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Commentary

Symptomatic Deep Vein Thrombosis (DVT): Endovascular Combined Management

Vito Gallicchio[1*], Flavia Condó[1], Danilo Barbarisi[1], Rosaria Sciarrillo[2*], Loris Flora[1]

[1]Vascular Surgery, Hospital of National Importance San Giuseppe Moscati, Via Contrada Amoretta I83100 Avellino, Italy; [2]Department of Science and Technologies, University of Sannio, Via De Sanctis snc I82100 Benevento, Italy

ABSTRACT

Endovascular Combined Approach (ECA) such as venoplasty, venous stenting, trombectomy and intravenous trombolysis are becoming the treatment of choice to achieve venous outflow in DVT. The primary goal of this treatment is the restoration of venous outflow and can be achieved by combined endovascular techniques. The ECA included four steps produceres: Positioning of Sentry Bioconvertible in Vena Cava Inferior (IVC) filter, Angiojet intravenous trombolisys, Angiojet intravenous trombectomy, and self-expanding nitinol stenting (Boston Vici Venous Stent System). The scheduled follow ups at 1,2,6 months there was no filter tilting, migration, perforation, embolization, fracture or filter related death. The stent was patent and was phasic with the actis of the breath. The combined used of surgical thrombectomy with direct intravenous thrombolytic infusion provided effective treatment of DVT and uncovered an underlying left common iliac vein stenosis, which was successfully managed by angioplasty and stenting.

Keywords: Deep Venous Thrombosis (DVT); Endovascular Combined Approach (ECA); Angioplasty

INTRODUCTION

Deep Venous Thrombosis (DVT), the third most common cause of cardiovascular morbidity, is the formation of a blood clot within a deep vein, forms part of the spectrum of venous thromboembolic disease, which also includes Pulmonary Embolus (PE) [1]. DVT commonly occurs in the deep veins of the lower leg or the proximal veins of the ilio-femoral segment [2].

The history of DVT treatment began more than 700 years ago and involved medical and surgical treatments [3].

Extensive clinical research over the last 40 years has improved the techniques to remove the thrombus from the affected limb and reduce the likelihood of developing post-thrombotic syndrome. These treatments have included intravenous systemic thrombolysis, catheter-directed thrombolysis, surgical thrombectomy, and most recently pharmacomechanical thrombectomy to rapidly fragment, lyse and remove the thrombus from the affected limb [4].

Traditionally, acute DVT was treated with standard anticoagulation and sometimes, thrombectomy. However these measures do not address the underlying culprit lesion of mechanical compression. Furthermore, if managed only with anticoagulation, patients with residual thrombus are at risk for developing recurrent DVT or Post-Thrombotic Syndrome (PTS) [5]. Besides, open thrombectomy and venous bypass are traditional surgical options used in limb threatening conditions such as phlegmasia and in cases where endovascular interventions fail or are not possible [6].

The Endovascular Combined Approach (ECA) of the symptomatic Deep Vein Thrombosis (DVT) is a valid alternative procedure in selected patients. Endovascular Combined Approaches such as venoplasty, venous stenting, trombectomy and intravenous trombolysis are becoming the treatment of

Correspondence to: Vito Gallicchio, Vascular Surgery, Hospital of National Importance San Giuseppe Moscati, Via Contrada Amoretta I83100 Avellino, Italy, E-mail: vitogallicchio@gmail.com.

Rosaria Sciarrillo, Department of Science and Technologies, University of Sannio, Via De Sanctis snc I82100 Benevento, Italy, E-mail: sciarrillo@unisannio.it

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choice to achieve venous outflow in DVT [7]. This current practice shows a strong clinical trend of endovascular methods and an individualized approach for each patient with DVT [7].

This combined technique can finally transform the treatment of deep acute venous thrombus from strictly conservative medical therapy to a minimally invasive procedure capable of removing the thrombus to improve the quality of life of millions of individuals suffering from the symptoms of deep vein thrombosis [8].

MANAGEMENT

The procedure Endovascular Combined Approach (ECA) is performed in the operating room or angiography suite with the patient under local anesthesia and intravenous sedation [7].

In the first instance, a bioconvertible vascular filter (Boston Sentry) is placed through the right femoral access. The second therapeutic step involved an ultrasound-guided antegrade puncture of the left popliteal vein. From the left popliteal access, on a standard 0.035 "hydrophilic guide, the iliac-femoral venous axis was recanalized and the patient underwent thrombolysis therapy with Urokinase 100000U and thrombectomy with the Angiojet system. The procedure is then completed with the placement and delivery of the venous stent (VICI) at the iliac-femoral level. The final Phlebography revealed the patency of the left iliac-femoral venous axis with resolution of the extrinsic ab compression. The patient is discharged on the second postoperative day. Doppler soon control, performed at discharge, revealed patency of the treated vessels and a clear reduction in edema with almost complete resolution of the pain and dyspnoic symptoms [7-9].

CONCLUSION

Deep Venous Thrombosis (DVT) is a common disease with a significant mortality rate. Traditional conservation measures are the primary treatment of acute DVT, but Endovascular Combined Approach (ECA) with endovenous recanalization and stenting of venous obstruction is an effective and durable treatment for patients with moderate to severe PTS. Current practice shows strong clinical tendency for the use of endovascular-combined methods and an individualized approach for each DVT patient. Endovascular methods include a combination of different techniques.

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