




Finger Jammed in a Door Knob

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ABSTRACT Finger jammed in a ring or a circular metal piece may lead to a variety of injuries from simple dermabrasion to amputation. The most important stage of the treatment in these injuries relies on the comfortable removal of the ring, causing minimum soft tissue injury possible. In our study, we aimed to present the treatment of a six-year-old boy presented to our emergency ward with his thumb jammed in a door knob at the proximal phalanx level. The injury was classified as Stage 1 according to the Urbaniak classification. As the injury was thought to be superficial, gentle release of the finger was attempted for an hour in the emergency ward, consequent to elevation and cold application. Following the failure of our attempt and a slight leaking of blood, the door knob was removed using a metal cutter under general anesthesia and operating room conditions. Manipulations might increase the probability of facing an iatrogenic neurovascular injury in cases similar to that in our study. The selection of the safest and reliable method may be of great importance in avoiding iatrogenic injuries in such cases.

Keywords: Ring jam; finger avulsion injury

Finger jammed in a ring or a circular metal piece may lead to a variety of injuries from simple dermabrasion to amputation. Classifications particularly based on the type of vascular injury are still in use today.¹ In absence of an avulsion and presence of adequate blood supply to the finger, primary repair of the soft tissues may be performed, whereas vascular grafting may be necessary in case of arterial or venous circulation failure. The main reason here lies behind the presence of a bigger injury than it looks and the occurrence of vascular injury on a longer segment of the vein. Another repair in addition to the arterial and venous repair in avulsion injuries that requires grafting is the skin repair. This, in turn, additionally creates morbidity in the donor site. An accompanying severe soft tissue damage (avulsion or degloving) or amputation may present a challenge for the reimplantation technique, however, is also directly associated with the rate of success.² While avulsion injuries are usually experienced in the work place, primary dermabrasion injuries or those which occur as a result of removing a ring from an edematous finger are encountered at home. The most important stage of the treatment in these injuries relies on the comfortable removal of the ring, causing minimum soft tissue injury possible. In our study,

we aimed to present the treatment of a child patient who jammed his thumb in a door knob with a similar mechanism of injury.

CASE REPORT

A six-year-old boy presented to our emergency ward with his thumb jammed in a door knob at the proximal phalanx level (Figure 1). Upon questioning, it was understood that the thumb was jammed in the lock housing due to an uncontrolled push on the door knob and the collapse of the locking button inwards. The injury was classified as Stage 1 according to the Urbaniak classification. In an attempt to reveal the inner mechanism of the knob and a probable osseous injury, radiographs were taken (Figure 2). As the injury was thought to be superficial, gentle release of the finger was attempted for an hour in the emergency ward, consequent to elevation and cold application.³ Following the failure of our attempt and a slight leaking of blood, the door knob was removed using a metal cutter under general anesthesia and operating room conditions.

Written and verbal informed consent were obtained from parents of our patient for the use of



FIGURE 1: The patient who presented to the emergency ward after jamming his finger in the door knob.



FIGURE 2: Radiograph of hand.

photographs of the injured area for scientific purposes, and also for the surgical approval.

Surgical technique; Following sterile preparation of the patient placed on the operation table under general anesthesia and in the supine position, the door knob was cut with a metal cutter (Medtronic, Midas Rex Legend High-Speed System, Metal Cutting Attachment) (Figure 3 A). Gauze dressings were placed on the edges of the knob to avoid burns on the skin of the patient (Figure 3 A). Furthermore, a lamina spacer was used to split the knob through the cutting line (Figure 3 B).

DISCUSSION

The techniques used in releasing the jammed finger inside a ring can be categorized under two sections. The first includes the techniques without cutting the ring; the winding technique, the compression technique, the caterpillar technique, the twin thread technique, and the glove technique.⁴ Various tools are used in the technique that involves cutting of the ring; manual ring cutters, pliers, nippers, the Dremel moto-saw, dental saws, and diamond tip saws.⁴ Recently popular metal (gold, silver, steel) rings with a larger cross-section and diameter, used for either engagement or as an ac-

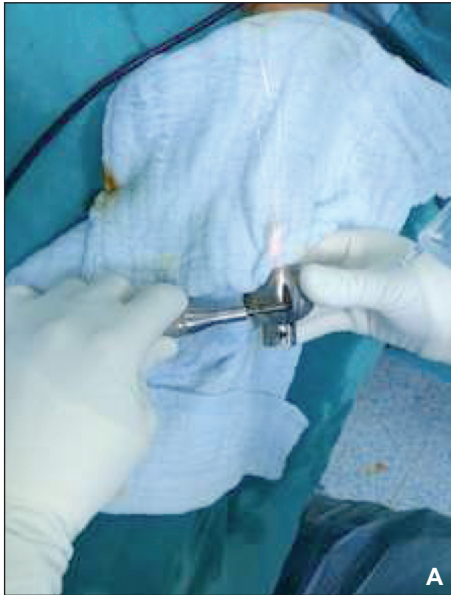


FIGURE 3: **A)** Cutting of the door knob with a metal cutter. Wet gauze dressing applied to protect the skin. **B)** Stretching and splitting of the longitudinally cut door knob with a lamina spacer.

cessory, may render the success of these techniques limited. As these techniques were deemed insufficient in our case as the patient's finger was jammed with a similar mechanism in the door knob, the release of the finger was achieved using a metal cutter under general anesthesia and operating room conditions. The injury observed following the release Figure 4 and the entrance of the lock housing Figure 5 that caused the injury showed us the importance of avoiding manipulation in removal of unusual circular objects. In addition, the radiographic interpretation of such objects might be misleading. Manipulations might increase the probability of facing an iatrogenic neurovascular injury in cases similar to that in our study. The selection of the safest and reliable method may be of

great importance in avoiding iatrogenic injuries in such cases.

Source of Finance

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.



FIGURE 4: Skin incision extending to the subcutaneous tissue.

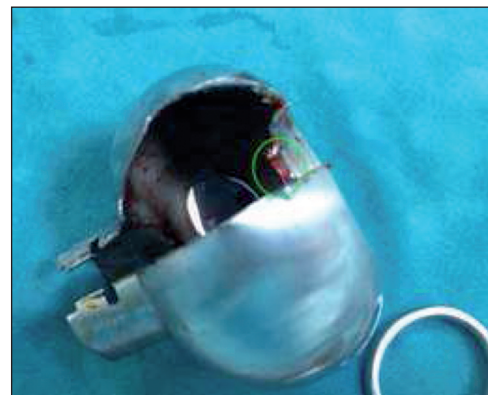


FIGURE 5: The entrance of the lock housing (green circle) that caused the injury.

Authorship Contributions

Idea/Concept: Hanifi Üçpunar; **Design:** Mehmet Baydar; **Supervision/Consultancy:** Kahraman Öztürk; **Data Collection and/or Processing:** Hanifi Üçpunar; **Analysis and/or**

Interpretation: Mehmet Baydar; **Source Browsing:** Mehmet Baydar; **Writing of the Makalene:** Hanifi Üçpunar; **Critical Review:** Kahraman Öztürk; **Resources and Funding:** Hanifi Üçpunar; **Materials:** Hanifi Üçpunar.

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