CASE REPORT

Type II Endoleak Embolization using Micromate™

Gerlig Widmann, MD & Martin Freund, MD
Interventional Radiologists, Tirol Kliniken, Innsbruck, Austria

Patient description

Male patient, undisclosed age

Previously subjected to an aorta endovascular aneurysm repair (AEVAR)

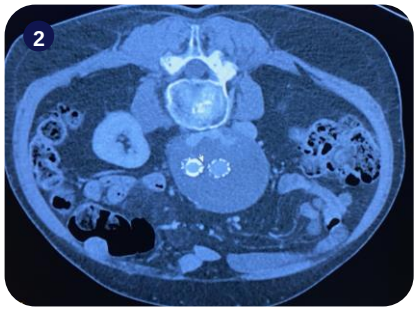
18cm deep Type II endoleak, with severe enlargement of the aneurysmal sac

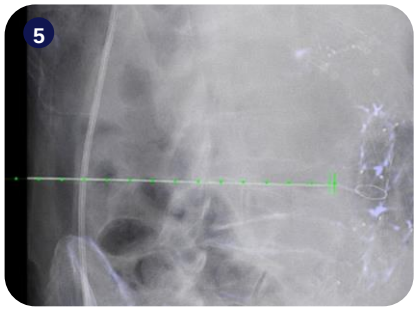
Key Takeaway

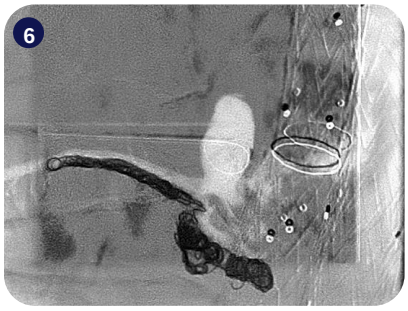
Micromate™ enabled the clinical team to implement a percutaneous trans-lumbar approach to reach the nidus of the aortic aneurysmal sac with submillimeter accuracy and for continuous instrument guidance until the complete sealing of the feeding vessels and of the aneurysmal sac is achieved. When compared to the typical endovascular access, this approach reduces the likelihood of typical complications and difficulties related to driving the instrument through vessels (tortuosity, exceedingly proximal embolization) and to using a substantial amount of radiation.

An intra-operative 3D scan of the patient in prone position was performed using a Philips Allura Xper FD20 angiography device and the surgical trajectory was planned using the Xper Guide planning software. Micromate™ was then gross-positioned near the predefined entry-point and remotely controlled for alignment to the surgical plan under fluoroscopic live imaging and using a 18G, 40mm B. Braun-Sterican short semi-blunt needle for instrument navigation.

After the robotic alignment, the Type II Endoleak was punctured using a 19G, 200mm, ARGON Medical Devices Long Introducer Sheath/Needle, in Progress View. After puncturing the sac, embolization was performed using a Medtronic Onyx Liquid Embolic System, under conventional angiography control. The whole procedure lasted 49 minutes and the patient had no complications. Gross-positioning and fine alignment were achieved in 1 minute and 5 seconds. Post-operative accuracy measurements indicated a trajectory alignment accuracy of 0.0mm in Entry Point View, a tip location accuracy of 0.81mm and an angular displacement of 0.39 degrees along the trajectory in Progress View.







1) Setup of the Micromate™ on the table, during patient preparation and prior to sterile draping; 2) Pre-operative scan. The Type II Endoleak is clearly visible surrounding the aorta, in which the previously implanted AEVAR stent is detectable; 3) Micromate™ after the alignment to the surgical plan. The C-arm is already in Progress View, ready for instrument insertion; 4) Insertion of the Long Introducer Sheath/Needle; 5) Final placement of the instrument, in Progress View; 6) Embolization result.