

**STAVROS**

Well, I would like to welcome everyone to our course. I hope [AUDIO OUT] with some technical glitches this

**STAVROPOULOS:**

morning, so that's why we're a bit late. Basically, it's COVID, [AUDIO OUT] basically hanging by the bootstraps live transmission. On Tuesday, the course was canceled because of [AUDIO OUT]. But having techs here, mind you-- two techs. So we had to find a new company to do the course remotely for us. [AUDIO OUT] our IT people from the hospital as boots on the ground. So it's going to be potentially glitchy, but I guess it's free.

And the content should be good. I'm going to try to do four endoscopic surgeries, and mix two lectures in there. It's going to be a busy day, hopefully, with four cases and lectures. This is not like a live course, [AUDIO OUT] from room to room, so you get [AUDIO OUT] from start to finish, and there's no place for me to hide anything, which is a very good, valuable experience. It's more akin to this [INAUDIBLE] that I do, when one to three people visit and watch the whole case in the room, see everything, and ask questions. And we have debriefing between cases [AUDIO OUT]. A full day, and it's very educational.

Today will be similar. You can submit questions. My Advanced Fellow, Tarek, who will be helping with the cases, will also be monitoring your questions and passing them on for discussion live. I tried to get Chris Gostout to moderate remotely, he's our moderator every year. He's a very good caller moderator and super experienced endoscopist. [AUDIO OUT] and while you are retired [AUDIO OUT] to retire.

But I'll be my own moderator, and then we'll try to make it all work. I hope you can stick it out and you get some good information, and maybe a little entertainment. You can get 9.5 CMEs if you go to our website and do the evaluation form, which is pretty good for a free activity. And I would like to thank our sponsors, which literally, at the last minute-- we didn't have a lot of lead time for the course because the guidelines for COVID were changing constantly. So we did we did the grant process and the audio visual company was changed to another one. It was all on-demand, last minute arrangement. So it's going to be pretty prone to errors, this process. We're all figuring it out. It's the first time we do a course this way. But we hope it will work out.

Now I'm going to start with a Zenker's case, and then rapidly move to a POEM case. And then we'll take a break and then go through a lecture on POEM, basically focusing on GERD in comparison to Heller. And then we'll do a full thickness resection of a GIST that's a [INAUDIBLE] procedure, really. So that's probably the most exciting part of the day. And then we'll have an ESD lecture focusing on western ESD, Barret's colon, the controversy of ESD versus EMR in these areas.

That we'll finish with the last case, which is a colon ESD the way we do it at Winthrop, with the lumen suturing, very comprehensive way to do ESD that also allows sending patient home the same day, which is very cost effective. So I hope you're all watching and we don't have any technical issues. And I will now move on to the Zenker's.

First, Dr. Tarek Alansari, my Advanced Fellow, will present the Zenker's case, briefly. And then we'll show you the procedure through the lens of the endoscope. And then we'll move on to the POEM on a spastic-type pre-achalasia patient. So thank you for attending. We [AUDIO OUT] the registration list was up to 150 preregistered, so we're hoping to get maybe to 200 or more today. And it should be a fun day. Thank you.

So now we'll switch to the presentation of the case.

[BACKGROUND CONVERSATION]

**MALE SPEAKER:** I need to turn off the mic. The mic. OK. OK. Dr. A is cued.

**TAREK** Testing. Testing.

**ALANSARI:**

[BACKGROUND CONVERSATION]

**MALE SPEAKER:** Yeah Yeah. Dr. A's mic is on. He's ready to go. You want to get a countdown for him? OK.

**TAREK** Hey. Good morning, everyone. My name is Dr. Tarek Ansari. I'm the Advanced Fellow working with Dr.

**ALANSARI:** Stavropoulos this year. So for our first case, we will be seeing a procedure done on a 74-year-old woman with past medical history of hypertension. She was referred for dysphasia to solids, and regurgitation of undigested food, and constant globus sensation over the past five years.

She was seen by ENT and GI over the past few years with multiple workup done, with no revealing ideology. She even had an EGD in 2018 that was reported as unrevealing. She had an esophogram done in 2019 that showed a 2 centimeter Zenker's diverticulum, so today we will see a PerOral Endoscopic Myotomy of a Zenker's diverticulum-- a Z-POEM. And now I take you to Dr. Stavropoulos.

[AUDIO OUT]

**STAVROS** I think it's more like 10.

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE] from the monitor?

