THE GREAT SAPHENOUS VEIN THROUGH SAPHTNO-FEMORAL JUNCTION EXTENSIVE THROMBOPHLEBITIS—DIAGNOSIS, RISK FACTORS AND THERAPEUTIC MANAGEMENT

Introduction

The acute superficial venous thrombosis is generally considered a common, frequent benign, limited disease. However, the extensive saphenous thrombosis can be a potentially severe condition (because its possible risk to extension of the thrombus, through the sapheno-femoral junction or incompetent perforating veins, to the deep venous system and increased risk for pulmonary embolism). Also, the superficial thrombosis, appearing on non varicose veins, can be the first sign of a serious, unknown condition such as: cancer, hypercoagulable states, Behcet disease, Burger disease. (1,2,3,4,5).

Summary:

Objective: the great saphenous vein thrombosis is a frequent disease, considered for a long time a benign condition, self limited, with low clinical importance and no major complications. This opinion has changed recently, especially concerning the ascending thrombosis of the great saphenous vein extending to sapheno-femoral junction. The aim of this paper is to evaluate the risk factors for this condition, the benefit of different therapeutic options, the complications that we encountered and our results. Material and methods: retrospective study for a period of 3 years (2007-2009), performed in Vascular Surgery Clinic. Between these years 12 patients were admitted with ascending great saphenous vein thrombophlebitis. Results: 8 patients presented extended thrombosis of the great saphenous varicose vein. 4 patients presented thrombophlebitis of non varicose saphenous vein (3 of them being diagnosed with hypercoagulable states and one of them with paraneoplastic syndrom secondary to a pancreatic malignancy). The echografic Duplex exam was performed in all cases. All patients with varicose saphenous thrombosis were operated considered as a delayed emergency and was performed femoral thrombectomy, high ligation, saphenous stripping. The secondary thrombosis due to a malignancy/hypercoagulable states were treated with anticoagulants, elastic stockings and early mobilisation. The patients follow-up was performed at 1-3-6-12 months after being discharged. The evolution of the operated patients was favorable in all cases. The patients with protein C and S deficiency are continuing the oral anticoagulant treatment for all the rest of their life, with local important improvement and no extension to the deep veins or pulmonary embolism. The patient with pancreatic malignancy developed bilateral deep venous thrombosis, despite the anticoagulant treatment and died 6 months after being discharged with pulmonary and liver metastasis. Conclusions: the ascending great saphenous vein is not a benign condition, as it was considered. The echografic exam is necessary to reveal the extension of the thrombus through the sapheno-femoral jonction or perforating veins. The treatment that we recommend is surgery for all varicose veins extending saphenous thrombophlebitis and anticoagulants for non varicose saphenous thrombosis. Compression stockings are indicated in all cases, together with early mobilisation.

Keywords: varicose veins, hypercoagulable states, malignancy, deep venous thrombosis, pulmonary embolism.
Together with varicose veins disease, cancer and hypercoagulable states, several factors and mechanisms contribute to the etiopathogenesis of saphenous vein thrombosis (many of them were the same factors to the deep venous thrombosis). Slowing of the blood flow is the most important factor of the three Virchow trias, which is meet in prolonged immobilisation for several reasons (abdominal, orthopedic or brain surgery, multiples traumas, prolonged sepsis, severe heart failure, chronic pulmonary obstructive disease, neurologic diseases). Different coagulation disorders are predisposing factors for thrombosis in pregnancy and chronic consume of oral contraceptives. Damages to the venous wall (the third factor of the Virchow trias) meet in traumas can cause thrombosis. Other factors associated with an increased risk of thrombosis are autoimmune diseases, obesity, age over 70 years.

MATERIAL AND METHODS

Our study enrolled 12 patients, admitted in Vascular Surgery Clinic, County Hospital Timișoara, over a period of 3 years, between 2007-2009. The patients age was 35-74 years old. 7 patients were males and 5 were females.

