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Endovenous Microwave Ablation of Great Saphenous Vein in the Treatment of Acute Superficial Venous Thrombosis: A Case Report

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ABSTRACT

INTRODUCTION

Surgical management with saphenous high ligation was considered in treating superficial thrombosis(st) of the great saphenous vein [1]. Although thermal ablation of Great saphenous had been gradually replacing surgery yet its use in treating superficial thrombosis has not yet been approved [2]. We report one patient with great saphenous thrombosis using microwave ablation

REPORT

A 31-year-old man had superficial thrombosis of his leg and thigh with the reflux of the great saphenous vein (GSV) who underwent microwave ablation of the GSV. It was punctured at the groin and the catheter was introduced downwards to prevent embolization.

DISCUSSION

Retrograde microwave ablation of GSV thrombosis could prevent embolization and thrombus extension, yet further studies are needed to make the standardization and guidelines for this procedure.

KEYWORDS

GSV Thrombosis; Inflammation; Surgery

INTRODUCTION

Superficial thrombophlebitis (STP) is mostly considered a benign, condition but still has Venous thromboembolism risk either in the form of Deep Vein Thrombosis (DVT) up to 40% of the cases or in the form of non-fatal Pulmonary embolism (PE) up to 30% of the cases [3]. This condition is characterized by the presence of thrombus inside the lumen of the superficial vein, causing partial or complete occlusion of the lumen and associated with an inflammatory process that causes redness, hotness, and tenderness along the course of the vein [4]. Though clinically this condition is very clear, Venous Duplex is mandatory to prove the evidence of STP and the presence

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of any thrombus extension to the deep venous system [5]. Many ways are adopted to treat the STP, including medical treatment, of anticoagulant regimens and surgical procedures to interfere with the extension of the thrombi to the deep venous system inducing VTE [6]. Surgical procedures in the management of the STP in refluxing saphenous vein either by surgical disconnection of the Saphenofemoral junction (SFJ) or by stripping of the Great Saphenous Vein (GSV) showed better results with less evidence of thrombus extension, less incidence of VTE, and less cost in treatment but still no definite protocol is adopted to manage this condition [1]. Endo-venous ablation of the varicose vein with an ambulant amount of local tumescent anesthesia as a one-day procedure is one of the main cornerstones in the management of the problem and considered a competent technique that is not inferior to the conventional surgical approach [6]. Using the proper technique of endo-venous ablation using Radiofrequency (RFA) and endovenous laser ablations (EVLA) may be an alternative technique to the surgical procedures adopting the same goal in dealing with varicose veins with acute STP to get satisfactory results [7].

CASE PRESENTATION

A 31-year-old man had superficial thrombophlebitis of varicose veins on the medial aspect of the 'left' lower leg (Figure 1) confirmed by ultrasound. The GSV was 8 mm wide with reflux from groin to lower leg. Thrombosis of GSV from the leg (10 cm below the knee) and extended to the mid-thigh (Figure 2). The patient was treated with 40 mg clexan once /day and two days later he developed shortness of breath and tachypnea and pulmonary emboli were proved by CT Angiogram of both lung basses was on. Microwave ablation using (Microwave Coagulation System. Shanghai Medical Electronics, Shanghai. China: Nanjing ECO. Nanjing. China: Danhui Biotechnology. Zhejiang. China) (Figure 3) of the refluxing thrombosed GSV was decided to stop embolization and treat varicose veins besides. Percutaneous puncture of the GSV was done close to the SFJ.

Figure 1: Superficial thrombosis of the GSV.

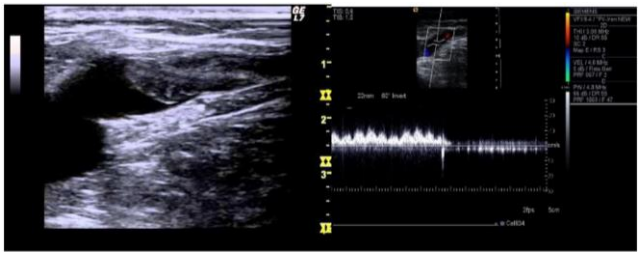

Figure 2: Duplex of superficial thrombosis of the GSV at the thigh.

Figure 3 : Microwave generator and catheter.

Figure 4: A- Antegrade insertion of microwave catheter B-Cephal withdrawal of the microwave catheter.

And through 7F sheath microwave catheter was inserted through the vein downwards till the level of the thrombus under Duplex guidance (Figure 4). After tumescent local anesthesia, an 18-cm segment distal to the introducer was treated with standard parameters. Thereafter, GSV was treated during cephalad Withdrawal the catheter of l all the way to the SFJ at the groin (Figure 4). Postoperatively the

patient was treated by a full dose of LMWH 9Clexan 80 mg/twice a day) for a month. Serial follow-up Diplex scanning after one day, one week, and one month approved patent femoral vein and effective closure of the GSV.

DISCUSSION

Deep venous thrombosis and pulmonary embolism (VTE) are potential complications that arise in 8% of patients affected by superficial venous thrombosis (SVT), particularly if the thrombus extends to the SFJ [8]. In our case the assumption of thermal ablation of GSV of ST. Through groin puncture and retrograde approach was done as an alternative procedure to high ligation, this was in agreement with Luca Spinedi et al .2019 when they used EVLA for GSV ablation and achieved good result although they punctured the vein at the mid-leg and pass the wire and catheter cephal to the groin without disruption of the saphenous thrombus [9] and the same antegrade method was done by Wayne S Gradman 2015 who made thrombus removal followed by antegrade thermal ablation of GSV in 72 limbs along 10 years [10]. The retrograde approach was done by M.A. Enzler 2012 in 3 patients with good results and without femoral vein thrombosis nor pulmonary embolism [8]. So we can conclude that Retrograde microwave ablation of GSV thrombosis could prevent embolization and thrombus extension, yet further studies are needed to make the standardization and guidelines for this procedure.

FUNDING

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CONFLICTS OF INTEREST

No relevant conflict of interests regarding the authors and this case presentation.

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