[AUDIO OUT]

**STAVROS** OK.

**STAVROPOULOS:**

[AUDIO OUT]

**STAVROS** [INAUDIBLE] This is [AUDIO OUT] the [AUDIO OUT]. All [INAUDIBLE]. So this is the esophageal lumen here. This

**STAVROPOULOS:** looks [INAUDIBLE] [AUDIO OUT] [INAUDIBLE] from the Zenker's on the other. So the [AUDIO OUT] --and do a true tunnel down to the septum [AUDIO OUT] the sph-- and the septum.

And reported by Joel. [AUDIO OUT] --guy. The issue is [AUDIO OUT] difficult to close here be-- [AUDIO OUT] tissue in the hypopharynx [AUDIO OUT] can be very difficult to close this tunnel. Now if you [AUDIO OUT] easier [AUDIO OUT] might be a little trickier to enter without splitting the muscle while you're doing the entry.

**MALE SPEAKER:** [AUDIO OUT] your mic. [INAUDIBLE] on?

**STAVROS** This is a disaster.

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

[AUDIO OUT]

**FEMALE SPEAKER:** There's someone saying she does see and hear.

**STAVROS** What?

**STAVROPOULOS:**

**FEMALE SPEAKER:** There's someone that's saying she sees and hears you bet there' s little delay [INAUDIBLE] we're ahead of them.

**STAVROS** Yeah, but-- (SIGHS) have the audio, the audio.

**STAVROPOULOS:**

**MALE SPEAKER:** Is that better, Scott?

**SCOTT:** I can see them. I can see them [INAUDIBLE].

**STAVROS** The audio. The audio is unacceptable.

**STAVROPOULOS:**

**MALE SPEAKER:** All right. It looks like a constant signal, so I think we're in better shape.

**SCOTT:** [INAUDIBLE]

**STAVROS** OK. So here we are. Now, they set up the Olympus cap. I think for this kind of application it's best--

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** [INAUDIBLE] hear me. He thought I wasn't talking.

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** Well, anyway, the best cap to use here would be the Fuji cap, which is. Tapered. So we can quickly switch it.

**STAVROPOULOS:**

[MONITORS BEEPING]

But the Fuji might allow better entry because of the tapered cap. It has some disadvantages. We have a sharp edge, sometimes you get bubbles. But less visibility. But here the entry is more important than having good visibility because things are kind of a straight shot, unlike some complex ESD.

So we are going to-- so we changed to the Fuji cap. You can see immediately we have less of a field, in terms of visibility, but it will be potentially easier to wiggle in. Now, with Zenker's you always get this kind of sideways orientation. By manipulating the patient's head, you can kind of center it a little. And then we're going to go here. And it's always, the endoscope is pushed to one side so you have some tight quarters to work with.

Here we are been pushed to the right side, which is a problem, particularly in closing this. So I'm going to inject just a little bit of an injection, not more than a cc. Open. Because if you inject too much under such close quarters, you can have an issue with getting in, and with orientation. Just one cc, right?

**MALE SPEAKER:** Yeah.

**STAVROS** And another half a cc. OK, stop. So we are using the--

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** ORISE gel here. And we're going to use the hybrid knife because I find, for areas of straight tunneling-- POEM, G-

**STAVROPOULOS:** POEM, tunnel-assisted DSD, Z-POEM-- having a tunnel creation with a knife that can inject actively is helpful.

Open.

Now we're using the [INAUDIBLE], and we're starting with dry cut to enter. Again, I usually make a penetration first, and then I extend on either side. In some patients you get contractions like this, of the sphincter. This makes things more dangerous. And it may get worse as we get close to the sphincter in terms of having that sphincter jump under the knife. So this is what's going on here. Again, I'm expanding very slowly, the incision. I don't overdo it.

We can also inject the submucosa on either side. Again, trying not to split the muscle.

[MONITORS BEEPING]

And then in order to create the tunnel, obviously you cannot do it purely with submucosa. You need at least a centimeter to put your beak in. So you're going to start cutting the muscle. And the full tunnel view will not appear until we're into the myotomy a little bit. Here there's also various ways of doing it. You can do-- I forgot to mention, the water helps. When you have difficult entry in areas of tunneling, going underwater can facilitate splaying the mucosa, and entering, and seeing your planes better.

So what we have here is the muscle is beginning to appear, and you see the magnified view here. Now I'm injecting on either side of the muscle. Again, we don't want to split it and leave some muscle. And there is submucosa on the Zenker's side here that we're carefully trying to inject. And you can see the submucosa plane here.

