

SURGICAL VIDEO

Angiojet Thrombo-aspiration Guided by Trans-Oesophageal Ultrasound

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Introduction: A 59 year old woman presented with acute right leg ischemia. On the computed tomography scan, thrombi were seen in the brachiocephalic trunk, in the descending aorta, in the infrarenal aorta, in the right deep femoral artery, and in the right crural arteries.

Technique: To remove the risk of cerebral emboli, thrombo-aspiration of the brachiocephalic trunk was planned, with associated thrombectomy of the infrarenal aorta, the right deep femoral artery, and the right crural arteries. Because the brachiocephalic thrombus could not be visualized with angiography, the anesthetists, who were performing a trans-oesophageal ultrasound of the heart, were asked to locate the thrombus, which was easily seen on the trans-oesophageal ultrasound. The aspiration catheter Angiojet (Boston Scientific, Marlborough, MA, USA) could be positioned under ultrasound guidance. Complete aspiration of the thrombus was then confirmed with the ultrasound (see video). The thrombectomy of the infrarenal aorta and right leg was then performed by open surgery. The patient's recovery was uneventful. Despite extensive investigations no etiology was found for the thrombi.

Discussion: Pre-operative trans-oesophageal ultrasound is routinely performed by anesthetists in patients with acute ischemia, to search for a cardiac source of emboli. In this case it had the added advantage of helping to locate and aspirate a thrombus in the brachiocephalic trunk.

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INTRODUCTION

A 59 year old woman presented with acute right leg ischemia. A thoraco-abdomino-inferior limb computed tomography scan showed floating thrombus in the brachiocephalic trunk, thrombus in the descending aorta, sub-occlusive thrombus in the infrarenal aorta, thrombus in the right deep femoral artery, and thrombi in the crural arteries. Informed consent was obtained from the patient.

TECHNIQUE

Because of the risk of cerebral embolization, removal of the thrombus in the brachiocephalic trunk was mandated. To minimize the risk of embolization, thrombo-aspiration with an Angiojet (Boston Scientific, Marlborough, MA, USA) catheter was selected. The right common carotid artery was dissected and clamped distally. A 6-F sheath was inserted proximally. Despite multiple angiograms, the thrombus in the brachiocephalic trunk could not be visualized. The anesthetists, who were searching for a cardiac source for the thrombi with trans-oesophageal ultrasound, were asked to visualize the thrombus. This was easily done and helped guide the position of the Angiojet. The aspiration could then be documented until complete disappearance

of the thrombus was confirmed (see video). Afterwards, thrombectomy of the infrarenal aorta and right leg were performed by open surgery with a Fogarty catheter. The patient recovered without incident, but despite extensive investigations, the etiology of the thrombi could not be found.

Supplementary video related to this article can be found at <http://dx.doi.org/10.1016/j.ejvssr.2016.02.003>.

The following is the supplementary data related to this article: Video of the thrombo-aspiration guided by trans-oesophageal ultrasound of the thrombus in the brachiocephalic trunk.

DISCUSSION

Angiojet thrombo-aspiration is classically done under fluoroscopic guidance. In certain conditions, it can be difficult to localize the thrombus, principally when it is non-occlusive or non-stenotic. Working with anesthetists who routinely practice trans-oesophageal ultrasound, it incidentally was realized that ultrasound guidance could be very helpful in these rare situations.

CONCLUSION

Thrombo-aspiration can be performed under ultrasound guidance in rare cases when angiography is not possible or cannot locate the thrombus. When approaching the thoracic aorta or supra-aortic arteries trans-oesophageal ultrasound can be helpful.

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