

### Covered Stent As An Emergency Weapon in the Treatment of Vascular Complications After Carotid Endarterectomy

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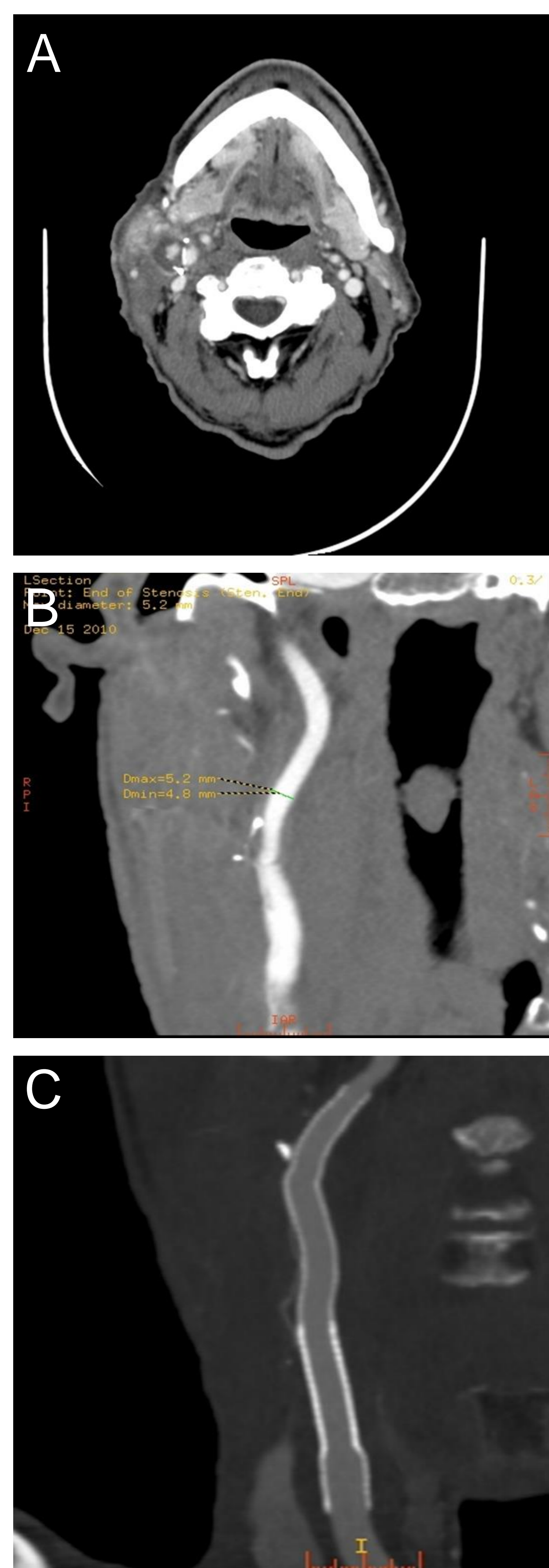
#### INTRODUCTION

Carotid endarterectomy (CEA) is an optimal surgical treatment to reduce the risk of stroke in patients with internal carotid artery stenosis, even if complications might be present. Among these, the rarest and the most critical are pseudoaneurysm, arterial dissection and vessel rupture with a recurrence of 0,3%, of times, requiring immediate surgical re-intervention in emergency departments. [1;2]

#### AIM

Thanks to growing experience and technical innovations, nowadays, interventional procedures such as percutaneous placement of covered stents have proved to be viable alternatives to surgery as they ensures a less invasive, effective and safe approach [3;4].

Figure 1.



