

Discussion to: Robotic sympathetic trunk reconstruction for compensatory sweating after thoracic sympathectomy



Presenter: Yin-Kai Chao, MD^a

Invited Discussant: Daniel Miller, MD^b

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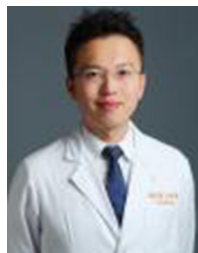
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Presenter: Dr Yin-Kai Chao

Unidentified Speaker 1. So, the discussion for this paper will be Dr Dan Miller from Augusta University. We've got 4 minutes.



Dr Daniel Miller (*Marietta, Ga*). Perfect. I'd like to thank the Association for allowing me to discuss this paper. An outstanding presentation and outstanding results, early results. My question is, and in your algorithm for workup of compensatory sweating, how do you decide—I mean, obviously the man who had the sweat and the boot. I thought there was going to be fish coming out of there. But how do you decide on which patients and how to go early? Because your patients were 20 years out on average. So how do you put this into the algorithm at the present time?



Dr Yin-Kai Chao (*Taoyuan, Taiwan*). We got referrals from all over the world, not only locally. These patients all treated by different kinds of methods before and all had very severe symptoms. And before surgery, we need the patient to see many different doctors like psychiatrist and cardiovascular physicians. Because we need to make sure that his

symptom is related to endoscopic thoracic sympathectomy. So that's what our algorithm.

Dr Miller. And also, you use thermography, which is not a technique that's used—anybody use thermography in here to evaluate your patient? I mean, you all do that a lot. And I think it's an incredible technique, but how do you work that into your algorithm for this?

Dr Chao. We face a very difficult time during COVID-19 because no patient wanted to come to us to do the thermography. So, not every patient has the thermography. We got the machine from the hospital and we took the patient to some nearby hotel for the Sauna test. We are also quite excited because that's the only objective measure we can do so far.

Dr Miller. And also, 8.5 hours. I mean, does the robot have a cup holder now? I don't know if y'all have that or not.

Dr Chao. Actually, the surgery time is not that long. We spend a lot time for surgery preparation and the surgery itself takes 2.5 hours each side. It's about 40 sutures, each chest.

Dr Miller. Because you didn't show, but they reconnect each intercostal level.

Dr Chao. Yes.

Dr Miller. That's an incredible amount of—I mean, just congratulations. And also, until you proved what we were talking about on the first case, that at 24 months, your results were better than at 6 months because of continued growth of the nerve and so just outstanding job. I think this should be a landmark paper and also a landmark technique.

Dr Chao. Thank you very much. Thank you.

Unidentified Speaker 1. We have time for 1 more question.

Unidentified Speaker 2. A quick question. Thank you very much. So about 22 years ago, I had a patient who had compensatory sweating and wanted his sympathectomy reversed. And I changed my practice and instead of cutting the nerve, I started clipping the nerve. And then we found, actually, about 50% of people with facial flushing, who got a sympathectomy, wanted it reversed because they couldn't stand having dry hands. And so, before the robot, I would just go in and pull the clips off, and then their dermatomes would reinnervate slowly over the next year and a half. I wonder your thoughts about clipping the nerve instead of cutting it.

Dr Chao. There's some animal experiments showed that if you want to unclip the nerve, you better do it within 6

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weeks. After 6 weeks there might be some irreversible changes to the nerve. But I believe maybe some patients will have still some viable nerve fibers running through even if you unclip after 6 weeks.

Unidentified Speaker 2. The nerve dies distally.

Dr Chao. Yeah.

Unidentified Speaker 2. But your nerve is not alive distally. It's dead. That's why it takes so long for the results to show reinnervation.

Dr Chao. Yes. we used to operate on several patients who received multiple clipping, not only for treating their primary hyperhidrosis but also for compensatory sweating. These patients might receive multiple clipping from T2 to T8. We would need to take out all the clips and then reconstruct the nerve. We are facing a lot of extreme conditions like this. But I think the outcome is still reproducible.

Unidentified Speaker 2. Thank you.