

# Hand trauma associated with non-professional animal slaughter during Eid al-Adha: an emergency and hand surgery experience

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## ABSTRACT

**BACKGROUND:** Eid al-Adha is an important religious holidays celebrated annually in Muslim communities, during which the ritual of animal sacrifice is performed. The demand for butchery services rises significantly during this period; however, due to the limited availability of professional butchers, many individuals undertake the slaughter themselves. This practice is associated with an increased incidence of traumatic injuries, particularly involving the hands and upper extremities. This study aims to characterize the pattern of hand and upper limb injuries associated with non-professional animal slaughter during Eid al-Adha and to raise awareness of these preventable traumas.

**METHODS:** In this retrospective study, we evaluated patients who presented to our clinic with hand injuries requiring surgical intervention during multiple Eid al-Adha periods. The study population primarily consisted of individuals injured during animal slaughter who were admitted to the hospital for hand or upper extremity trauma. Demographic data and injury types were evaluated.

**RESULTS:** Over an eight-year period, a total of 259 extensor tendon injuries, 76 flexor tendon injuries, and 275 superficial soft tissue injuries related to Eid al-Adha were surgically treated at our clinic.

**CONCLUSION:** This study provides a retrospective analysis of hand tendon and superficial tissue injuries observed over eight Eid al-Adha periods. The findings indicate that non-professional slaughter of sacrificial animals poses a significant risk, particularly for hand and tendon injuries. Ensuring that slaughter procedures are performed by trained individuals, along with the use of protective measures, may play an important role in reducing these preventable injuries.

**Keywords:** Eid al-Adha; emergency; hand surgery; tendon.

## INTRODUCTION

Two major religious festivals are celebrated in Muslim communities. The first is Eid al-Fitr, observed at the end of the

month of Ramadan. The second, Eid al-Adha, occurs approximately two months after the Ramadan festival during the month of Hajj.<sup>[1-7]</sup> This latter festival involves the ritual sacrifice of animals such as cattle, sheep, lambs, goats, and

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less commonly, camels or buffalo. The type of animal varies according to regional and cultural traditions; in Türkiye, sheep and cattle are most commonly sacrificed. As part of this religious practice, animals are sacrificed annually in accordance with Islamic principles. Traumatic injuries frequently occur during Eid al-Adha as a result of non-professional animal slaughter, often exhibiting distinct clinical characteristics in terms of injury mechanism, anatomical involvement, and surgical requirements.

In many cases, individuals perform animal sacrifice themselves, despite having limited experience.<sup>[1-3]</sup> Slaughter is commonly carried out in informal settings such as gardens, streets, or backyards.<sup>[1,4]</sup> During these procedures, injuries most frequently involve the upper extremities, whereas injuries of other body regions are less common.<sup>[1-5]</sup> Hand injuries present a broad clinical spectrum, ranging from soft tissue damage to complex injuries involving neurovascular structures, tendons, and even amputations.<sup>[1-5]</sup> These injuries occur predominantly on the first day of the festival and are strongly associated with male gender and non-professional practices. Injuries peak on the first day within a short time frame, with cutting and penetrating traumas predominating and placing a significant patient burden on emergency hand surgery services.

Although previous studies have documented the epidemiology of hand injuries during Eid al-Adha, comprehensive data on their specific clinical presentation, surgical complexity, and regional patterns, particularly within Türkiye, remain limited. This study aims to address this gap by evaluating not only demographic and epidemiologic characteristics but also the clinical features and surgical management of these injuries. By addressing both practical management challenges and region-specific factors, this study provides novel insights that may assist clinicians in optimizing patient care and inform targeted preventive strategies. This combined focus on clinical

detail and operational context highlights the originality and relevance of the research within the field of festival-related hand trauma.

The aim of this study was to evaluate the demographic characteristics of patients and the management of hand injuries associated with non-professional animal slaughter.

