

# Massive bleeding through tracheostomy site controlled by double and parallel covered stent insertion

Ivan B. Casella, MD  
Calógero Presti, MD  
Marcelo F. Matiello, MD

2019

# Disclosure

Speaker name:

Ivan B. Casella

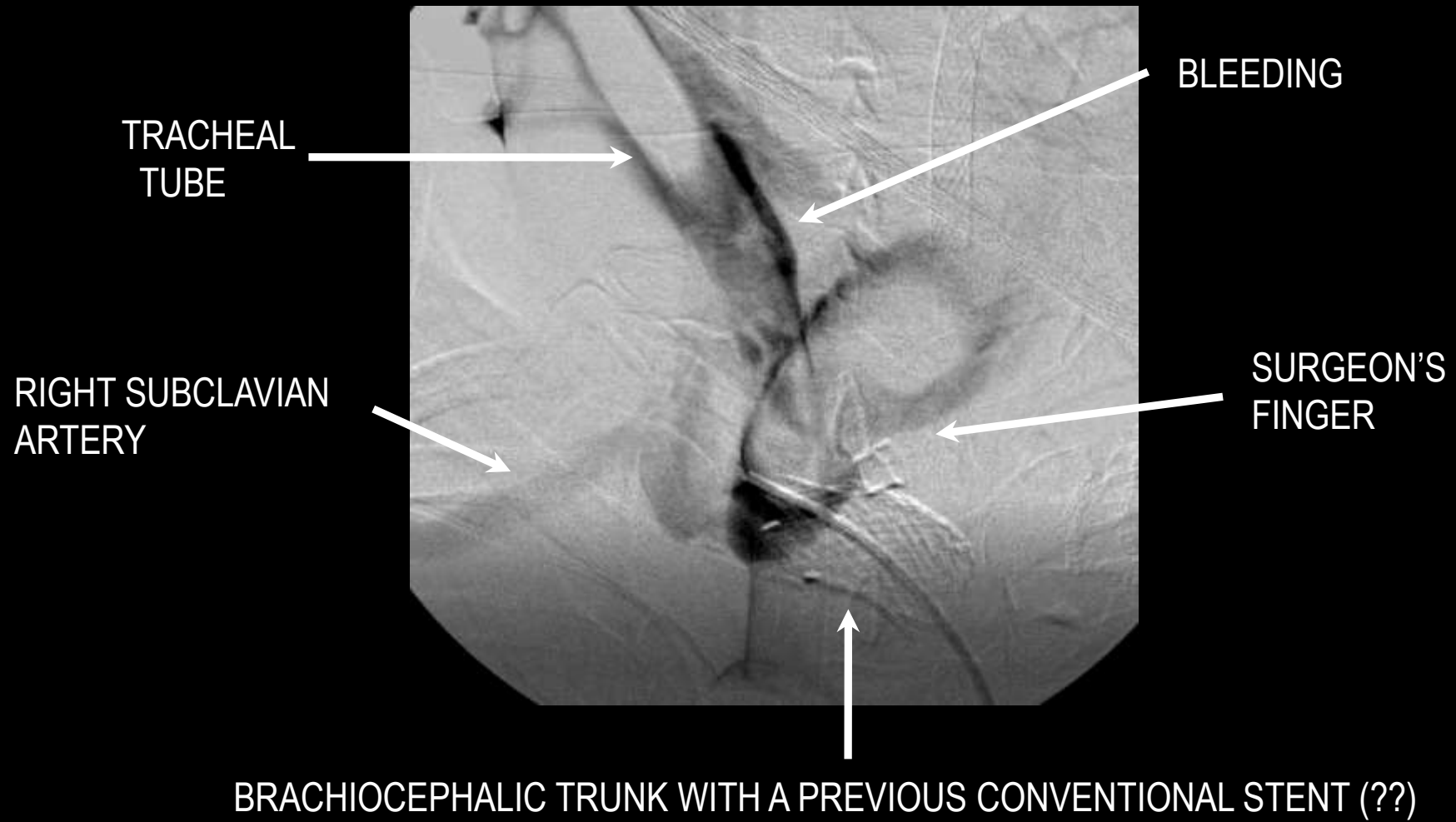
I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
  
- I do not have any potential conflict of interest

- Female, 63 y.o.
- Rare malignant thyroid cancer
- Chronic, definitive tracheostomy
- Interned due to pulmonary infection
- Sudden massive bleeding through TO site → cardiac arrest

- Prompt resuscitation;
- Blood removed from lungs by aspiration;
- Intubation through tracheostomy site;
- Control of bleeding by direct compression of bleeding site (a finger inside the tracheostomy)
- Moved to surgical room + C arm

- Diagnostic angiogram (finger still controlling bleeding site)





- Right brachial access (exposure):

-11x100mm heparin-bonded Viabahn

Subclavian artery → brachiocephalic trunk.

