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Case report

Hypothenar hammer syndrome: A case of a late complication after surgery

Syndrome du marteau hypothénarien : à propos d'une complication tardive après traitement chirurgical

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ABSTRACT

Hypothenar hammer syndrome is a rare condition secondary to ulnar artery damage in Guyon's canal, affecting mainly those exposed to repeated palm trauma. Surgery is discussed in cases of severe symptoms that are resistant to conservative treatment, and/or when anatomical lesions with high embolism potential are discovered during imaging exams. Resection of the pathological zone with revascularization by autologous vein graft is the best option. We report the case of a 60-year-old patient who had a recurrence of symptoms more than 10 years after this type of surgical treatment was performed. There was an aneurysmal thrombosed vein graft with extensive thrombus from the ulnar artery upstream to Guyon's canal to the superficial palmar arch. Finger revascularization was provided by the superficial branch of the radial artery and the presence of a collateral vascular supply. This late complication was responsible for compression of the ulnar nerve in Guyon's canal. A new surgery was performed to resect the thrombosed zone, including the vein graft, without vascular reconstruction due to the good vascularization of all the fingers, and to release the ulnar nerve at the wrist. The postoperative course was uneventful with the disappearance of pain and sensory-motor deficits. Good finger vascularization was confirmed by imaging at 3 months postoperative; nerve conduction was normal at 6 months on electroneuromyography.

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RÉSUMÉ

Le syndrome du marteau hypothénarien est une maladie rare secondaire à des lésions de l'artère ulnaire au canal de Guyon, touchant principalement les personnes exposées aux traumatismes répétés de la paume de main. La chirurgie est discutée en cas de symptômes sévères, résistant au traitement médical, et/ou lorsque des lésions anatomiques à potentiel emboligène sont mises en évidence au bilan d'imagerie. La résection de la zone pathologique avec revascularisation par pontage veineux représente la meilleure option. Nous rapportons le cas d'un patient de 60 ans qui présentait une récurrence des symptômes plus de 10 ans après la réalisation d'un tel traitement chirurgical. L'imagerie montrait un pontage anévrysmal thrombosé avec un thrombus complet étendu depuis l'artère ulnaire en amont du canal de Guyon jusqu'à l'arcade palmaire superficielle. La revascularisation digitale était assurée par le rameau superficiel de l'artère radiale et la présence d'un réseau collatéral de suppléance. Cette complication tardive était responsable d'une compression du nerf ulnaire au canal de Guyon. Une nouvelle chirurgie a été réalisée consistant en la résection de la zone thrombosée, incluant le pontage, sans reconstruction vasculaire, compte tenu de la bonne vascularisation de l'ensemble des doigts, ainsi

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qu'une libération du nerf ulnaire au poignet. Les suites opératoires ont été simples avec la disparition de la douleur et du déficit sensitivomoteur. La bonne vascularisation digitale a été confirmée par une imagerie à 3 mois postopératoires, la récupération nerveuse par un électroneuromyogramme à 6 mois avec normalisation des conductions nerveuses.

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1. Introduction

Hypothenar hammer syndrome (HHS) is a rare condition that was first described in 1970 by Conn et al. [1]. It corresponds to all the clinical signs secondary to traumatic lesion of the ulnar artery where it exits Guyon's canal. This lesion occurs following repeated microtrauma in the hypothenar eminence area. The symptoms vary depending on the extent of occlusion and whether or not collateral circulation has developed [2].

2. Case report

A 49-year-old, right-handed male who worked as a mason with no medical history or smoking habit was operated in 2005 for HHS in his right hand. Clinically, he had a pulsatile and painful mass on the hypothenar eminence with Raynaud's syndrome characterized by cold-induced pain and skin paleness at the fingertips of the fourth and fifth fingers. There was no acroparesthesia or sensory deficit. The patient said that he regularly used the ulnar side of his hand as a hammer. Doppler ultrasonography and CT angiogram revealed a tortuous "corkscrew" ulnar artery at Guyon's canal with partial arterial thrombosis and a small persistent circulating channel. Given the lack of response to medical treatment [3] and the high embolism potential of the lesions, surgical resection of the pathological portion of the artery was performed followed by vein bypass (graft harvested from the anterior side of the right forearm), supplemented with end-to-side anastomosis of the proper palmar digital artery of the fifth finger (Fig. 1). The postoperative course was uneventful, and his initial symptoms disappeared. Doppler ultrasonography done 2 months postoperatively confirmed the

permeability of the bypass and good finger vascularization. The patient did not want to attend further follow-up visits.