## MATERIALS AND METHODS

A retrospective analysis was conducted on the medical records of patients who presented to the emergency department with hand trauma related to non-professional animal slaughter during the Eid al-Adha period and were subsequently evaluated in our clinic. Between 2011 and 2019, a total of 219 patients were admitted with hand tendon injuries during the festival. Nearly all injuries were associated with festival-related activities. The majority of patients (89%) were male, and all underwent surgical treatment on the day of injury. Collected data included patient age, sex, level of experience in animal slaughter, and type of injury. At the time the study was conducted, ethics committee approval was not required.

## RESULTS

A total of 219 patients were included in the study, with annual distribution as follows: 35 in 2011, 29 in 2012, 35 in 2013, 20 in 2014, 35 in 2015, 18 in 2016, 25 in 2017, and 22 in 2018. All injuries were caused by sharp instruments. Patient ages ranged from 17 to 59 years, with a mean age of 37 years. Of the patients, 83% had no prior experience in animal slaughter or meat processing. Most patients were admitted on the first day of the festival. A total of 335 tendon injuries were identified in 219 patients (Figs. 1-5). Additionally, 275 superficial injuries were recorded. Among tendon injuries, 259 involved extensor tendons and 76 involved flexor tendons. Overall, 119 partial tendon injuries and 216 complete tendon inju-

**Table 1.** Demographic characteristics and injury patterns of patients with hand injuries related to non-professional animal slaughter during Eid al-Adha

Variable	Value
Total number of patients	219
Age, mean (years)	37
Age range (years)	17-59
Total number of injuries	610
Soft tissue injuries	275 (45.1%)
Tendon injuries (total)	335 (54.9%)
Flexor tendon injuries	76 (22.7%)
Extensor tendon injuries	259 (77.3%)
Complete tendon injuries	216 (64.5%)
Partial tendon injuries	119 (35.5%)



**Figure 1.** Extensor pollicis longus tendon injury.



**Figure 2.** Extensor communis tendon injuries of the second, third, fourth, and fifth fingers.



**Figure 3.** Flexor tendon injury of the small finger.



**Figure 4.** Extensor tendon injury.



**Figure 5.** Partial flexor tendon injury.

ries were surgically repaired. Following surgery, all patients were referred to an experienced hand physiotherapy team. Patients were followed for three weeks using a static hand splint, tailored according to the type of injury.

## DISCUSSION

Previous studies have demonstrated that injuries related to Islamic festivals most frequently occur on the first day of Eid al-Adha, when slaughtering activities are typically performed, particularly during daytime hours.<sup>[1-5]</sup> Consistent with the literature, such injuries predominantly affect male individuals.<sup>[1-3]</sup> In our retrospective analysis, a similar gender distribution was observed, with injuries in female patients occurring mainly during meat processing or while assisting family members. Additionally, the non-dominant (left) hand was more frequently affected, likely due to its role in stabilizing the animal during the cutting procedure.<sup>[1,2,4,5]</sup> In the present study, 90% of injuries involved the left hand, while Aşarogullari et al.<sup>[3]</sup> reported nearly equal distribution between both hands. In another clinical report, 458 patients with tendon injuries were evaluated on non-festival days; 362 had right-hand tendon injuries, with a total of 396 injuries affecting the dominant hand.<sup>[8]</sup> These findings suggest a distinct injury pattern associated with festival-related activities. Although such injuries may initially appear minor, they often involve complex structures and require surgical intervention. Jong et al.<sup>[8]</sup> reported that acute traumatic tendon injuries of the hand and wrist are most commonly associated with sharp instruments such as knives, as well as glass (mirror) or saw injuries.

