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(CASE REPORT)

Chase's amputation of index finger due to ischemia caused by Buerger's disease

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Abstract

This case report describes a 52-year-old chronic smoker with Buerger's disease (thromboangiitis obliterans) who presented with gangrene of the index finger. Buerger's disease, a nonatherosclerotic inflammatory condition affecting small- and medium-sized arteries, is strongly associated with tobacco use. The patient, who had a history of thumb amputation due to the same condition, underwent a Chase amputation of the index finger. This procedure involves amputation at the base of the second metacarpal, allowing for the preservation of hand function, particularly the pollicidigital grip, while maintaining aesthetic appearance.

The discussion highlights the functional importance of the index finger and the role of amputation in cases where significant tissue damage occurs. Buerger's disease, primarily affecting young male smokers, lacks definitive treatment other than absolute smoking cessation. Surgical interventions like bypass are often ineffective due to the disease's progression and distal arterial involvement.

In conclusion, Chase amputation proved to be a functionally effective intervention for this patient, restoring hand grip and addressing the complications of Buerger's disease. The case underscores the critical need for smoking cessation to prevent disease progression and the importance of tailored surgical approaches in managing severe digital ischemia.

Keywords: Buerger's disease; Smoker; Chase amputation; Hand grip; Smoking cessation

1. Introduction

Chase's intervention extends to the treatment objectives by indexing the middle finger which will ensure the pollicidigital grip; maintain strength and respect the aesthetic appearance of the hand. The Chase amputation is an amputation at the base of the second metacarpal, which allows indexing of the middle finger. It has the advantage of ensuring maximum opening of the middle thumb commissure.[1]

Buerger's disease (thromboangiitis obliterans) is a nonatherosclerotic segmental inflammatory disease of small- and medium-sized arteries of the distal extremities of male tobacco users. Patients may present with early findings of pain or coldness in the fingers. Later findings include rest pain, skin ulcers, gangrene, and eventual amputation.[2]

We report the case of 42 years old patient with history of smoking who presented at the medical consultation for a grangrena of the index finger which turned out to be part of Buerger's disease who underwent a chase amputation with a good evolution.

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2. Case report

We report the observation of a 52-year-old patient right-handed laterality with chronic smoker, with antecedent of amputation of the thumb of the right hand for the same symptomatology, who presented to the consultation with a blackened finger revealing gangrene (Fig.1) in the context of Buerger's disease. The diagnosis was retained in view of the existence of a smoking history, (2) onset before the age of 50 years, (3) absence of atherosclerotic risk.

Figure 1 index finger gangrena of the right hand

The decision was made to perform a chase amputation, involving the second ray of the hand.

- Cutaneous time: the incision was made dorsal
- Tendon and bone time: by dorsal approach, the extensor apparatus is sectioned. The extensor indicis tendon is cut above the metacarpophalangeal joint, then transferred to the extensor digitorum tendon intended for the middle finger. The flexor tendons are sectioned proximally, wrist in flexion.
- Vasculonervous time: the collateral nerves, dissected proximally, are sectioned high in the palm of the hand then hemostasis is ensured.

the postoperative course was straightforward, and the patient was seen again at regular intervals, with good recovery of hand function and good grip at 3 months. (Fig.2)

Figure 2 Clinical aspect at 3 months with a good recovery of the hand grip

3. Discussion

Amputation is a profound human experience; it represents an act of creation rather than abandonment. [3] It is important to consider amputation when four of the six basic digital parts (bone, joint, skin, tendon, nerve, and vessel)

are injured because long-term stiffness and pain in a salvaged digit can severely hamper the rehabilitation of the remaining hand.[4]

The index finger, second to the thumb in terms of functionality within the hand, plays a crucial role in the digito-palmar grip. Consequently, the loss of function in the index finger significantly impairs overall hand function.[3]

Transmetacarpal amputation of the index finger is widely accepted as a good operation to improve both the function and the appearance in the hand of the appropriate patient.[5]

Buerger's disease (thromboangiitis obliterans) is a nonatherosclerotic segmental inflammatory disease of small- and medium-sized arteries of the distal extremities of male tobacco users. It was first described by Felix Von Winiwarter in 1879. In 1908, Buerger's disease typically affects young male smokers; however, The Shionoya clinical diagnostic criteria are as follows: (1) smoking history, (2) onset before the age of 50 years, (3) infrapopliteal arterial occlusions, (4) either upper limb involvement or phlebitis migrans, and (5) absence of atherosclerotic risk actors other than smoking.[2] In spite of the research by our predecessors, the etiology of Burger's disease still remains to be elucidated, and no therapeutic guidelines exist. However, smoking is clearly associated with its exacerbation and remission. Absolute smoking cessation is the one and only definitive therapy for Buerger's disease. Any therapeutic approaches without smoking cessation are unsuccessful for treating arterial insufficiency [6]

Surgical bypass is generally not successful owing to diseased distal targets and progression of disease with continued tobacco abuse.[2]

4. Conclusion

Buerguer desase is a nonatherosclerotic segmental inflammatory disease which progression is a priori linked to continued smoking in the absence of effective treatment to date, Chase amputation has shown its functional contribution in the restoration of hand grip.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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