



Clinical case report based study

Succesfull multidisciplinary treatment in a case of Buerger

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ABSTRACT

A 58-year-old male patient had diagnosed with Buerger's disease for 30 years. Patient referred us with non-healing scar on his right thumb. In another center, amputation was suggested due to his non-healing scar. We have assessed the patient multidisciplinary with cardiovascular and plastic reconstructive esthetic surgery for non-healing scar. During the multidisciplinary surgical treatment we applied radial artery endarterectomy, cross finger flap reconstruction, after operation medically we have treated with cilostazol. Patient's scar completely healed. Follow up one year patient have no problem and radial artery in angiography was opened.

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1. Introduction

Buerger's disease is an idiopathic, chronic, segmental, thrombotic, inflammatory and nonatherosclerotic occlusive illness.¹ Although pathogenesis is not clearly known, tobacco usage plays a significant role in the pathogenesis and progression of the diseases.² In the literature, it is mentioned that vasodilator, anti-platelet and cytoprotective effective medicals such as iloprost, prostacyclin analogs and acetylsalicylic are used during the medical treatment with varying achievement drives.³ Buerger's disease mostly affects the distal channel. Thus, in many cases, the result of surgical revascularization is not very pleasant. Another surgical treatment option is lumbar and thoracic sympathectomy. The aim of sympathectomy is to relieve the ischemic pain and prevents amputation by providing vasodilatation.⁴

Certain cilostazols and metabolites that suppress the distortion of cyclic adenosine monophosphate (cAMP) and cause the cAMP level to increase in certain tissues including the thrombocytes and blood vessels are the phosphodiesterase III (PDE III) inhibitors. This mechanism leads to platelet aggregation inhibition, vasodilatation and an anti-inflammatory effect.⁵ Cilostazol has been proven beneficial for patients with de novo lesions of peripheral arteries and cilostazol seems to avoid restenosis process in the majority of patients.⁶

Fingertip injuries involving subtotal or total loss of the digital pulp are common types of hand injuries and require reconstruction that is able to provide stable padding and sensory recovery. Despite

some disadvantages, cross finger pulp flap is a relatively simple procedure without significant complications or requiring special techniques. The article (Fig. 1) which dealt with the cross finger flap was published by Michael Gurdin and John W. Pangman in 1950.⁷ After approximately 3 weeks, the receptor starts to be nourished from the channel and the pedicle on the donor finger is cut.⁸

2. Case report

58-year-old male patient smoked two packs of cigarettes per day for 40 years. Buerger's disease was diagnosed 30 years ago. For the claudicatio intermittens 20 years ago right common femoral-superficial femoral artery by-pass and 17 years ago bilateral lumbar sympathectomy applied to the patient. Because of gangrene 15 years ago left below-knee and right metatarsal amputations applied to him. 4 years ago for the right upper extremity pain bilateral thoracic sympathectomy was applied to the patient. 2 years ago, a non-healing scar occurred on the right thumb as the result of a minimal traumatic injury. Despite the medical treatments (iloprost), amputation was suggested to the patient for the non-healing scar. The patient has been assessed multidisciplinary for scar on the right thumb (Fig. 2). During the physical examinations and graphics, osteomyelitis was observed and the bone starting from the nail fold and ranging to the volar part was exposed with a running scar. Capillary filling of the right thumb was above 4 seconds. Patient's radial and ulnar pulses could not be checked. In the angiography right subclavian and brachial arteries were to be found open, radial and ulnar arteries were occluded from distal 1/3 (Fig. 5). We performed endarterectomy to the radial artery and cross finger flap operation. Follow up operation 25.000 IU heparin infusion was

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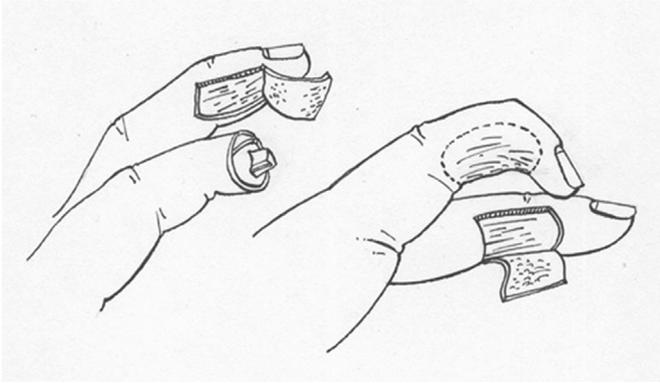


Fig. 1. The first trans-digital flap" and two cases used by M. Gurdin and J.W. Pangman.

started for 24 h, slowly decreased and stopped in 3 days. Osteitis was treated with suitable antibiotics. After the operation we gave cilostazol 100 mg two times a day throughout his life. Patient did not leave smoking but decreased smoking 3–4 number per day. Follow up the operation patient discharged with no problem. 3 weeks after operation patient cross finger flap separated and we saw granulation and epithelialization (Fig. 3a and b).

One month later, it was observed that the scar completely healed (Fig. 4), radial pulse was taken with Doppler ultrasound, hand temperature was okay and capillary filling was below 1 second. After one year, it was observed that the radial artery clearly open up to the distal in the angiography (Fig. 6).