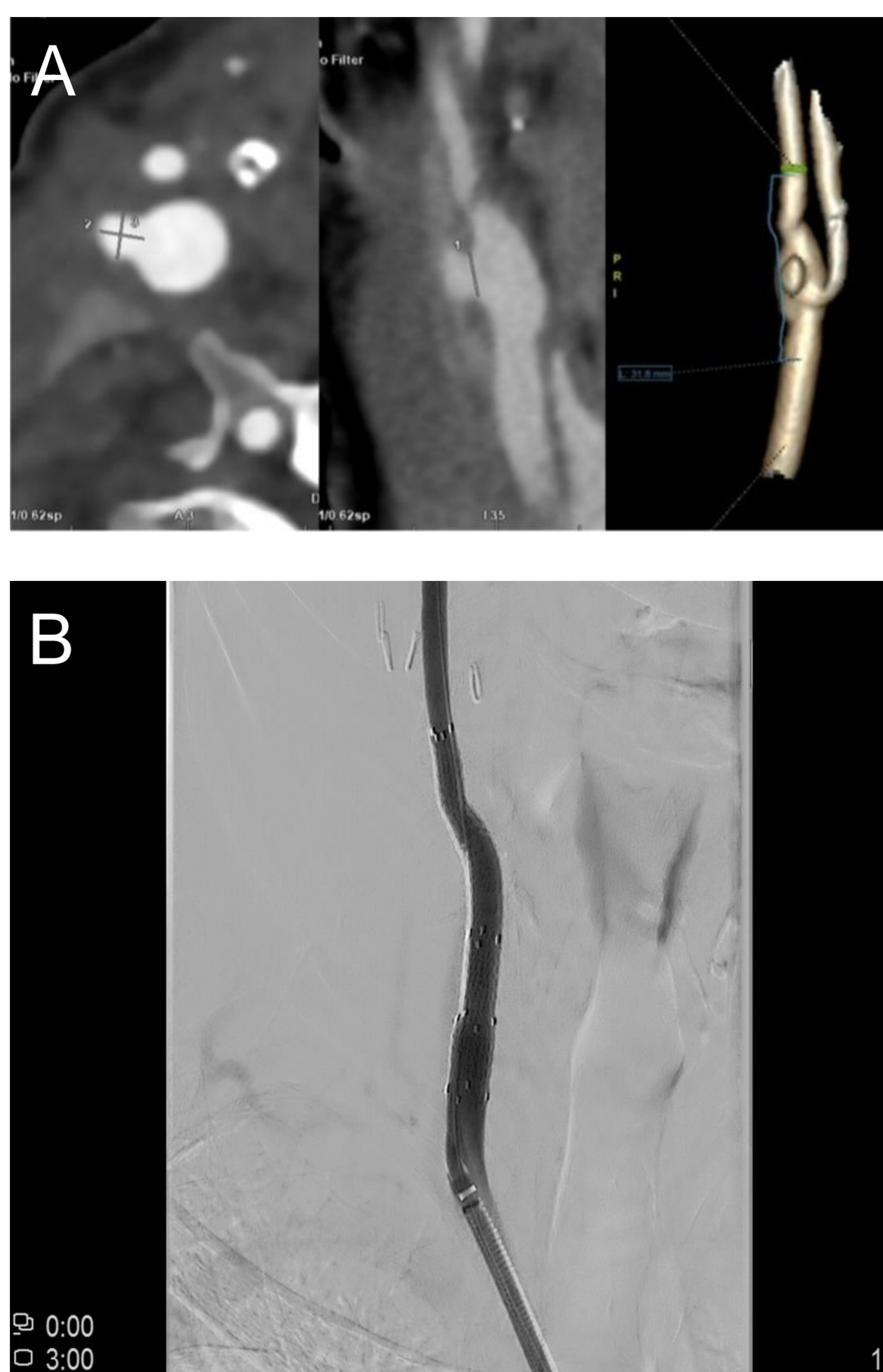
Inflammatory Pseudoaneurysm (Psa) of the right ICA in 72 years older male patient with fever and purulent secretions from surgical wound like shows in figure A and B. Figure C shows the right placement of covered stent with complete exclusion of Psa.

#### METHODS

Among the patients treated with CEA in our hospital since 2010, we selected a total of four individuals who had developed severe post-operative vascular complications. All of them were treated with minimally invasive interventional procedures by placement of covered stents. Specifically, three of these had been treated emergently about one month after surgery due to acute hemorrhage from pseudoaneurysm rupture, while only one patient had been treated immediately after CEA, about 5 hours later, due to the onset of acute cerebrovascular symptoms sustained by an underlying arterial dissection.

Technical approach for these complications was performed in the angiographic room through a percutaneous common femoral artery access with eco-fluoro-guided, followed by 6/7 Fr vascular sheath placement, selective ICA catheterization and final stenting.

Figure 2.