- Left femoral access (puncture):

- 10x100mm heparin-bonded Viabahn

Brachiocephalic trunk → right common carotid artery.

- Estimated diameter of the BCT: 15mm (indirect measure using a marked pig tail)

Calculating the to-be-covered area:  $\pi r^2$

- BCT inner area: 176 mm<sup>2</sup>
- Viabahn 11mm outer area: 103 mm<sup>2</sup>
- Viabahn 10mm outer area: 86 mm<sup>2</sup>
- Total stent area: 189 mm<sup>2</sup> (7% larger)

## INTERVENTION

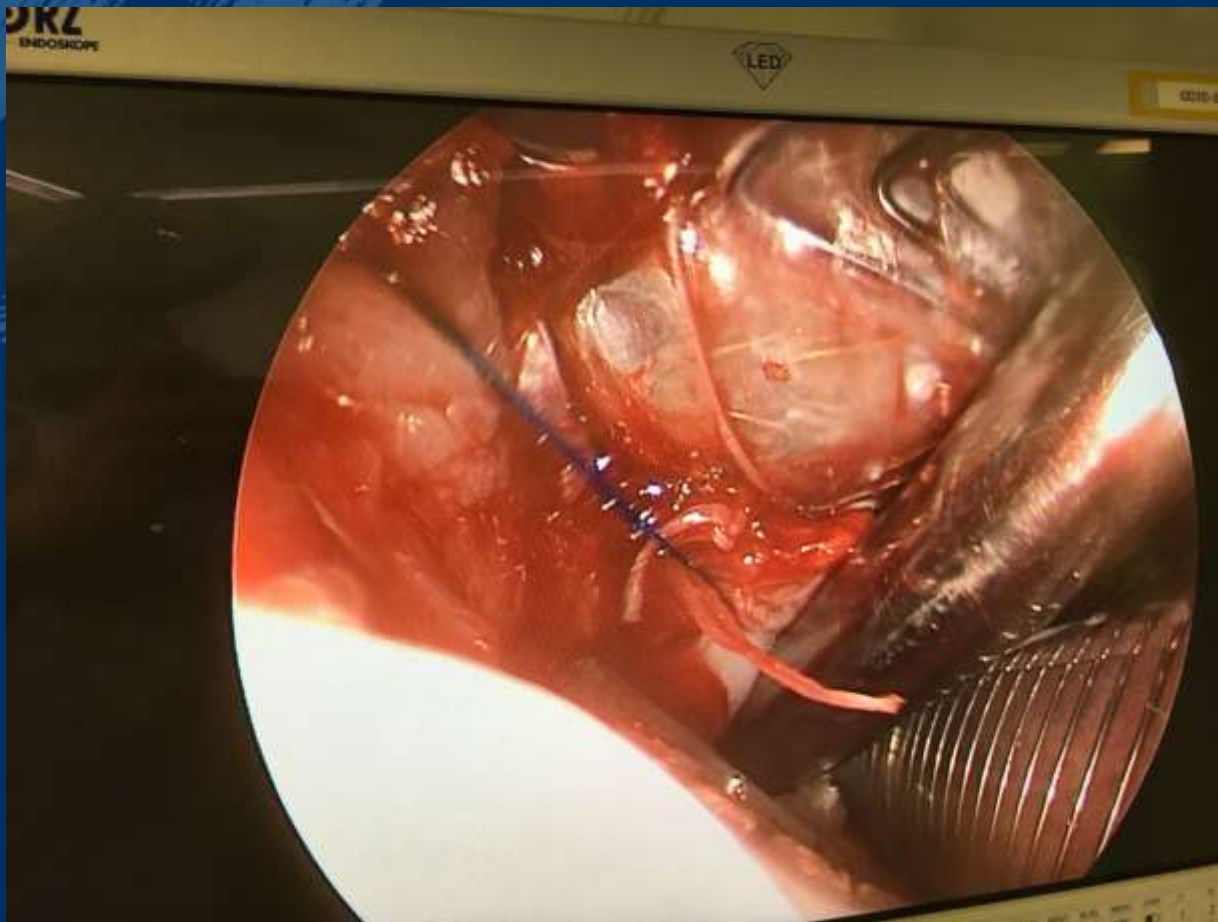
- Immediate result:  
bleeding ceased, quick  
flow to right CCA and  
subclavian artery