Hospital admission rates on the first day of the festival have been reported as 64%,<sup>[1]</sup> 73%,<sup>[5]</sup> and 80%<sup>[4]</sup> in previous studies. Rahman et al.<sup>[5]</sup> described 298 patients injured during animal slaughter. In Saudi Arabia, 219 patients presented to the emergency department with hand injuries during the festival over a four-year period. Similarly, Sarifakioğlu et al.<sup>[1]</sup> reported 98 patients over two years, while Bildik et al.<sup>[4]</sup> analyzed 120

patients within a two-year period. In hand trauma, the severity and depth of injury can range from superficial soft tissue damage to complex injuries involving tendons and neurovascular structures. These variations depend on factors such as the type of cutting instrument used, the technique applied, sudden movements of the animal, and the practitioner's level of experience. Dizen et al.<sup>[2]</sup> reported 122 injuries during the festival period, including injuries beyond those involving the hand. Avsarogullari documented 50 patients with hand injuries over a five-year period.<sup>[3]</sup> Similarly, Sica et al.<sup>[7]</sup> reported 50 patients with hand injuries in Tunis within a one-year period, of whom 75% had injuries to the dorsal aspect of the non-dominant hand and 46% required surgical intervention.

In the present study, we focused specifically on tendon and soft tissue injuries of the hand associated with the slaughter ritual. Similarly, the literature indicates that hand injuries increase significantly during holiday periods, with injuries caused by cutting and penetrating instruments being particularly prevalent. The frequent involvement of the thumb and index finger is attributed to their role in stabilizing the hand during cutting.<sup>[9]</sup> A multicenter study from Türkiye similarly demonstrated that the majority of injuries involve the upper extremities, particularly the hand. A significant proportion of patients were non-professional butchers, and most injuries were self-inflicted. Although most cases were managed in the emergency department and discharged, injuries requiring surgical intervention, such as tendon and nerve injuries, are clinically significant. Hand trauma associated with Eid al-Adha exhibits distinct demographic and clinical patterns. These injuries predominantly affect male patients and are typically caused by cutting or penetrating trauma involving knives. Clinically, tendon and soft tissue injuries are most frequently observed, with extensor tendons being particularly affected.<sup>[10]</sup>

These findings indicate that hand trauma during holiday periods imposes a substantial burden on hand surgery services, not only in terms of increased case volume but also due to the complexity of surgical management. Studies on general trauma epidemiology have shown that hand and finger injuries are among the most frequently affected anatomical regions, and this trend becomes even more pronounced during holiday periods involving animal slaughter.<sup>[11]</sup> In the present study, 219 patients underwent surgical treatment for hand tendon and soft tissue injuries over eight consecutive festival periods. Most injuries occurred on the first day of the festival, consistent with previous reports; Dizen reported that up to 87% of cases presented on the first day.<sup>[2]</sup> Similarly, 85% of patients in our series were admitted on the first day of the festival. The majority of injured individuals performed the slaughter themselves, often with family members or friends, and lacked prior experience. One contributing factor to these injuries is the sudden movement of animals, particularly large ones, which are difficult to stabilize during the procedure. In our study, 85% of injuries involved extensor tendons. These tendons are more vulnerable than flexor tendons due to their anatomical

location and the typical hand position during slaughter, in which the palmar surface is relatively protected while the dorsal surface remains exposed to injury. The primary cause of slaughter-related hand injuries appears to be the cutting process itself, frequently performed without professional assistance. The high concentration of slaughtering activities on the first day of Eid al-Adha further limits access to appropriate facilities, leading many individuals to perform the procedure in domestic settings. Additionally, the limited availability of professional butchers during peak periods results in inexperienced individuals undertaking the task, sometimes with assistance from family members. Under these conditions, the risk of hand injuries associated with slaughtering activities increases substantially. The present findings indicate that hand injuries sustained during Eid al-Adha predominantly involve tendon structures, with a marked predominance of extensor tendon injuries. Compared with previously published series, these injury patterns appear consistent across different populations, supporting the reproducibility of slaughter-related hand trauma mechanisms.