In 2016, this same patient, who was now 60 years old, returned to the clinic because pain had reappeared at the hypothenar recess along with acroparesthesia of the last two fingers. He mentioned having continued in his occupation and repeating the same traumatic "hammering" movements with his hand. Clinical examination found a substantial pulsatile, sensitive mass extending over the entire hypothenar eminence. While Raynaud's syndrome was not present, his grip strength was reduced. The Weber two-point static discrimination (S2PD) test [4] found hypoesthesia in the fingertip of the last two fingers with a 12 mm gap. There was no atrophy of the interossei muscles. The radial pulse was present, but the ulnar pulse was not. Allen's test was abnormal, with color returning only when the radial artery was released. The imaging assessment (Doppler US and CT angiogram) showed an aneurysmal thrombosed graft with complete thrombosis extending from the ulnar artery upstream of Guyon's canal to the superficial palmar arch. Finger vascularization was provided by the superficial branch of the radial artery and the presence of collateral circulation. The digital arteries were permeable to the distal point. Electroneuromyography (ENMG) confirmed ulnar nerve compression at the wrist with conduction block characterized by reduced conduction velocity and increased distal motor latency.

A new surgical treatment was performed consisting of resection of the thrombotic area, including the graft. Vascular reconstruction was not performed given the good vascularization of all the fingers by the radial artery and collateral network. This information was confirmed intraoperatively with a clamping test. The ulnar nerve

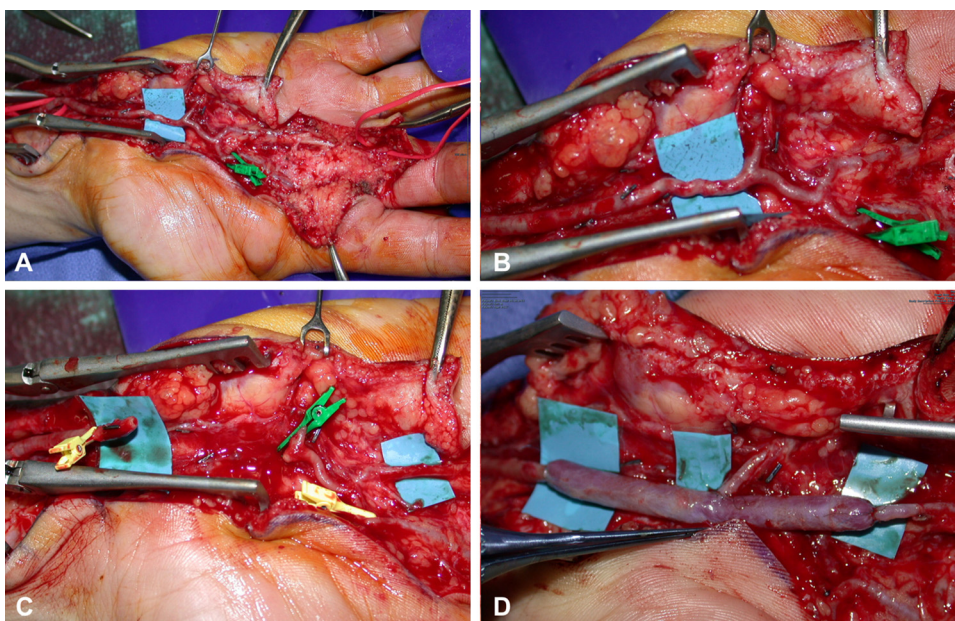


Fig. 1. Intraoperative view during the first surgery in 2005. Damaged portion of the ulnar artery in Guyon's canal (A). Tortuous "corkscrew" artery (B). Resection of the pathological area after arterial clamping (C). Revascularization by vein bypass (graft taken from superficial vein on anterior side of forearm) (D).

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