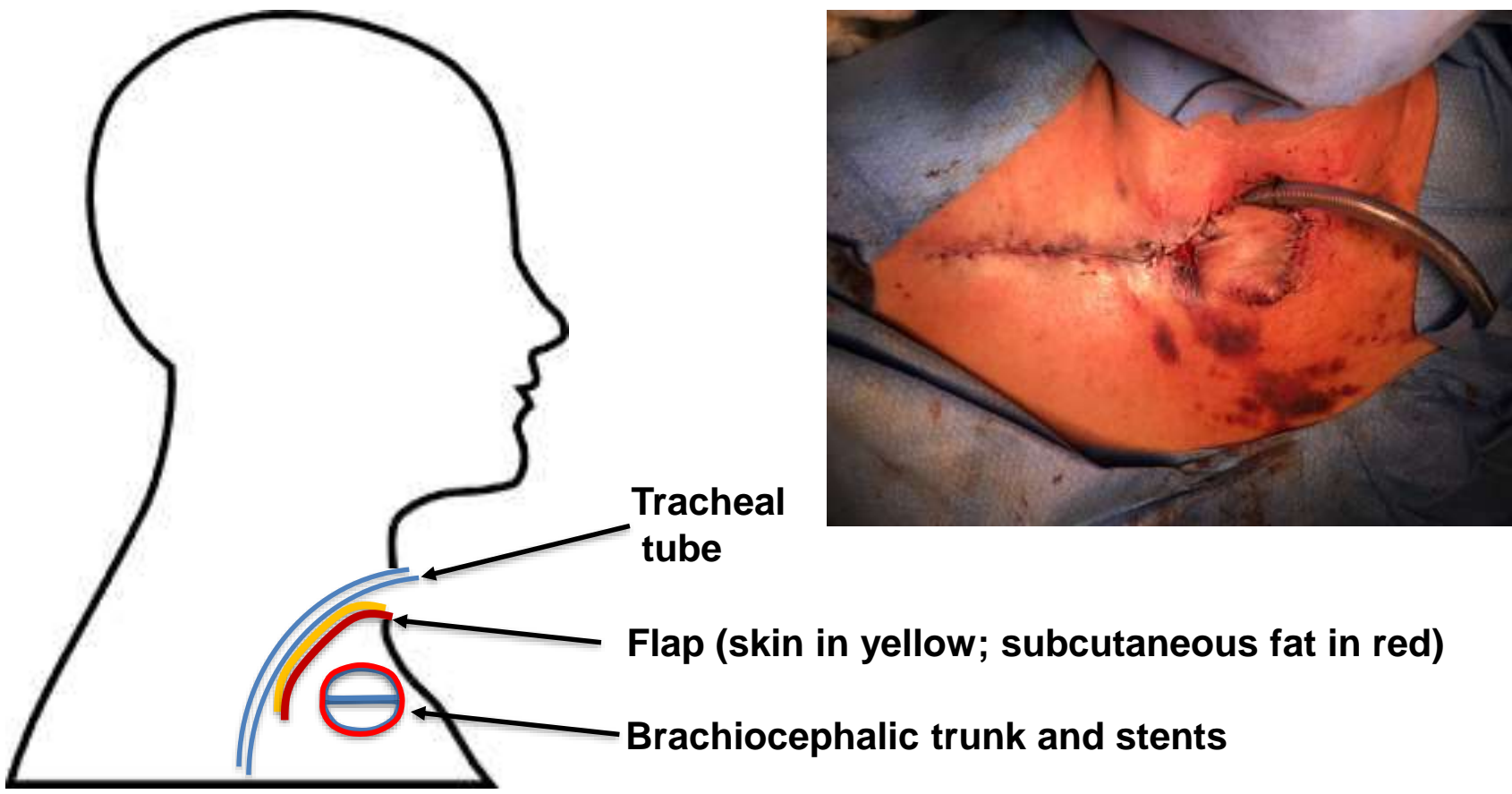
- As expected, BCT and stents were exposed to the environment;
- Patient was very unstable, unsuitable for further procedures at that time.



- After seven days, a surgical skin flap was performed to reconstruct the tracheostomy inferior wall and cover the artery