The ascending through sapheno-femoral junction thrombus in healthy, non-varicose great saphenous vein and varicose great saphenous vein thrombosis patients were included. The clinical diagnosis included the presence of a red, warm, tender, palpable cord on the course of the great saphenous vein at the thigh level, ascending to the groin. The clinical suspicion was confirmed by the color Doppler equipment, using a color Doppler equipment (Siemens Acuson S2000, using a linear transducer of 18 MHz). The sapheno-femoral junction was observed in a transverse plane, the deep venous system (common femoral and superficial femoral veins) was examined in transverse and longitudinal plane.

In all patients with non-varicose saphenous vein was measured, with a polyclonal enzyme-linked immune-absorbent assay, the total protein S and C antigen. The antithrombin activity was measured using a chromogenic test. The measurements were made before starting the anticoagulant treatment or minimum 1 week after stopping it. The inclusion criterias for a hypercoagulable state were the plasmatic levels under normal limit (60% for protein S, 70% for protein C and 80% for antithrombin III).

For these patients, without any clinical or anamnestic risk factors, were effectuated also tomographic exams for thorax, abdomen and pelvis (Siemens, Somatom sensation, 64 slices).

Results: the study included 12 cases (7 males and 5 females, with ages between 35 and 74 years old, medium age being 48 years).

8 patients presented great saphenous varicose vein extensive thrombosis (recurrent thrombosis for 5 patients, but without any admission to the hospital), 4 patients presented extensive thrombosis on a non-varicose saphenous vein, as a first spontaneous episod of superficial venous thrombosis.

Considering other risk factors, we noted that 3 patients were obese (with a body mass index between 32-38) and 2 women were under chronic oral contraceptive drugs. No patient presented prior bed immobilisation, recent surgery or traumas, heart, lung or neurologic severe disease.

The echographic Duplex scanning was performed to all 12 patients. The sapheno-femoral jonction, the common and superficial femoral and the iliac veins were carefully examined in longitudinal and transverse plane. As a general notice we observed that the echographic level of the thrombotic process extension is always higher than the clinical examination prior reveals. The Duplex ultrasound exam should be done bilaterally, not only on the affected lower limb.

The venography is not usual necessary and is not generally recommended, because the Duplex imaging affords an accurate diagnosis. Also, the venography itself may contribute to the onset of the phlebitic process.

The patients with varicose saphenous vein extensive thrombosis were operated, after a period of 1-2 days of conservative treatment (with low molecular weight heparins-LMWH administrated twice a day, nonsteroidal anti-inflammatory drugs-NSAID, compression bandages). The surgical procedure consisted in femoral thrombectomy, high ligation and saphenous stripping).

After surgery LMWH were administrated to all patients for 2-5 days. The patients were discharged 1-3 days after surgery, with recommandation to were the elastic stockings for 1-3 months. At the regular 1-3-6-12 months follow-ups the evolution was favourable in all cases, with no clinical/echografic signs of deep venous thrombosis.

Among the 4 patients with non varicose great saphenous vein extensive thrombosis, were diagnosed hypercoagulable states at 3 of them (2 patients, on male and one female with protein S deficiency and one male with antithrombin III deficiency). The fourth patient was diagnosed with pancreatic malignancy (at the CT scan). To all these 4 patients was started the anticoagulant treatment with LMWH twice a day/
unfractioned heparin (UFH) continuing administration using automatic syringe for 3-5 days, followed by oral anticoagulants (vitamin K antagonists- VKA, acenocumarol), for all the rest of their life. The elastic compression with early mobilisation is very important, we do not recommend bed rest. The patients were discharged after a medium period of 3 days from the admission. At the regular follow-ups the evolution of the 3 patients with hypercoagulable states was favorable, but the patient with pancreatic cancer developed deep venous thrombosis (despite the VKA treatment) and died after 6 months, presenting casexia, pulmonary and liver metastasis.

