00:00:24 Faculty

I'm quite keen to hand over if that's OK because we need to get back to theatre.

00:00:31 Faculty

This is Harry Cooper and he's 38 and just come down to the emergency theatre.

00:00:34 Faculty

The poor guy was out today on his horse. He worked as a vet and he was knocked off his horse or I think the horse stopped and threw him off. And he got a bit of a kick in the abdomen.

00:00:46 Faculty

Didn't lose consciousness when he fell to the ground and a passerby called 999. No loss of consciousness.

00:00:54 Faculty

GCS 15 throughout and he came to the ED by ambulance complaining of severe tummy pain.

00:01:00 Faculty

And right shoulder pain. A bit hypotensive when he came in. A bit tachycardic, and he had a lactate of four, HBM 13 on the initial gas, and he had quite a bruised and swollen right arm.

00:01:10 Faculty

And the X-ray of the right arm showed a humeral fracture but non displaces. No management for that at the moment.

00:01:21 Faculty

No chest or neurological concerns, but the CT trauma series and his CT on his abdomen revealed the splenic laceration. Lots of blood in the abdomen and a small bowel perforation.

00:01:34 Faculty

So after that basically went straight to theatre and a haemorrhage protocol activated. He had a gram of tranexmic acid and then went straight to theatre.

00:01:44 Faculty

And we had a midline trauma laparotomy and they did a splenectomy and resected the perforated small bowel.

00:01:52 Faculty

And anastomose, no problems there. They've left his abdomen open. He's lost about 3 litres of blood in total and he's had two of partment.

00:02:04 Faculty

He's had eight units of red cells and four of FFP and two pools of platelets.

00:02:10 Faculty

In terms of an anaesthetic. I did a rapid sequence induction with ketamine, fentanyl and rocuronium with a grade one intubation.

00:02:20 Faculty

He's got size 7 tube at 22 centimetres at the teeth, had right internal jugular central line and a, sorry, left internal jugular central line and a left radial arterial line. He's got two cannulas. He's got a catheter. He's been passing a small amount of urine.

00:02:39 Faculty

And I gave him paracetamol at about half nine. So about half an hour ago, and also augmentin and metronidazole towards the end of the case, so that was in the last hour.

00:02:46 Faculty

He's had a total of about 400 mics of fentanyl in theatre and he's been pretty stable.

00:02:50 Faculty

I've got him on 8 mills an hour of single strength norad.

00:03:02 Faculty

Not too much, been pretty static.

00:03:05 Faculty

He's had a few ectopics in theatre, but I've not had to treat those with anything.

00:03:11 Faculty

He last ate about 2:00 o'clock today. In the background, he's got mild asthma, which as a child is not any treatment for that.

00:03:20 Faculty

No allergies, no regular medications, was a bit of a social smoker, but that’s it really. He drinks about 20 units of alcohol per week.

00:03:30 Faculty

Do you have any questions?

00:03:31 Doctor

So yeah, how old is he?

00:03:33 Faculty

He's 38, yeah.

00:03:34 Doctor

And are there any immediate tasks or investigations?

00:03:38 Faculty

No, I don't think so. I mean, I probably wouldn't extubate him tonight.

00:03:41 Faculty

And he's had a bit of an ordeal, obviously, and quite a lot of blood etc.

00:03:47 Faculty

I think definitely some routine blood, that sort of thing. I've got his admission ECG and this is his last blood gas from theatre. Not too shabby.

00:03:58 Doctor

Has he had a TEG?

00:04:01 Faculty

He did have a TEG but it didn't work very well, so I haven't got a print out for you. Porbably a good idea.

00:04:07 Doctor

Sure. And obviously from a joint perspective, has he been cleared?

00:04:13 Faculty

His C bone has been cleared radiologically but not clinically. But we took the collar off for theatre because he wasn't really moving around, I mean you could put a collar back on but the spinal surgeons are happy...

00:04:28 Doctor

Right so we'll minimise movement, but not...

00:04:32 Faculty

Yeah, that'll need to be checked anyway.

00:04:34 Doctor (to nurses)

Are there any issues you guys had?

00:04:37 Nurse 1

Any restrictions on the right arm?

00:04:39 Faculty

No, I think, well, I mean I wouldn't move it around, but they don't want to operate on it at the moment.

00:04:47 Nurse 2

Do we need to put him in a sling at all?

00:04:49 Faculty

Not yet.