So now we're going to use PreciseSECT, which is a hemostatic current with very precise measurements of tissue thinness and regulation of the current by the microprocessor. It's a current that basically works by the microprocessor realizing when to give less energy or more energy, depending on the tissue resistance. So it avoids zipper cutting on one hand, or cooking on the other hand, and achieves the best possible world of cutting independent of how much tissue resistance there is. If I understand it correctly. So that's PreciseSECT, and that's what I'm using now.

And injecting-- all right. See how it's possible to split the muscle? That's why the hybrid is useful here, and injecting the submucosa clearly outlines the planes better. And the Fuji cap also helps. Now, some people use the scissor knife, either the SB Knife or the Clutch Cutter. I find them a little less cutting, more coagulation, which can be somewhat disturbing when you start burning the mucosa that you're going to clip later. You may get a bigger orifice, or not good edges. And it's less precise. Like you can imagine under such difficult orientation here, trying to put the edges of the scissor knife in there without injuring the mucosa.

[MONITORS BEEPING]

So there it is. We're now at the beginning of the tunneling here. See, here I want a little more precise cutting, even on the dry cut on the PreciseSECT. I'm going to use ENDO CUT here, ENDO CUT I, to try to cut this without injuring the mucosa that is lying next to it. Oops. Wrong [INAUDIBLE]. See, I want to stop just at the submucosa there.

The problem with the ENDO CUT, it's not very hemostatic. But here we have just pure muscle with no vessels, so it's OK. See, now I found my plane again, and now I can use PreciseSECT because I don't know if some vessel is hiding in the septum. See, I'm having some resistance here, so I get a little less contact with the knife and then it cuts.

And a little ENDO CUT cut here to be more precise, and there we go. So this is the submucosa on the esophagus. See, now you can see where it begins to get in tunnel mode, which makes things a lot easier because it stabilizes the endoscope. Same when you have tunnel-assisted ESD. Oh, that's a vessel there, so we can try-- you have two ways to do it. Do the a careful way, which is use the coagrasper, or use PreciseSECT and try to coagulate it. And I used PreciseSECT here and it worked.

And there, inject either side. See how I'm doing the tunnels and the myo-- [AUDIO OUT] at the same time? I say tunnels because it's the tunnel in the submucosa of the esophagus and the tunnel in the submucosa of the diverticulum side. But once you get to this tunnel phase, obviously things get very straightforward. And you can see the muscle thins out to the thickness of esophageal muscle. So you know you did-- the [INAUDIBLE] has been cut, because you can see how now it thins out. This is muscularis propria of the esophagus.

But you can now go all the way to the [INAUDIBLE] and if you so desire, because it gets very easy. The scope is stable, it's in the tunnel, so it's all looking good. Now this is a 2-centimeter Zenker's that you saw. There's no need to go crazy, so you can withdraw. And we just made, I think, the smallest hole we could make.

And now the tricky part, always, is the closure. I'll show you why. It can be very frustrating, and obviously the most dreaded complication is a leak. So the closure, there's a lot that rides on the closure. Now there's some bleeding there. Let me find out what's going.

The closure, if you look at traditional Zenker's techniques. Open. Studies have reported leaks anywhere between 2% and 15% in the literature. And I think it depends on how aggressive you are, at least on the traditional technique, how far you cut down. So the traditional technique was to stop 1 centimeter above the fundus of the [INAUDIBLE], of the diverticulum.

And you see the diverticulum on the left, we are close to the bottom of it. In fact, we are beyond the bottom. But with the traditional technique, you can't do that. You have to leave a little space there. The problem with that is, the more careful you are, the more of a ledge you leave, and then the recurrence rate goes up. In fact, there are huge studies from Europe that show at 30%-- a 30% recurrence.

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** I would do the dura. There are studies in Europe that show huge recurrences of 30%, or 33% by two years. I  
**STAVROPOULOS:** think this is because of being careful in cutting the muscle, and then they have to go back and do re-treatments. Now, I am more aggressive so my recurrence rate is in the 1% or 2%. We maybe had one or two patients in the last five years, that I remember, that had some patch-up need.

So very low recurrence, but we are pretty aggressive. We take the myotomy down to the esophagus. With a tunnel, you can do this with more [AUDIO OUT]. But the tunnel, I got to say, the closure is not much easier than doing the traditional Zenker's, you can see. So you have to use a clip that has a small stem. Like here we use the DuraClip or you can use similar clips. Don't want a big stem.

And then you have to be careful not to cut the mucosa near the wall and create a ledge, so you have to sort of twist and close there. And then sometimes you get a tear on one of the sides. That makes things even more difficult. But you see, a big push to the side can be problematic. And then which side you start is important, because you can see how much difficulty I have with all the dials cranked up, reaching the left side.

