

Case Report

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Distal Peri-Arterial Sympathectomy: The Over-Ratted Option in Management of Peripheral Cyanotic Disorders

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ABSTRACT

Background: Digital ischemia in upper and lower extremity, with ulceration and gangrene can be a manifestation of Raynaud's phenomenon (RP). The early manifestation of Raynaud's may be informed of ischemic pain and numbness, cold intolerance and in severe cases manifested as ulceration and gangrene.

Aim of the study: to evaluate the results of digital sympathectomy in cases of severe ischemia of digits manifesting as digital ulceration and ischemic pain refractory to medical treatment.

Patient and method: Distal sympathectomy of the ulnar and radial arteritis of the affected limb.

Results: The patient developed dramatic improvement of symptoms, we were surprised for patient satisfaction and appreciation. We touched firmly the affected finger and the patient was smiling. On follow up, no return of annoying symptoms.

Conclusion: Distal sympathectomy is a safe and perfect solution in management of peripheral cyanotic disorders, Raynaud's, causalgia, digital ischemia.

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Introduction

Digital ischemia in upper and lower extremity, with ulceration and gangrene can be a manifestation of Raynaud's phenomenon (RP). The early manifestation may be informed of ischemic pain and numbness, cold intolerance and in severe cases manifested as ulceration and gangrene [1]. The name related Maurice Raynaud (1834- 1881) who defined the first case in 1862 as episodic, symmetric, vasospasm characterized by pallor, cyanosis and a sense of fullness or tautness, which usually painful [3]. RP is classified as primary (Raynaud's disease) and secondary (Raynaud's syndrome) [2].

Patients are referred to the vascular surgeons complaining ulcers and necrosis of finger and toes. The medical treatment includes pharmacological agents (calcium channel blockers and prostaglandins); behavioral changes including smoking cessation, avoidance of cold exposure and use of gloves. Although many pharmacological, behavioral and surgical treatments [3]. It is rare to develop digital ulcers in primary RP but in secondary RP repeated episodes of spasms can cause fingertip ulcers [2,4]. In severe cases of RP medical treatment is ineffective and this may lead to partial or complete loss of fingers or hands [5].

Digital sympathectomy may be the only salvage procedure to prevent amputation in cases refractory to medical treatment while cervical sympathectomy has been used with either poor long term results, as preganglionic sectioning does not remove all the sympathetic stimulations to the hand or unpleasant side effects such as post-operative compensatory truncal hyperhidrosis [6,7]. In cases resistant to medical treatment, surgical options in consists open cervical sympathectomy, endoscopic thoracic sympathectomy and predigital sympathectomy has been used with varying results [8].

Case report

Female patient aged 64 years old, attended to the vascular surgery outpatient clinic, Mansoura health insurance hospital, Mansoura, Egypt, at 3 December 2019. Complaining peripheral cyanosis burning pain at the little finger of the right hand 3 months ago.

The patient known to be diabetic partially controlled by oral hypoglycemic, not hypertensive, no other medical history, she sought medical advice and received medical treatment in the form of peripheral vasodilators, analgesics, neurotonics and even steroids with no considerable improvement, on analysis of her complain the pain is burning, agonizing with nocturnal attacks, on examination the digit is pale cyanosed, painful in light touch. The patient was admitted for further workup.

Investigations were done consists of ESR, CRP, coagulation profile, Immunological assay, ECG, RBG with no significant results. Finally, we decided to do distal periarterial sympathectomy.

Operative technique

With local anesthesia combined with light sedation, we explore the radial and ulnar arteries of the affected limb, light adventitial dissection for about 3 cm in each artery, we were planning to do also digital dissection of the affected finger seeking for better outcome (based on review of literature) but we did not. We gently close the skin by continuous Polypropylene 3/0 sutures for better cosmeses, and continue vasodilators, supportive treatment. One day postoperative: the patient developed dramatic improvement of symptoms, we were surprised for patient satisfaction and appreciation. We touched firmly the affected finger and the patient was smiling. On follow up, no return of annoying symptoms.



Figure 1: Cyanosed little Finger



Figure 2: Adeventitial dissection of unlar and radial. A



Figure 3: Closure of the skin



Figure 4: Disappearance of cyanosis and pain

Discussion

The history of digital periarterial sympathectomy began in 1889, when Jabulay [9]. Removed the arterial adventitia for the treatment of trophic limb ulcers. In 1913, Leriche [10]. Who named the surgical intervention performed by Jabulay "periarterial sympathectomy," proposed it as a treatment for a variety of circulatory disorders of the extremities. Interrupting the pathways that innervated the limb blood vessels and excising the post ganglionic fibers that surrounded the femoral and humeral arteries produced an effect that was, besides unpredictable, transitory.

In 1990, Pick [11]. Demonstrated that sympathetic innervation of the fingers happened in a segmental and phased manner because the fibers of the cervical-thoracic sympathetic branch were bridged by sympathetic fibers from the sinu-vertebral nerve, the brachial plexus, and the Kunz nerve. In 1980, Flatt [12]. Was the first to publish a series of eight patients (four men and four women) who, because of presenting a chronic digital ischemia from freezing, smashing, scleroderma, and Raynaud disease, had been treated with digital periarterial sympathectomy.

Conclusion

Distal sympathectomy is a safe and perfect solution in management of peripheral cyanotic disorders, Raynaud's, causalgia, digital ischemia, frostbite, posttraumatic occupational disorders, improving symptoms and ulcer healing. The outcome is variable related to patient comorbidity. In patients with a syndrome resistant to medical treatment and with threats to the viability of one or more fingers, digital periarterial sympathectomy simple, non-aggressive technique with excellent medium-term results and may be the first therapeutic option, especially in cases of arteritis associated with severe spasm phenomena. In addition to avoiding a mutilating surgery, it permits patients to return to their normal activity.

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