00:04:50 Nurse 2

Have one question on family. Are the surgeons gonna speak to family or have you?

00:04:56 Faculty

His mum was in the ED. Someone called her so she knows what's going on so I think she'll probably come back in the morning.

00:05:06 Nurse 1

So the surgery itself was for the perforation of the bowel?

00:05:09 Faculty

And the splenectomy.

00:05:14 Faculty

All right. Great. I'll get back to theatre. Give me a shout if you need anything.

00:05:16 Doctor

Thanks.

00:05:16 Nurse 2

Thank you.

00:05:19 Doctor

OK. Are you happy if I have a look through the notes?

00:05:24 Nurse 2

Yeah. Yeah, of course.

00:05:48 Doctor

Right, let's stethoscope this guy.

00:05:53 Doctor

And do I need to give bloods?

00:05:54 Faculty

Yes.

00:06:45 Doctor

So his sats have just dropped, just gonna pop suction up. Option’s on 100%.

00:07:08 Doctor

OK. And we've got entidal CO2.

00:07:12 Nurse 2

(Unintellligible) is 5.5.

00:07:14 Doctor

Let’s just have a look at his chest.

00:07:19 Doctor

And this balloon feels inflated. Is it?

00:07:29 Doctor

So just look in his chest. Can I see anything other than what I can see here?

00:07:34 Nurse 2

I've got nothing else found, absolutely nothing less.

00:07:38 Nurse 2

Do we have any vacutainers and things like that ready?

00:08:29 Faculty

Blood gas.

00:08:34 Doctor

She's got entry on both sides. It sounds a little bit wheezy on this side and an obstructive trace on the end tidal CO2.

00:08:42 Nurse 1

Tidal volumes have dropped and our minute volumes are not very good.

00:08:46 Nurse 2

Let me run some replacement.

00:08:50 Nurse 1

Just got blood gas, we've got tidal volumes of 190, minute volumes of 3.19 which is not quite good enough. Just not ventilating very well, he's on bi-level though.

00:08:58 Doctor

OK. Should we just put the inspiratory pressure up a little bit?

00:09:01 Nurse 2

PO2 is 7.4 right now.

00:09:04 Nurse 2

CO2 6.8

00:09:14 Doctor

Ok, we're going to mix metabolic and respiratory acidosis.

00:09:17 Nurse 1

Should I put the low P up guys?

00:09:19 Doctor

Yeah.

00:09:21 Nurse 1

And chest x-ray, what do you think?

00:09:22 Doctor

Yeah, I think that sounds good. And we need to confirm the position of the section line anyway. So can we request a chest x-ray?

00:09:36 Nurse 1

So he's still not been fitting really well, do you think we need to consider bagging him?

00:09:41 Doctor

Yeah.

00:09:43 Nurse 1

Still have minute volume of 3 and tidal volumes have not improved very much. We're going up like 3 on the pressure.

00:09:47 Doctor

Yeah. And have we got any gas trapping?

00:09:51 Nurse 2

Can't really see that.

00:09:54 Nurse 1

That isn't great, but we can't leave him like that.

00:10:01 Faculty

Chest x-ray here.

00:10:03 Doctor

OK. Are they able to work around us?

00:10:07 Doctor

OK, so that looks like, yeah, have we got entidal CO2 in his system?

00:10:18 Nurse 1

Yeah, this one.

00:10:26 Nurse 2

Do you want me to send anyone else to come have a look at that x-ray for you?

00:10:28 Doctor

If there's another doctor around to just have a closer look at it whilst we deal with this.

00:10:32 Faculty

Nobody here. There's nobody else that moment.

00:10:36 Doctor

Is this gentleman paralysed?

00:10:39 Nurse 1

Not at the moment.

00:10:42 Doctor

Can we get some acciodone please?

00:10:47 Doctor

OK, so he feels fairly easy to ventilate.

00:10:54 Nurse 2

OK, So what else could it be?

00:11:03 Nurse 2

So he's back to 94, his rate is 132

00:11:15 Nurse 2

Can you see anything?

00:11:18 Nurse 2

Do you want to take over the bag? Can I do that to help?

00:11:26 Doctor

He looks like he's got a very obstructed trace in there.

00:11:40 Nurse 1

Can you check his stats for me?

00:11:58 Doctor

It doesn't sound obviously easy, but it's a very obstructed trace of entidal CO2. So I think it would be reasonable to get nebulizers. OK. Can we get those into the system?