The anatomy pushes me to this side, to the bottom right, as opposed to up there. So I try to go as high as possible because you can't then easily correct this. Once I deploy this clip, it's going to be in the way to try and put one even further up there. What do you think Steve? Do we go?

**STEVE:** [INAUDIBLE]

**STAVROS** Well, we have to go higher, maybe? What do you think? Open a little and slide. Ugh. See? It's very, very  
**STAVROPOULOS:** eccentric anatomy here of this Zenker's. I may regret not living good enough alone. We'll see. OK. Open. Yeah. That's as much as I can reach, basically. Sometimes doing under water helps by deflating the lumen. Very difficult.

But this is the most important and most difficult part here. Close. Close. We only had two leaks in 10 years. That's partly because of how obsessive compulsive we are about the closure. I mean, these are not sutures. Any amount of food could displace those clips prematurely, and then we'll have a tunnel almost going into the mediastinum. Open. So you have to be very careful and try to get a good closure.

**MALE SPEAKER:** Looks good right here.

**STAVROS** OK. But close very slowly. Close. I used a little of the submucosa there too. OK. I think that's the best I can do. I  
**STAVROPOULOS:** can't go any higher than that.

**MALE SPEAKER:** [INAUDIBLE] push up the clip a little bit? Deploy it?

**STAVROS** Do we have enough of the bottom? Let's hope. OK. Deploy. Some of these Zenker's open a little bit. With both  
**STAVROPOULOS:** hands? OK. Some of these Zenker's are nicely centered. I've been actually able to suture two or three of them because they were nicely centered. But unfortunately, most of the times you are pushed to the side, like here, and you are struggling to gain position.

And I have to say, the Olympus scopes we have have limited angulation capabilities. I don't understand why. We send them out to be restringed and retightened, and if you do a retroflex DSD in the fundus, you always find you are missing 20 degrees.

OK. So I'm putting that there. Close. Ah, there are overlapping edges. Open a little. Close. OK. I think--

**FEMALE**  
**SPEAKER:** Can you get a little closer?

**STAVROS** I think it will do. What do you think?  
**STAVROPOULOS:**

**FEMALE** [INAUDIBLE] a little bit?  
**SPEAKER:**

**MALE SPEAKER:** To the left, you want to get closer?

**STAVROS** OK, fine.  
**STAVROPOULOS:**

[LAUGHTER]

See? My staff is more obsessive compulsive than me. They want it closer to the other clip, so I will try to oblige. There you go. Because these [INAUDIBLE] know what they're talking about. I tend to be influenced by the difficulty and try to cut corners sometimes. But yeah, I don't know what to tell you. See, that's as close as I can get it. Close. OK. I think that's the best I can do. Sorry.

[INTERPOSING VOICES]

**STAVROS** OK, go. Go. Deploy.  
**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** Yes. OK. Open a little. See that's what I don't understand also, by people. There are some European centers that  
**STAVROPOULOS:** has patients like this the same day. So you have this 80-year-old ASA Class 3 patient with this kind of closure and they go home. And if they don't follow your liquid diet, they maybe try to eat some bread that night. I mean, a leak here, you'll end up with a neck abscess. Very unpleasant experience.

As I said, we had two in 10 years, and they're particularly unpleasant. One of them had to treat with a stent through the UES, also a very unpleasant experience. Open. No, no, no. Come on. OK. I hope the audio works OK. I'm worried about the audio.

**MALE SPEAKER:** We got a word that it works excellent.

**FEMALE** [INAUDIBLE] you're doing a great job.

**SPEAKER:**

**STAVROS** OK.

**STAVROPOULOS:**

**MALE SPEAKER:** Yeah. I'm hearing that from-- I'm hearing that from doctors [INAUDIBLE].

**STAVROS** OK. Close.

**STAVROPOULOS:**

**MALE SPEAKER:** There's a question if you have tried that Fuji scope?

**STAVROS** The Fuji--

**STAVROPOULOS:**

**MALE SPEAKER:** Yeah.

[LAUGHTER]

**STAVROS** If I have tried the Fuji scopes. Yes, I have. That's a loaded question. I do think the retroflex better, not to  
**STAVROPOULOS:** mention the BLI imaging technology.

**MALE SPEAKER:** I think we should go.

**STAVROS** Yeah, but this-- I think that's mu--

**STAVROPOULOS:**

**MALE SPEAKER:** [INAUDIBLE]

**STAVROS** Well, OK. I see. I see. I see what you're saying. open. Ah! Ah! Hold on. Ah! Steve, stop opening when you see  
**STAVROPOULOS:** that. Open. OK. Let's try to grab that too. Open a little more. A little more.