3. Discussion

Buerger disease was firstly defined 130 years ago and the details were defined by Leo Buerger by means of histopathologically examining the amputation specimens.⁹ Amputation risk of the long-term results of Buerger disease are 25% per 5 years, 38% per 10 years and 46% per 20 years.¹⁰ Tissue loss is tried to be prevented by applying medical treatment. Endovascular recovery is not a commonly applied method and by-pass operations are made only if they are beneficial without touching the diseased artery. In order to diminish the ischemic pain and prevent the possible extremity amputations lumbar and thoracic sympathectomy are used. Our patient had been femoral by-pass, lumbar-thoracic sympathectomy and lower extremity amputations for 30 years.



Fig. 2. Preoperative photo of finger.

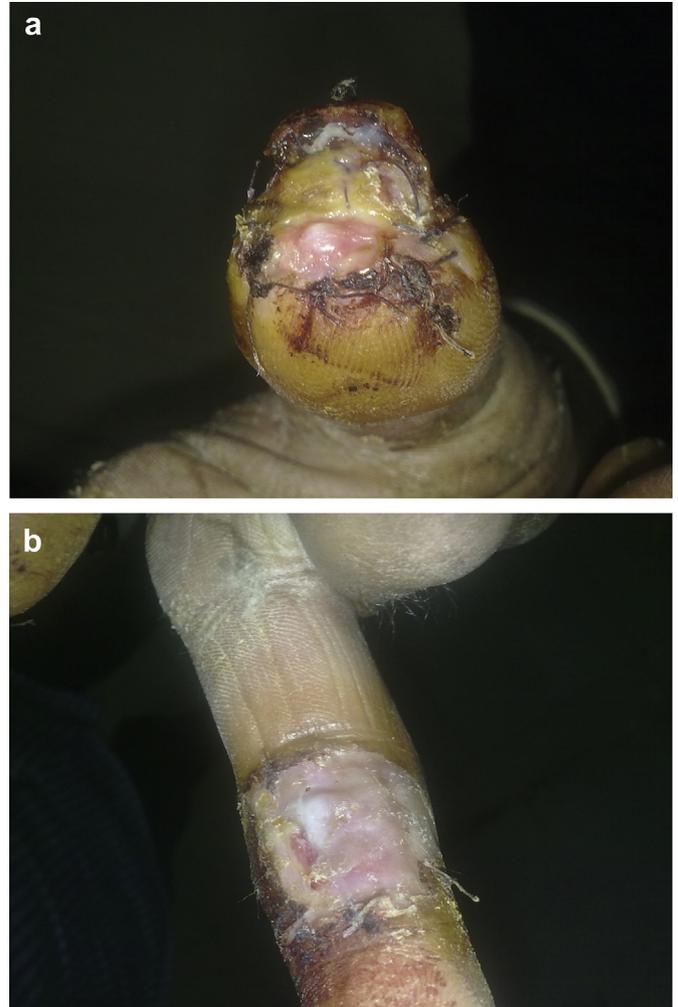


Fig. 3. a). Preoperative angiography. b): Postoperative angiography.

We thought and made endarterectomy as the best method for reperfusion and added cross finger flap operation. During the maintenance of the treatment, we gave cilostazol 100 mg twice per day in order to prevent thrombus formation, vasospasm and



Fig. 4. Postoperative photo of finger.



Fig. 5. Preoperatif angiography.

inflammation. After the operation, it was observed that the scar was healed, circulation was okay in terms of physical examination and angiography, and the patient had no complaints of ischemic pain.

In Buerger diseases, healing of the perfusion of the local area is a prerequisite for the reconstruction of such scars. Restenosis still represents the main limiting factor of the long-term success of revascularization procedures for Buerger's disease. Prevention and strict follow up are well established techniques in order to reduce restenosis rate and clinical impact of this condition. Cilostazol has multiple actions, including vasodilation and improvement of the vascular endothelium and microcirculation,¹¹ in addition to

antiplatelet activity. The effect of cilostazol on restenosis may result from the inhibition of neointimal hyperplasia. Cilostazol reduces restenosis due to suppression of migration and proliferation of vascular smooth muscle cells induced by platelet-derived growth factor.^{12,13} There may also be a vasodilatation effect induced by the continuous relaxation of vascular smooth muscle.

Some of the indications of cross finger flap procedure are reliable and effective in providing sensibility, preserving the length of the finger, and covering exposed tendons and bones. Multiple injuries to the hand, especially if they include the donor finger, may increase the risk of stiffness; however, having the shoulder and hand entirely free, preserving length in multiple amputations, and covering repaired structures may offset that risk. Vasospastic conditions such as Raynaud's disease, diabetes mellitus, and Buerger's disease may represent absolute contraindications. But we think that, by providing a good tissue perfusion remove this contraindication of Buerger's disease.

As the result of our experience, it was seen that endarterectomy and cilostazol combinations can be successfully applied to the high-degree Buerger patients who are subject to amputation due to their chronic scars and who are inappropriate for by-pass operations due to having distal short segment occlusion. We are of the opinion that the long-term results would be better than expected if the medical treatments are optimally regulated.

4. Conclusion

We believe that complex Buerger's disease patients with non-healing scar assessed with multidisciplinary. Successful reconstruction with Buerger's disease should be provided with a good blood flow. The prevention of stenosis and maintenance of good blood flow after endarterectomy or other vascular surgical procedures cilostazol is an appropriate drug.

Conflicts of interest

All authors have none to declare.

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Fig. 6. Postoperatif angiography.