
| REVIEW ARTICLE

Management of the “Ring Finger” or Alliance Finger: Three Cases and a Literature Review

FALL N.Y¹, BADAOUI Z², ACHBOUK A³, RIBAG Y⁴, and EL KHATIB K⁵

¹²³⁴⁵ *Service de chirurgie plastique, réparatrice et des brûlés, Hopital militaire d’instruction Mohammed V (HMIMV) de Rabat*

Corresponding Author: Mst Rafia Jannat, **E-mail:** rafiajannat14112000@gmail.com

| ABSTRACT

Ring finger is a serious accident characterized by a vascular and neurovascular avulsion and skin detachment. This serious accident follows sudden traction exerted on a finger by a ring, well known to hand surgeons but much less known to other health professionals and even less to the general public. The authors report the observations of three patients, two of whom benefited from McGregor inguinal flap coverage after surgical debridement and amputation for the third with satisfactory functional and aesthetic results, and also address, after reviewing the literature, the different aspects of this pathology.

| KEYWORDS

Alliance finger, Hand trauma, Inguinal flap, Amputation

| ARTICLE INFORMATION

ACCEPTED: 21 June 2026

PUBLISHED: 03 July 2026

DOI: 10.32996/jmhs.2026.7.9.1

INTRODUCTION

Ring finger is a serious injury characterized by a vascular and neurovascular avulsion and skin detachment, exposing the osteoarticular chains of a finger. This injury occurs following sudden traction exerted on a finger by a ring.

It is well known to hand surgeons but much less known to other health professionals and even less to the general public.

It is among the most serious and difficult to treat hand injuries.

This can result in devascularization and amputation of the finger which is difficult to reimplant and the prognosis is generally poor.

This accident is mainly observed in young adult men, mainly affecting the 4th finger.

The aim of the study was to investigate different therapeutic options.

CLINICAL OBSERVATIONS

Observation 1

A 23-year-old patient, a military cavalryman, with no previous pathological history, was admitted to the emergency room the same day following trauma to the right fourth finger due to a ring finger mechanism.

The admission examination found a loss of skin substance of the finger from the MCP of the palmar surface, revealing an intact osteotendinous apparatus. (Fig. 1)

A debridement was performed with amputation of the 3rd phalanx, followed by coverage with a tubular inguinal skin flap which was removed after the third week.

Aesthetically, the appearance is considered satisfactory. The functional result is also considered satisfactory in the short term and has improved with rehabilitation, allowing the patient to resume normal activities after 2 months.

Observation 2

A 25-year-old patient, a musician, with no previous pathological history, was admitted to the emergency room the same day following trauma to the left fourth finger due to a ring finger mechanism.

The admission examination found degloving of the finger from the MCP, revealing an intact osteotendinous apparatus. (Fig.2)

Copyright: © 2026 the Author(s). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) 4.0 license (<https://creativecommons.org/licenses/by/4.0/>). Published by Al-Kindi Centre for Research and Development, London, United Kingdom.

A debridement was performed with amputation of the 3rd phalanx, followed by coverage with a tubular inguinal skin flap which was removed after the third week (Fig. 3)
Aesthetically, the appearance is considered satisfactory. The functional result is also considered satisfactory in the short term and has improved with rehabilitation, allowing the patient to resume normal activities after 2 months.

Observation 3

A 30-year-old patient, a military technician with no particular medical history, was admitted as an emergency following trauma to the left ring finger caused by a ring finger mechanism. The entire cutaneous sheath and tendons had been avulsed by a ring, starting from the proximal third of the first phalanx.
The lesion assessment revealed a section of the two collateral pedicles with integrity of the skeleton (Fig.4).
An amputation was performed.



Fig 1. Trauma of the right 4th finger (Observation 1)



Fig 2. Trauma of the 4th left finger (Observation 2)



Fig 3. Coverage by Mc Gregor inguinal flap



Fig 4. Total degloving of the 4th left finger by "ring finger" (Observation 3)

DISCUSSION

Avulsion of the digital cutaneous sheath is a very severe injury. In 1981, Urbaniak et al. were the first to propose a classification for digital avulsions by the "ring finger" mechanism [1]. This three-category classification only takes into account the vascularization of the finger. The classification of Kay et al. is more detailed and takes into account important bone lesions in the functional prognosis [2]. In 2003, Adani et al. modified this classification and created a subcategory IVi to introduce the notion of complete avulsion of the digital cutaneous sheath [3].

Despite numerous publications on the subject, there is still controversy regarding surgical treatment, and the management of these lesions is far from consensual. It must be discussed on a case-by-case basis with the patient.

After careful debridement and lesion assessment, treatment initially consists of attempting to preserve the finger. Some authors advocate replantation. Indeed, when there are anastomizable vessels in the avulsed fragment, revascularization by microsurgical anastomoses seems to be the surgical option of choice. However, the vascular survival of the replanted fragment depends mainly on the injury mechanism and it is known that the ring tear mechanism is recognized as having a poor prognosis. Success rates after replantation are very variable in the literature: 71.4% for Urbaniak et al., 38.8% for Schoofs et al., 85.7% for Adani et al. [1,4,5].

Repair of other associated lesions is undertaken subsequently, and may involve the osteo-articular system, the tendon apparatus and the nerves.

In the case of extensive vascular, osteotendinous and nervous lesions with impossibility of repair, amputation remains the only option as is the case in observation 3. However, the psychological consequences of this procedure are not negligible.

