

# Hand Injuries During Eid al-Adha Celebrations: A Seven-Year Retrospective Analysis

Onur İncealtın<sup>1</sup>, Ragıp Ruhat Balık<sup>2</sup>, Haydar Perdecı<sup>2</sup>

<sup>1</sup>Istanbul Medeniyet University, Göztepe Prof. Dr. Süleyman Yalçın Training and Research Hospital, Clinic of Emergency Medicine, İstanbul, Türkiye

<sup>2</sup>Istanbul Medeniyet University, Göztepe Prof. Dr. Süleyman Yalçın Training and Research Hospital, Clinic of Plastic, Reconstructive and Aesthetic Surgery, İstanbul, Türkiye

## Abstract

**Objective:** Eid al-Adha is a significant religious event that involves the ritual slaughter of livestock, leading to an increased risk of hand injuries. This study aims to evaluate the incidence, causes, and severity of hand injuries related to Eid al-Adha over a seven-year period and provide evidence-based recommendations for injury prevention.

**Materials and Methods:** This retrospective study was conducted in accordance with the Declaration of Helsinki and received ethical approval from the the Istanbul Medeniyet University, Göztepe Training and Research Hospital Clinical Research Ethics Committee. Emergency department records from the Istanbul Medeniyet University, Göztepe Training and Research Hospital covering seven Eid al-Adha celebrations (2017-2022) were analyzed. Patients with hand injuries related to sacrificial activities, including slaughtering and meat preparation, were included. Demographic data, injury characteristics, and treatment modalities were recorded. Statistical analyses were performed using SPSS software, with  $p < 0.05$  considered statistically significant.

**Results:** A total of 183 patients were treated for hand injuries related to Eid al-Adha, with a male predominance (75.9%). The mean patient age was 40.09 years. Knife-related injuries were the most common (81%, 148 cases), followed by cleaver injuries (11%, 20 cases) and animal horn trauma (8%, 14 cases). The injuries predominantly affected the upper extremities, with 26% involving the index finger and 20% involving the middle finger. Among all patients, 21.3% required plastic surgery intervention. The highest number of injuries occurred on the first day of Eid (105 cases). A statistically significant difference was found in injury frequency between the first and subsequent days ( $p < 0.05$ ).

**Conclusion:** Hand injuries related to Eid al-Adha remain a public health concern. Most injuries involve knives, affecting the fingers and requiring surgical intervention in a substantial proportion of cases. Promoting safer slaughtering practices, encouraging the use of professional butchers, and improving public awareness are essential strategies to minimize injury risks.

**Keywords:** Eid al-Adha, hand injuries, sacrificial activities, public health, knife wounds

## Introduction

Eid al-Adha, also known as the “Festival of Sacrifice” is a significant religious holiday celebrated by Muslims worldwide. The holiday involves the ritual slaughter of livestock, followed by the distribution of meat among family, friends, and those in

need. However, despite its religious and cultural importance, this practice is associated with an increased risk of hand injuries, particularly among individuals with limited experience in animal slaughter and meat preparation [1,2].

Previous studies have shown that knife-related injuries surge during Eid al-Adha, with cases ranging from minor lacerations



**Address for Correspondence:** Ragıp Ruhat Balık, MD, İstanbul Medeniyet University, Göztepe Prof. Dr. Süleyman Yalçın Training and Research Hospital, Clinic of Plastic, Reconstructive and Aesthetic Surgery, İstanbul, Türkiye

**E-mail:** rruhat@gmail.com **ORCID-ID:** orcid.org/0009-0007-4356-4075

**Received:** 21.04.2025 **Accepted:** 22.07.2025 **Publication Date:** 29.08.2025

**Cite this article as:** İncealtın O, Balık RR, Perdecı H. Hand injuries during Eid al-Adha celebrations: a seven-year retrospective analysis. Glob Emerg Crit Care. 2025;4(2):75-79



Copyright© 2025 The Author. Published by Galenos Publishing House on behalf of the Turkish Emergency Medicine Foundation. This is an open access article under the Creative Commons AttributionNonCommercial 4.0 International (CC BY-NC 4.0) License.

to severe tendon and nerve damage requiring surgical intervention [3,4]. While professional slaughterhouses have been established to minimize these accidents, many individuals still prefer to perform sacrifices themselves, leading to a substantial number of emergency department visits [5,6].

However, most prior studies in Türkiye have been limited to short-term observations, small sample sizes, or single-center experiences. Longitudinal trends, detailed anatomical analyses, and microsurgical outcomes have often been underreported. Our study aims to address these gaps by presenting a seven-year retrospective analysis from a high-volume urban emergency center, focusing on both the frequency and severity of injuries.