## CONCLUSION

This study characterizes hand injuries occurring during Eid al-Adha, demonstrating a consistent pattern predominantly affecting extensor tendons. Over eight festival periods, 219 patients presented with tendon and soft tissue injuries, most occurring on the first day and primarily among male individuals performing animal sacrifice without professional assistance. Injuries most commonly involved the non-dominant hand and the dorsal surface, reflecting the stabilizing role of the hand during cutting. In addition to identifying epidemiological trends, this study highlights the surgical challenges and clinical management of these injuries, addressing operative aspects that are often underreported in the literature. These findings underscore the substantial burden placed on emergency and hand surgery services and emphasize the importance of preventive strategies and increased public awareness, while integrating epidemiological data with clinical insights.

**Ethics Committee Approval:** This study was conducted as a retrospective record analysis; according to the local regulations at the time of the study, formal ethics committee approval was not required.

**Peer-review:** Externally peer-reviewed.

**Informed Consent:** Written informed consent was obtained.

**Authorship Contributions:** Concept: U.H.; Design: E.İ.; Supervision: H.R.Ö.; Resource: S.K.; Materials: E.S.; Data collection and/or processing: U.H.; Analysis and/or interpretation: U.H.; Literature review: A.T.E.; Writing: M.K.K.; Critical review: A.T.T.

**Conflict of Interest:** None declared.

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## ORİJİNAL ÇALIŞMA - ÖZ

### Kurban Bayramı'nda profesyonel olmayan hayvan kesimlerine bağlı el travmaları: Acil ve klinik el cerrahisi deneyimi

**AMAÇ:** Kurban Bayramı, Müslüman toplumlarda her yıl kutlanan ve geleneksel olarak kurban kesim ritüelinin gerçekleştirildiği önemli dini bayramlardan biridir. Bu dönemde kurban kesimi için kasaplık hizmetlerine olan talep belirgin şekilde artmasına rağmen profesyonel kasap sayısının yetersiz olması nedeniyle birçok kişi kurban kesimini kendi imkânlarıyla gerçekleştirmektedir. Bu durum özellikle el ve üst ekstremitte yaralanmaları başta olmak üzere çeşitli travmatik yaralanmaların görülme sıklığını artırmaktadır. Bu çalışmanın amacı, Kurban Bayramı sırasında profesyonel olmayan kişiler tarafından gerçekleştirilen kesim işlemleri sırasında ortaya çıkan el ve üst ekstremitte yaralanmalarına dikkat çekmek ve bu önlenebilir travmalar konusunda farkındalık oluşturmaktır.

**GEREÇ VE YÖNTEM:** Bu retrospektif çalışmada, Kurban Bayramı dönemlerinde kliniğimize başvuran ve cerrahi tedavi gerektiren el yaralanmaları incelendi. İncelenen vakalar, çoğunlukla hayvan kesimi sırasında yaralanan ve el veya üst ekstremitte travması nedeniyle hastaneye başvuran bireylerden oluşmaktadır. Demografik veriler ve yaralanma tipleri değerlendirilmiştir.

**BULGULAR:** Sekiz yıllık dönem boyunca kliniğimizde Kurban Bayramı ile ilişkili olarak 259 ekstansör tendon, 76 fleksör tendon ve 275 yüzeysel yumuşak doku yaralanması cerrahi olarak tedavi edilmiştir.

**SONUÇ:** Bu çalışma, sekiz farklı Kurban Bayramı döneminde meydana gelen el tendon ve yüzeysel doku yaralanmalarının retrospektif analizini sunmaktadır. Bulgular, kurban kesiminin profesyonel olmayan kişiler tarafından gerçekleştirilmesinin özellikle el ve tendon yaralanmaları açısından önemli bir risk oluşturduğunu göstermektedir. Kurban kesim işlemlerinin eğitilmiş kişiler tarafından gerçekleştirilmesi ve koruyucu önlemlerin artırılması, bu tür önlenebilir yaralanmaların azaltılmasında önemli rol oynayabilir.

**Anahtar sözcükler:** Acil; el cerrahisi; Kurban Bayramı; tendon.

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