In the case of degloving with impossibility or failure of revascularization, skin coverage can be achieved depending on the loss of substance, its extent, and its depth, either by skin grafts [6], which require the preservation of vascularized subcutaneous tissue, a situation unlikely beyond the PIP, or by heterodigital flap [6,7,8], or by remote tissue supply, in particular a Colson brachial flap or an inguinal flap as is the case in our two observations. The Mc Gregor inguinal flap is a reliable solution. The technique is simple, it can be performed in an emergency and the scar at the inguinal level can be easily hidden. The aesthetic sequelae of this autoplasty are minimal [9, 10, 11]. Despite these disadvantages: the inclined and uncomfortable position of the hand during the feeding phase, the need for several operating times (application, weaning and degreasing), its thickness represents the main disadvantage for finger reconstruction [12]. It should be noted that a regularization procedure was performed by amputation of the distal phalanx before coverage. According to Peimer et al., performing a resection of the injured radius from the outset makes it possible to reduce the time off work without increasing loss of strength.[13]

Rehabilitation must be started quickly to optimize the functional result, but often after-effects are inevitable: stiffness, vasomotor disorders, disturbed sensitivity.

The best treatment for ring finger is preventative. Avulsion prevention has long been advocated [14,15]. Several devices designed to pre-weaken rings and other wedding bands to make them less traumatic have been described [15-16]. Work is being done by health professionals and the Consumer Safety Commission [17] to educate ring wearers and manufacturers. However, weak points in the ring do not eliminate the risk of injury when the finger is caught in an obstacle. Matheron et al. [18] reported injuries induced by pre-weakened rings that are similar to those caused by iron fences. Prevention should not be limited to education, but also supervision and compliance with manufacturing standards.

CONCLUSION

The wedding finger is a little-known accident that threatens everyone, and whose consequences, in the absence of proper treatment, are serious both functionally and aesthetically. It threatens the prognosis of saving the finger, so treatment must be rapid and carried out by an experienced surgical team.

The McGregor inguinal flap is a reliable and simple solution in the therapeutic arsenal.

Preventive measures, however, remain the best way to reduce the number of amputations due to this particular trauma.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

- [1] Urbaniak JR, Evans JP, Bright DS. Microvascular management of ring avulsion injuries. *J Hand Surg* 1981;6(1):25—30.
- [2] Kay S, Werntz J, Wolff TW. Ring avulsion injuries: classification and prognosis. *J Hand Surg* 1989;14(2 Pt 1):204—13.
- [3] Adani R, Marcoccio I, Castagnetti C, Tarallo L. Long-term results of replantation for complete ring avulsion amputations. *Ann Plast Surg* 2003;51(6):564—8 [discussion 569].
- [4] Schoofs M, Leps P, Millot F, Migaud H. [Review of 30 digital ring avulsions]. *Ann Chir Main Memb Super Organe* 1990;9(4):245—51.
- [5] Adani R, Castagnetti C, Busa R, Caroli A. Ring avulsion injuries: microsurgical management. *J Reconstruction Microsurg* 1996;12(3):189—94.
- [6] A. Sica, T. Dubert. Reconstruction of a particular form of digital avulsion by ring using total skin graft and "cross finger" flap. *Hand Surgery* 24 (2005) 246–250
- [7] Oberlin C, Bastian D, Gréant P. Flap flap. In: *Pediced flaps covering limbs (practical guide)*. French Scientific Expansion; 1994. p. 19–22.
- [8] Teoh L, Tay S, Yong F, Tan S, Khoo D. Heterodigital arterialized flaps for large finger wounds: results and indications. *Plast Reconstruction Surg* 2003;111(6):1905–13.
- [9] Wray RC, Wise DM, Young VL, Weeks PM. The groin flap in severe hand injuries. *Ann Plast Surg*. 1982 Dec;9(6):459-62. PubMed | Google Scholar
- [10] Dap F, Duteille F, Dautel G. First commissure trauma: surgical indications. *Ann Chir Plast Esthet*. 2002;47(1):17-29. Google Scholar
- [11] Van Wingerden JJ. The groin flap revisited-what the textbooks do not tell. *S Afr J Surg*. 1999 Feb;37(1):21-3. PubMed | Google Scholar
- [12] McGregor IA, Jackson IT. The groin flap. *Br J Plast Surg* 1972;25(1):3—16.
- [13] Peimer CA, Wheeler DR, Barrett A, Goldschmidt PG. Hand function following single ray amputation. *J Hand Surg* 1999;24(6):1245—8.
- [14] Schoofs M, Leps P, Millot F, Migaud H. Review of 30 digital ring avulsions. *Ann Chir Main Memb Super* 1990;9:245–51
- [15] Bevin AG, Chase RA. The management of ring avulsion injuries and associated conditions. *Hand Plast Reconstruction Surg* 1963;32:391–400.
- [16] Dubert T, Diop A, Voeltzel P. An experimental study of ring avulsion injuries and two preventive devices. *J Hand Surg Br* 2000;25:418–21.
- [17] Notice on the risks associated with wearing rings and wedding rings, available from:<http://www.ubh.com/wp-content/uploads/2014/09/Danger-of-wearing-rings-Notice-of-2005.pdf>.
- [18] Matheron AS, Hendriks S, Gouzou S, Liverneaux PA, Facca S. Can ring finger injuries be prevented by pre-fragilized rings? About three clinical cases. *Shir Main* 2014;33:204–6.