00:12:08 Nurse 2

Want to put them back on the vent?

00:12:14 Doctor

Yep, 15 minutes, we've got sats of 96%.

00:12:22 Doctor

So sats are slightly better, but they're still not nearly as good as they should be.

00:12:36 Doctor

We already have to get back on the ventilator, slightly higher pressures and we'll get some nebulisers going in.

00:12:47 Nurse 2

Let's see, I'm gonna put him back on the vent and see...

00:12:48 Doctor

So the x-ray, he's got a slightly raised right (unintelligible), but it's otherwise reasonably fairly unremarkable. Tube position looks OK, central position looks OK.

00:12:59 Faculty

Salbutamol here.

00:13:01 Doctor

So if you just get 5 milligrammes of salbutamol going.

00:13:14 Doctor

If we just paralyse him for now.

00:13:19 Doctor

I think 50 milligrams is a reasonable dose.

00:13:28 Doctor

OK. So that's acciodarine in. You've got some salbutamol going.

00:13:32 Nurse 1

Did you say 100?

00:13:33 Doctor

No, no, just 50 milligrammes.

00:13:42 Nurse 1

Do we have sedation?

00:13:45 Doctor

What makes you think he's leaning towards sedation?

00:13:53 Doctor

I think after everything's done, that's a reasonable amount of propofol. And he’s ventilated well, isn’t he?

00:14:02 Doctor

OK, so and could you get 100mg of cortosone as well?

00:14:16 Nurse 2

Tidal volumes have improved. They've almost doubled. Not quite. Minute volumes are slightly better.

00:14:27 Doctor

Gentlemen's weight is 70 kilogrammes, so we're aiming for tiny volumes of...

00:14:34 Nurse 1

How much did you want?

00:14:45 Doctor

100 mg. Actually, can you make that 200mg?

00:14:46 Doctor

So she's gonna get the steroids.

00:14:54 Nurse 2

Paralysed briefly, and has that nebulizer finished yet, guys?

00:14:56 Faculty

It's just finishing.

00:14:57 Doctor

OK, so we'll send that out of the circuit. Actually, can we leave that in the circuit, want to add some more nebuliser.

00:15:09 Doctor

Are we having any problems with expiration? Basically so have we got any gas trapping?

00:15:15 Nurse 2

Little bit there.

00:15:18 Doctor

It's whilst we hook up to this ventilator, so I'm just trying to familarise myself with what the significant charts are.

00:15:25 Doctor

So we're getting back to baseline.

00:15:28 Nurse 2

Yes, we are, quite a long exhale.

00:15:32 Doctor

Should we just increase the IE Ratio to 1:2.5?

00:15:46 Doctor

The sats are dropping again. OK, sats are dropping off again.

00:16:00 Nurse 1

He's not had any secretions, no?

00:16:03 Nurse 2

You make a point, I don't know.

00:16:09 Doctor

Again, those have dropped quite a lot actually. Sats are now 18 here.

00:16:16 Doctor

OK, can we bag again?

00:16:21 Doctor

So 15 litres of oxygen.

00:16:27 Doctor

Ok, tube is still in the right position.

00:16:30 Nurse 2

Do you mind if we call one of the others in ED to let them know that we've got an issue to come back and give us a hand?

00:16:35 Doctor

Absolutely, yeah.

00:16:37 Faculty

Quite hard to bag. OK, very hard to bag.

00:16:42 Nurse 2

What's going on, guys?

00:16:45 Doctor

So am I able to ventilate him?

00:16:46 Faculty

Very difficult to bag.

00:16:48 Doctor

OK. And so the possibilities are that this is either severe bronchospasm or that he's developed a tension pneumothorax. It did sound like he still had air entry bilaterally or that there is an obstruction in the ET tube or in the trachea somewhere? Can you just try passing the suction cup down again?

00:17:10 Nurse 2

Yeah, yeah.

00:17:11 Faculty

If you need help, you are gonna have to phone for help.

00:17:19 Nurse 2

OK guys, can we put out...

00:17:24 Nurse 2

Do you want a cardiac arrest report?

00:17:27 Nurse 1

Yeah, put out a cardiac arrest call.

00:17:32 Doctor

OK. Have we got a pulse?

00:17:35 Nurse 2

Can we get the defib?

00:17:40 Doctor

OK, can you bring the Defibrillation trolley over here please?