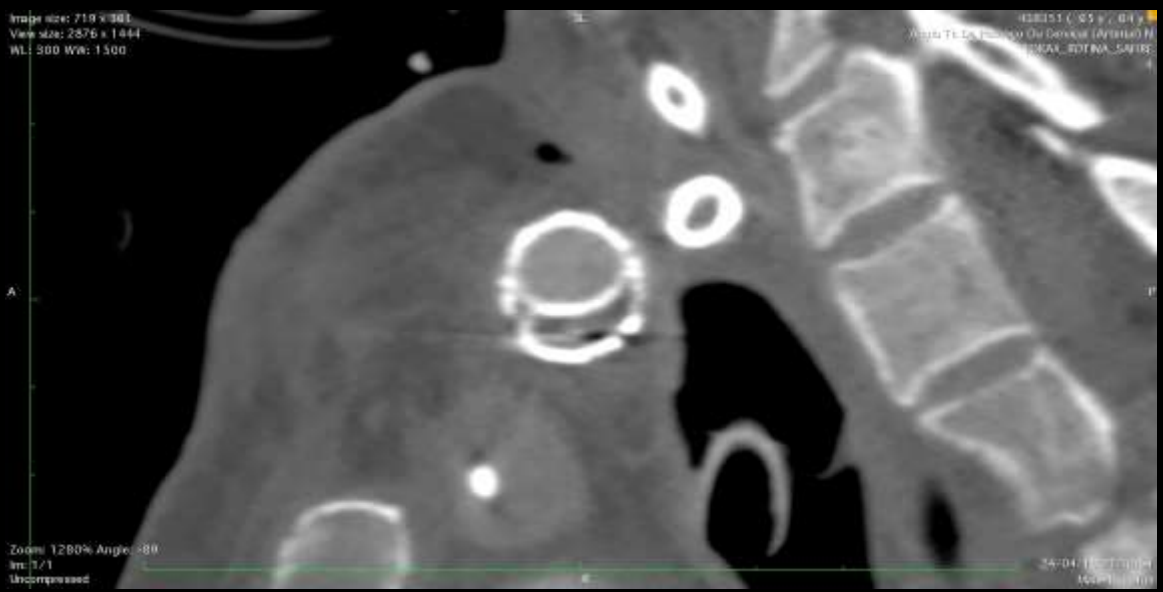
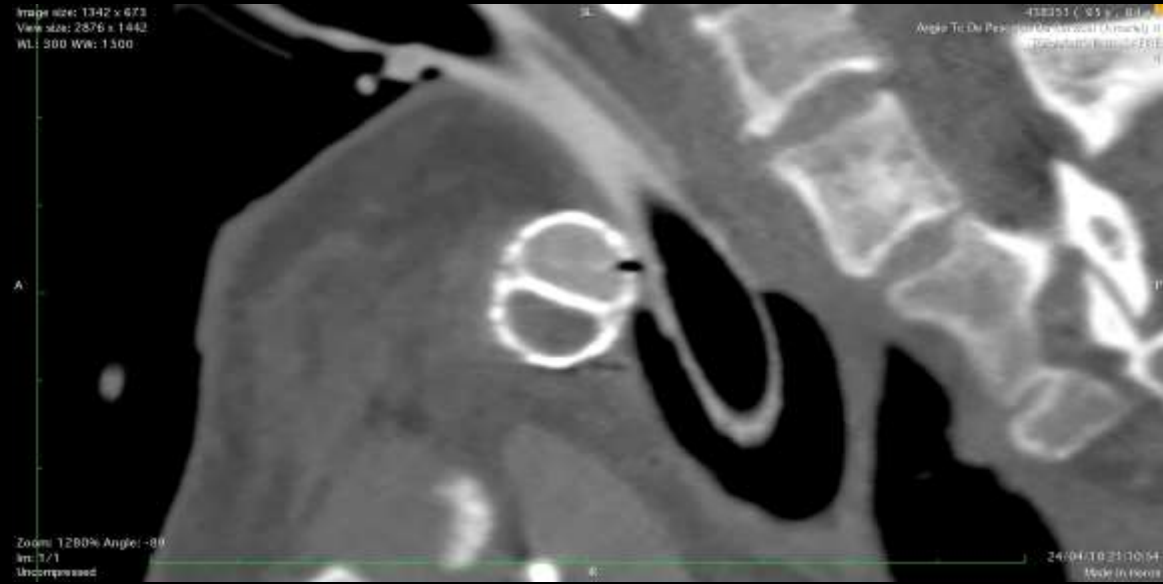
Tracheostomy inferior wall rebuilding – covering the BCT



- Day 14: patient unstable due to septic shock;
- Day 16: persistent hypotension → Obstruction of the CCA stent
- Massive stroke;

# MASSIVE BLEEDING THROUGH TRACHEOSTOMY

# EVOLUTION



- Death after 20 days.



- In the end, we could not help our patient;
- Perhaps this experience can help others;
- Lessons: how to avoid suppression of one stent by the other?
  - Balloon-expandable stents in their proximal orifice?
  - Changing the total combined area of stents?
  - IVUS would certainly help a lot.



ivan.c@hc.fm.usp.br

# Massive bleeding through tracheostomy site controlled by double and parallel covered stent insertion

Ivan B. Casella, MD  
Calógero Presti, MD  
Marcelo F. Matiello, MD

2019