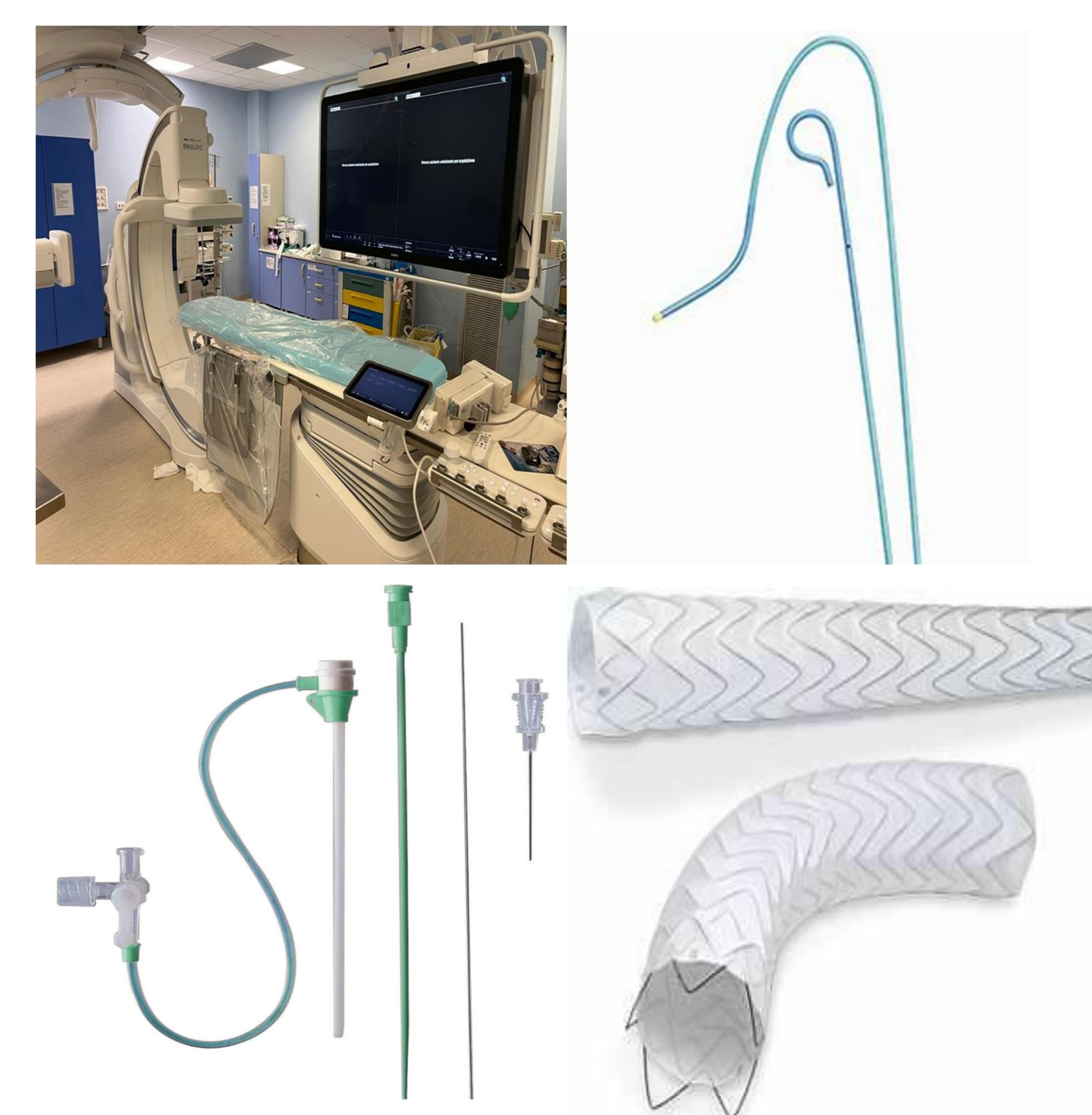
Axial and coronal CT images and 3-D Volume Rendering Images shows 4 mm sacciform pseudoaneurysm of right carotid bifurcation at the level of a previous surgery patch (Figure A). Pseudoaneurysm was excluded by positioning two overlapping covered stents as shown by the final angiographic control in Figure B.

#### RESULTS

All patients who underwent interventional treatment by means of percutaneous placement of covered stents showed immediate technical success, suggested by the final post stenting DSA and the rapid clinical improvement of the patients.

Successive control CT scan confirmed complete exclusion, in the case of pseudoaneurysm, or complete restoration of the endoluminal caliber in the case of arterial dissection. In addition, these patients showed faster post-procedural recovery times than would be expected after conventional surgical treatment, with faster hospital discharge and therefore also a better economic impact.

Figure 3.



Angiographic room and materials: carotid diagnostics catheters, 5 Fr vascular sheath and covered stents.

#### CONCLUSIONS

The use of covered stents is a safe alternative in the urgent treatment of some post-operative complications after CEA, especially in cases where the type of vascular injury and/or complicated surgical access make reoperation a difficult option with high risk of mortality [5].

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