**STEVE:** [INAUDIBLE] try if I can. You're blocking me.

**STAVROS** OK.

**STAVROPOULOS:**

**STEVE:** Careful of blocking me.

**STAVROS** There you go. OK, close. OK, deploy. OK.

**STAVROPOULOS:**

**STEVE:** So close a little bit?

**STAVROS** OK, let's do this one. Now this is the most difficult clip, the one on the flat side of the Zenker's, because best  
**STAVROPOULOS:** thing is not to get the hole on this wall. But as you see here, the scope was pushed this wall so some of the hole  
extended here. Now you have to catch this wall and not create a fold that will impinge on the lumen. So not  
ideal.



OK, turn it. We'll try to out it as flat as possible-- open-- which is not possible, actually. We have to be perpendicular, so we'll try not to catch too much tissue up there. Yeah. This is-- close.

**FEMALE** [INAUDIBLE]

**SPEAKER:**

**STAVROS** OK. This looks good, right?

**STAVROPOULOS:**

**MALE SPEAKER:** Yeah.

**FEMALE** Yeah.

**SPEAKER:**

**STAVROS** Ok, do it.

**STAVROPOULOS:**

**MALE SPEAKER:** Right here?

**STAVROS** Yeah. You see, I suture all my POEMS. To me, this kind of closure makes me sleep less well at night. And if I

**STAVROPOULOS:** push the scope through this, pretending I'm a food bolus, just the stretch on the septum could rip the clips off. So I'm not going to do that. I mean, I like to empty the stomach from air. It prevents gagging, and retching, and doing things like that. But the only way to do it, if you want to do it, would be an XP scope. Let me do it just to make her comfortable.

I mean, it's all CO2. But as I said, we are on the obsessive compulsive side, in general. So notice I'm going to try to wiggle through with the XP, suck the stomach down to avoid any eructation that may vibrate those clips over there. OK. So that's it for the Zenker's.

Where's Tarek? Any questions? Any other questions? I wanted to give you access too, to those questions. That was the plan. I need to talk to Tarek. Tarek?

**TAREK** Yes?

**ALANSARI:**

**STAVROS** Can you tell them to give access to the question Google Sheet? And do you see any other questions?

**STAVROPOULOS:**

**TAREK** [INAUDIBLE] says, good morning sir, and thank you for doing this for us.

**ALANSARI:**

[LAUGHTER]

**FEMALE** [INAUDIBLE] heard everything you were saying about the [INAUDIBLE] audio. He's like, tell him he sounds fine.

**SPEAKER:**

**STAVROS** OK.

**STAVROPOULOS:**

**FEMALE** [INAUDIBLE]

**SPEAKER:**

**STAVROS** [INAUDIBLE], what do you think? OK. So now let's put the XP down. So the pediatric scope, we're going to try to  
**STAVROPOULOS:** wiggle next to the clips gently, and empty the stomach. There. There's the clips. Ugh.

**FEMALE** [INAUDIBLE] early to the next room, OK?

**SPEAKER:**

**STAVROS** OK. Oh. Oh. A little bit of-- can you put some water on the XP?

**STAVROPOULOS:**

**MALE SPEAKER:** Sure.

**STAVROS** Yeah. Maybe maybe I'm not going to try this. It's also pushed to the side here. I'm going to use some water to  
**STAVROPOULOS:** try to splay the planes and lubricate. OK. That worked. So this is it here. OK. So empty the stomach. No liquid in  
there should make her a lot more calm and comfortable.

So we're going to keep her-- how old this is she? She's in her 70s. Co-morbidities wise?

**FEMALE** Hypertension.

**SPEAKER:**

**MALE SPEAKER:** So just hypertension.

**STAVROS** Hypertension. OK. So we may keep her 24-- 24 or 48 hours, so send her home tomorrow or Sunday. Now if there  
**STAVROPOULOS:** is any elevated CRP, the white count is going the wrong way, anything like that, we may delay a day or two. And  
then we'll send her home with a typical POEM protocol. A few days of liquids, a week of soft, and then  
resumption of regular diet. I guess we-- [AUDIO OUT] looks good.

[BACKGROUND CONVERSATION]

OK. That's our injection, which runs down the esophagus, so it's a little swollen from the injection. And this is  
the closure. Now I don't know about this area here. Hold on. No, it looks good. The clip is buried down there,  
right?

**MALE SPEAKER:** Yeah.

**STAVROS** Yeah. OK, that's it. Now we're going to move to the POEM room.

**STAVROPOULOS:**