00:17:47 Doctor

No, we've got a pulse.

00:17:51 Nurse 2

You have got a pulse.

00:17:53 Doctor

I've got an arterial line trace.

00:17:55 Doctor

We've got a pulse so we don't need to start chest compressions.

00:18:06 Doctor

So, we are in VT.

00:18:18 Nurse 2

Back to 150.

00:18:25 Doctor

NURSE 2, could you call 2222? We've got a cardiac arrest.

00:18:32 Faculty

I don't think his chest is looking great.

00:18:37 Nurse 2 (on phone)

Cardiac arrest on adult ICU...

00:18:40 Doctor

Is it more on one side than the other? On which side?

00:18:51 Doctor

The right side looks like it's...

00:19:02 Doctor

OK, alright. So we're going to cardiovert him. We're then going to do (unintelligible) on the right side of his chest.

00:19:09 Doctor

So can you charge to 150 joules?

00:19:12 Nurse 1

150, there it is.

00:19:15 Doctor

OK. And I'm going to continue to ventilate, but on a closed system. So we'll leave the option on.

00:19:20 Doctor

OK everyone else, stand clear.

00:19:24 Doctor

OK, so everyone else standing away, stand clear of the bed please.

00:19:31 Nurse 1

Charging, stay clear.

00:19:39 Nurse 1

Do you want more fluids?

00:19:41 Doctor

And we've lost output. So can you start CPR?

00:19:49 AUTOMATED DEFIB VOICE

15 seconds without sign of compression.

00:19:58 Doctor

This gentlemen's immediately kind of stopped after the trauma surgery for a perforated bowel and he's just gone into VT and then in the process of cardioverting him, he's gone into VF.

00:20:13 Faculty

OK, why do you think he went into VT?

00:20:18 Doctor

so, he deteriorated from a respiratory perspective. I was just examining his chest. It looks as though he might have something in the right side of his chest, which wasn't moving so well.

00:20:32 Faculty

If you think it's a tension (pneumothorax)...

00:20:36 Doctor

Yeah. So could you grab me an adrenaline?

00:20:56 Doctor

Are you OK to come and take the head?

00:20:59 Doctor

Just to hold the tube, it'll be slightly easier

00:21:07 Doctor

OK, can I get a cannula and a little saline in that?

00:21:13 Doctor

Just gonna see whether this is working.

00:21:18 Nurse 1

Will need to take over (chest compressions) at some point.

00:21:21 Nurse 1

Worked on that side.

00:21:35 Doctor

OK, so just pause chest compressions.

00:21:53 Faculty

You can get some bubbles.

00:21:57 Doctor

OK, continue. Let's just reassess the rhythm whilst we're here.

00:22:02 Doctor

We've lost our pads. OK, so continue chest compressions for now.

00:22:08 Doctor

Ok, we'll just get the pads on.

00:22:12 Doctor

Just careful with the pads and that needle.

00:22:16 Doctor

OK, so if you can just pause and reassess the rhythm, please.

00:22:23 Doctor

OK, I can't feel a pulse, nothing on the outline. Continue chest compressions. Non-shockable rhythm, so we're gonna give him a milligram of adrenaline.

00:22:29 Faculty

So, non-shockable?

00:22:32 Doctor

Yeah. Did it not look non-shockable?

00:22:48 Doctor

That looks like VF so continue chest compressions. I'm going to come down and charge.

00:22:54 Doctor

So continue chest compressions. Everyone else stand clear.

00:23:01 Doctor

I'm charging. I'll warn you before I shock.

00:23:05 Doctor

Stand clear, shocking. Back on the chest please.

00:23:09 Doctor

Does anyone have a stopwatch you can do 2 minutes.

00:23:16 Doctor

Next check is going to be at 7 minutes on this clock, so we're going to continue chest compression. That's our second shot going to give adrenaline.

00:23:25 Doctor

Going to give some amiodarone.

00:23:30 Doctor

So if we can run a few drugs and if you can handle the next defibrillation if that's required. So adrenaline ready and amiodarone ready.

00:23:37 Doctor

Just pause and assess the rhythm.

00:23:40 Doctor

And that's rhythm compatible with life. And we've got an output. OK, let's reassess: airway, do we still entidal CO2?

00:23:56 Doctor

So if you can just continue to manually ventilate for now.

00:24:02 Doctor

He's paralysed so he won't make any respiratory effort.

00:24:07 Nurse 2

CO2, yep.