DISCUSSIONS

On contrary to the treatment of deep venous thrombosis, there is no consensus concerning the appropriate management of extensive saphenous thrombosis. The optimal treatment should stop the extension of the thrombus in the saphenous vein, should reduce the local inflammatory processus and should prevent the extension of the thrombus into the deep venous system.

But considering the fact that saphenous vein extensive thrombosis is a heterogeneous group of disorders with different risk factors, the treatment decision should be individualised.

The primary therapeutic procedure in all saphenous vein thrombophlebitis is the elastic compression. We started with elastic bandages, followed generally by class II compression stockings. There have been no randomized studies for the effectiveness of compression in superficial thrombosis, but all experts are using it.

Together with elastic compression, early mobilization is the first recommendation. The patients must walk regularly and avoid prolonged seating or standing. The bed rest is not indicated because may favour the progression of the thrombus in the superficial and also in the deep venous system. (7)

The benefits of the topical treatment with different NSAID gel was establish in some studies (significant improvement of the local symptoms but no effect on the extension or recurrence of the thrombus.) (8,9,10) Also the topical treatment with heparin gel was studied, showing the important reliefe of the local processus, but no other important effect.

The conservative treatment include several option such as: NSAID, LMWH, UFH, VKA.

The NSAID treatment is usefull to reduce the pain and the surrounding tissue inflammation, but there is no evidence that may reduce the incidence of the thromboembolic events. Although different studies compared the NSAID treatment versus placebo demonstrating the reduction of the thrombus, but no effect on the thromboembolic events, it is not recommended as single therapy for extensive saphenous thrombosis. (11)

Many studies compared LMWH versus placebo, as a therapeutic option for these patients. The prophylactic (once a day) and therapeutic (twice a day) LMWH treatment was administrated for 1-2 weeks, with significantly lowering extension of both thrombotic processus and recurrence. While using LMWH, no major bleeding or heparin-induced thrombocytopenia were observed.(11, 12)

UFH intravenous treatment associated with elastic stockings was compared with elastic stockings alone, showing an important reduction of the superficial thrombus extension and a low recurrence risk. (13) Also, combined therapy of LMWH and elastic stockings compared with elastic compression alone, seemed to reduce the incidence of thromboembolic events and also the risk of recurrence. (13)

In venous thrombosis, as opposed with arterial thrombosis, there is no indication for using antiplatelets drugs. (14)

Concerning surgery, there were 2 studies (15, 16) that compared the results of the surgical treatment (high ligation) versus LMWH and the benefits provided by surgery combined with elastic stockings versus elastic stockings alone. (13) Both studies noted a similar reduction of the thromboembolic events, but the surgical treatment is associated with a lower risk of both thrombus extension and recurrence of the thrombotic process.

However, the studies that compared the results of the surgical treatment with conservative treatment, were reffering at the superficial venous thrombosis, as general therm. But, all the existing studies agreed that in the case of sapheno-femoral junction involvement, the surgical treatment remains the principal therapeutic option. The surgical treatment is indicated also in the cases of recurrent saphenous phlebitis in the same venous segment or if the inflammatory symptoms persist more then 2 weeks despite conservative treatment. (14) The exceptions are the hypercoagulable states, where the systemic anticoagulation is recommended instead of surgery even in the cases of sapheno-femoral junction involvement.
CONCLUSIONS

The clinical examination may underestimate the real level of the extension of saphenous thrombus and does not furnish enough information about the deep venous system, so the clinical examination must be completed with echographic Duplex ultrasound investigation.

The echographic Duplex exam represents the gold standard not only for confirming the clinical suspicion of great saphenous vein thrombosis, but also for evaluating its real extension, the possible incompetent perforating veins, the extension of the process into the deep venous system. The echographic doppler investigation must be done on both lower limbs.

Every patient with non varicose saphenous vein thrombosis or without any obvious risk factors or with recurrent thrombosis/ unexplained thrombus extension despite appropriate anticoagulant treatment must be evaluated for a malignancy and hypercoagulable states.

All patients with great sahenous vein thrombosis must were elastic stockings/ bandages.

REFERENCE: