

Indexalization of the Medius using the Chase technique in squamous cell carcinoma of the index finger: report of a case and review of the literature

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Abstract

Introduction: Squamous cell carcinoma is a rare and aggressive lesion. Bone localization is exceptional both in current practice and in the literature. The Chase technique, a surgical technique involving amputation of the index finger with indexing of the middle finger, is used both in oncological surgery and in traumatic surgery.

Material and method: We report the observation of a sixty-year-old patient, with no medical or surgical history, who presented for consultation for swelling of the index finger that had been developing for almost four months associated with pain.

Technique: The intervention performed was the Chase technique, (amputation of the 2nd ray) which took place successively in a skin phase, a tendon phase and a bone phase.

Result: Early rehabilitation was required with good aesthetic and functional results for the hand.

Conclusion: Indexing the middle finger has the advantage of ensuring maximum opening of the first corner, minimizing functional discomfort and maintaining good hand strength.

Keywords: Indexalization; Chase technique; Medius; Squamous cell; Carcinoma; Index finger

1. Introduction

Squamous cell carcinoma or squamous cell carcinoma is a rare entity; its location in the upper limb is exceptional. Any radical decision must be carefully planned and well thought out in order to limit its consequences as much as possible at the functional and social level through its aesthetic side. The index finger remains the most used finger after the thumb in the function of the hand, particularly in digital-palmar gripping. We report a case of squamous cell carcinoma of the index finger treated by disarticulation of the second ray using the Chase technique.

2. Material and method

This is Mr. MA. Aged 61, right-handed, with no particular history, admitted for consultation for swelling of the index finger that had been present for almost four months before his admission. Faced with the occurrence of localized pain at the index finger, the patient underwent several consultations and was then referred to us for continued treatment.

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Clinical examination noted a glistening circumferential, painful swelling of the first phalanx of the left index finger rapidly increasing in volume (figure 1).



Figure 1 Initial clinical appearance

An x-ray of the left hand with frontal views and $\frac{3}{4}$ oblique profile revealed a lytic image at the expense of the body and the head of the first phalanx of the index finger, with blurred boundaries, with shortness of the cortex, infiltration of the soft parts in gaze, thinning of the cortices and image circumscribed at the head of the second metacarpal quite well (figure 2).



Figure 2 Front and profile x-ray

This lesion is classified Lodwick III. A biopsy was performed, the pathological study of which concluded that it was a poorly differentiated, non-keratinizing and infiltrating squamous cell carcinoma of the index finger. The patient was presented to a multidisciplinary consultation meeting, the decision to amputate the index finger was taken. The patient was admitted to the department and indexing of the middle finger using the Chase technique was performed.

2.1. Chase technique:

The intervention is carried out in three stages:

- *Cutaneous time*: the incision is dorsal, it circumscribes the base of the index finger like a “racket”;
- *Tendon and bone phase*: dorsally, the extensor apparatus is cut. The extensor indicis tendon is cut upstream of the metacarpophalangeal joint, then transferred to the extensor digitorum tendon intended for the middle finger by a latero-lateral suture. The adductor pollicis is disinserted from the second metacarpal and the bony section of the base is oblique downwards and outwards, preserving the carpometacarpal articulation. The flexor tendons are divided proximally, with the wrist in flexion. The terminal tendon of the first dorsal interosseous is sutured to the tendon of the second interosseous (figure 3).



Figure 3 Skin incision with tendon and bone phase

Vasculo-nervous phase: the collateral nerves, dissected proximally, are cut high in the palm. For some, the collateral nerves can, after sectioning, be buried in the first dorsal interosseous bone (figure 4).



Figure 4 Amputation of the index finger and skin closure

3. Results

The patient benefited from early rehabilitation. The check after 6 months shows a good aesthetic and functional result for the hand with good opening of the thumb-middle finger corner, indexing of the middle finger with patient satisfaction with the aesthetic and functional aspect of his hand (figure 5).



Figure 5 Clinical appearance with good functional and aesthetic result

4. Discussion

Hand amputation is mainly caused by trauma. It is one of the oldest surgical procedures, it is reported that Hippocrates was the first to have practiced it in 400 BC, his techniques were perfected and developed during the wars, notably the first and the second. Mutilation has serious consequences, both functional and psychological. The most suitable technique remains basi-metacarpal amputation according to Chase, it gives a very satisfactory aesthetic and functional result. A non-functional index finger seriously impairs grip and therefore hand function [1]. Surgery is the standard

treatment and often the only necessary treatment for skin cancers provided that the procedure is carcinological. However, in finger tumors it is also necessary to take into consideration the function of the hand, the principle is not to maintain a level which is not functionally better than that which would have been obtained by shortening the bone; to give correct hand function [6]. The index finger is the most used finger after the thumb. It is an essential element of the pollicidigital grip and a stabilizing element in the overall digitopalmar grip. Any amputation, however small, impairs grip [8]. The Chase amputation: amputation at the base of the second metacarpal allowing indexing of the middle finger has the advantage of ensuring maximum opening of the thumb-middle finger corner [8]. This indexing of the middle finger leads to better integration and utility of the finger [4]. The operating protocol used in our patient as described in the literature [5]. The incision is dorsal in order to avoid a potentially embarrassing palmar scar, it circumscribes the base of the index finger like a “racket” [1]. Thanks to this technique, the dexterity of the hand is greatly improved and its appearance is more aesthetic [9]. Tendon transfer allows for effective radial inclination in the thumb-middle sockets as well as improved strength [1]. The disadvantage reported in the literature is the reduction in the overall strength of the hand, especially in pronation by the reduction in the width of the hand [10].

5. Conclusion

Chase indexing has the advantage of ensuring maximum opening of the first corner, minimizing functional discomfort, maintaining good strength and respecting the aesthetic appearance of the hand. Any amputation decision will need to be carefully planned.

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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