the different trauma centre levels and the designation, things like that, there is a great website called American Trauma Society. So you can visit that at am, as in Mary, trauma.org. So amtrauma.org, and that's for the American Trauma Society. Okay, so getting back to the levels, level two for a trauma centre, they are able to initiate care for all kinds of injured patients.

Whereas a level three, they have an ability to provide prompt assessment, resuscitation, surgery, intensive care, stabilisation, as well as emergency procedures and operations. So, and then four, they are able to provide ATLS, remember that term from just a moment ago, that's advanced trauma life support. So they can provide that prior to transferring patients to a higher level trauma centre.

(5:15 - 7:04)

And then also with level five, they can basically just provide the initial evaluation and stabilisation, maybe a few tests here and there, a diagnostic procedure, maybe like a lab test, or maybe even an X-ray, but they prepare the patient for higher levels of care. So I know it's a bit confusing, but level five actually has far less capability than a level one. A level one trauma centre can do any and everything related to trauma for patients.

So let's get into the lethal triangle. So there is a known triad, also known as a lethal triangle. It's sometimes also called triangle of death.

I can tell you that we don't frequently use that term as healthcare providers, but it is in some of the textbooks. So with that in mind, we really want to focus our assessments, especially on severely injured patients. Your assessment has to be done quite quickly.

And when we start seeing these kind of certain conditions occurring in a trauma, that triggers us to think like, oh, this lethal triangle or this triad is happening, and we really need to step in very quickly with known methods to be able to help and revive this patient very fast. So the triad really, it just kind of goes around and you can really pick up on it at any point. But let's share a little image here for you that might help.

(7:05 - 9:35)

So we see here, you may notice that there's some coagulopathy happening or some blood clotting problems. And what might that look like for you as a surgical technologist? It can look like a number of different things, really. You might notice some bleeding or bruising.

The patient is not able to clot their wounds. Their body temperature is decreasing. And then all of a sudden, we will notice some acidosis symptoms.

And we don't need to necessarily get into what that all looks like. But just knowing that the body temperature is dropping, the acid is rising in the blood, and the heart function is decreasing, right? Because it's trying to keep up, but there's also now there's blood loss. There's no clots or coagulation happening.

The body temperature is dropping, the heart performance is dropping, and round and round it goes and is just leading to more and more severe blood loss. So this is really important to get a good handle on. And I really encourage you, if you haven't gotten a chance to already, to watch the video in the slide deck that explains it a little bit more.

So we also talked about compartment syndrome and kind of the frequency of that in trauma centres. And I just wanted to go over a few things about it. One, you know that it can happen in any muscle group.

That's important to note. I would say, though, that like arms, legs, feet are the most common. And then following that kind of the abdomen.

But it can also even happen in the buttocks muscles, the gluteus maximus. And basically, when we think of compartment syndrome, and I have seen it in a patient like this, who was actually a fellow nurse of mine. So it just goes to show it's great to be able to assess your fellow peers.

Compartment syndrome can happen from exertion. So like if people are exercising too hard or too much, and basically it just it causes an injury on the inside, which it's repeated stress and it's causing swelling and bleeding inside of a muscle compartment. And then the pressure builds too much against everything that's kind of holding it in place.

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So it can be really quite painful. And the swelling can be really very severe. Your body has some ability to like stretch and expand, but not as much as we need, especially for this.

So with the pressure, you know, constantly building in that muscle compartment, it runs out of room. And then what happens is it just it keeps kind of, you know, squeezing against the muscles and the nerves. So nerve pain is extremely painful.

(10:08 - 14:11)

But the other thing that you will more likely see for a cause of compartment syndrome in a trauma centre would be things like crushing injuries. So if something heavy had fallen on patient's leg, let's say, you know, there's there was compression and maybe a break, but a lot of muscle trauma. And then there's a lot of swelling that happens within a small area, a small compartment.

It can also be due to things like we talked like sports injuries, acute sports injuries, and it can even happen from, you know, things like a fall or a car accident or a fracture. So just important to be able to recognise compartment syndrome and the amount of swelling, the amount of pain that the patient will be in. And then as a surgical tech, you know, being able to identify what kind of equipment that you're going to need to set up for such a case.

And so with that, you know, trauma surgery and preparation for those kind of surgeries and procedures, you know, often happens quite quickly and sometimes despite your best efforts to prepare everything that you anticipate the surgeon might need, you know, things happen in those kind of surgeries and you're going to have to just try and remain flexible and adaptive because you may need to be kind of grabbing and opening instruments as things, you know, kind of develop. But so I would say one of the most important things in preparing for those kinds of surgeries and doing, you know, as much real-time case planning as possible is one to just kind of think about like damage control, right? So obviously, you know, like we think about the some of the most important things. So, you know, like is the patient bleeding? If they're actively bleeding, which is pretty common in a trauma scenario, we want to think about, okay, well, we're going to have to prepare for a lot of items to control the haemorrhage.

Then, you know, you also want to think about the wounds and the closure of that, packing body cavities, things like that, relief of compartment syndrome, right? So, you know, we're likely, we may have to open up the area to relieve some of that pressure. We may need some splinting or casting, you know, if there's some bone crush or break injuries. So just kind of like thinking if this, then that.

So if there's bleeding, what do I need? If there's a wound, what do we need to clean it, to close it, to pack it? If there's a break, what do we need to splint it? And then, you know, on top of that, it's really, so case planning, you know, you want to think about it as a whole. So, you know, like we said, thinking about what's going on with the patient and what you need. But don't forget, you know, it's more than just instruments, really.

There are certain devices that we might need. There are certain solutions, you know, we might need to rinse or infuse into the patient. There's transfusions, there might be drains or dressings that are required to be put in.

So really, you know, it is a learning experience and definitely requires, you know, a good amount of hands-on clinical, you know, prior to entering this field. But it can really be very exciting, especially for people who enjoy kind of quick thinking, quick decision-making and, you know, being able to really step in and hopefully save the life or limb of a patient. All right.

I hope you found this helpful. Make sure that you are reading your corresponding ebook chapter and I will see you again next time.