We hypothesized that most hand injuries would occur on the first day of Eid al-Adha, primarily involve knife use, and frequently require surgical intervention. By identifying temporal patterns and surgical needs, this study seeks to inform targeted public health measures and trauma preparedness strategies.

This study aims to evaluate the incidence, causes, and severity of hand injuries associated with Eid al-Adha over a seven-year period. By analyzing injury patterns and treatment approaches, we seek to provide evidence-based recommendations for injury prevention and public health interventions.

## Materials and Methods

This retrospective study was conducted in accordance with the Declaration of Helsinki and received ethical approval from the İstanbul Medeniyet University, Göztepe Training and Research Hospital Clinical Research Ethics Committee (decision number: 2022/0416, date: 29.06.2022).

Given the retrospective nature of the study, the need for informed consent was waived, and all patient data were anonymized to ensure confidentiality. The study was conducted at a large urban training and research hospital located in a metropolitan area of Türkiye, serving as a regional referral center with a high-volume emergency department.

### Study Design and Population

This study retrospectively analyzed emergency department data from İstanbul Medeniyet University, Göztepe Training and Research Hospital, covering seven consecutive Eid al-Adha celebrations from 2017 to 2022. Patients presenting with hand injuries related to sacrificial activities, including slaughtering and meat preparation, were included in the study.

### Inclusion Criteria

Patients were included if they sustained hand injuries during animal slaughter or meat preparation activities occurring within the four days of Eid al-Adha and presented to the emergency department of the study hospital for evaluation and treatment.

### Exclusion Criteria

Patients with injuries unrelated to Eid al-Adha sacrifices; incomplete medical records; polytrauma; inter-hospital transfers; and repeat admissions were excluded to ensure accurate case identification.

### Data Collection

Demographic information, type and severity of injuries, and treatment modalities were extracted from medical records. Data extraction was performed by emergency physicians and plastic surgery residents trained in standardized data entry. All records were anonymized prior to analysis. To minimize bias, data entries were independently cross-checked by two researchers. Data collectors were not blinded to the study hypothesis due to the retrospective design. The injuries were categorized based on anatomical location, depth, and involvement of tendons, nerves, or vasculature. Patients requiring plastic surgery consultation were specifically analyzed.

### Statistical Analysis

Descriptive statistics were used to summarize patient demographics and injury characteristics. Continuous variables were reported as means  $\pm$  standard deviations, while categorical variables were expressed as frequencies and percentages. To compare the distribution of injuries across the days of Eid al-Adha, the chi-square test was applied. Statistical analyses were performed using SPSS software (version 25.0, IBM Corp., Armonk, New York, United States of America). A p-value of  $<0.05$  was considered statistically significant.

## Results

### Patient Demographics

A total of 183 patients presented to the emergency department with hand injuries related to Eid al-Adha sacrificial activities between 2017 and 2022. The majority of patients were male (139, 75.9%), while 44 (24.1%) were female. The mean age of patients was 40.09 years. Among the 39 patients who required plastic surgery consultation, all were male, with an average age of 36.76 years. The patient distribution by year and demographic data are presented in Table 1.

### Injury Characteristics

Knife-related injuries were the most common, accounting for 81% (148 cases) of all cases, while 11% (20 cases) of injuries were due to cleavers and 8% (14 cases) resulted from animal horn trauma. The injuries predominantly involved the upper extremities, with 26% affecting the second digit (index finger), 20% involving the third digit (middle finger), and 13% affecting multiple fingers (Figure 1).

### Severity and Treatment Approaches

- Of the injuries, 17% occurred in the upper right extremity, and 22% in the upper left extremity (Figure 2).

- Fifty nine percent of tendon injuries involved extensor tendons, while 38% affected flexor tendons, with 3% requiring amputation (Figure 3).
- Microsurgical repair was necessary in 22% of cases, while 78% of patients did not require microsurgery (Figure 4).
- Tendon injuries were categorized by anatomical zones, with 22% occurring in Zone 3 and 18% in Zone 4 (Figures 5 and 6).

### Hospitalization and Surgical Interventions

Among the 183 cases, 144 patients (78.7%) received primary sutures in the emergency department, while 39 (21.3%) required plastic surgery intervention. Among the 39 patients who underwent surgical intervention by the plastic surgery team; 23 (59%) procedures were performed under local anesthesia, 8 (21%) under general anesthesia, and 1 (3%) with axillary block and sedation. The remaining 7 (17%) underwent minor procedures such as primary wound suturing, all performed under local anesthesia.

One patient required drainage due to a hematoma caused by an animal horn impact, and another suffered a distal phalanx fracture.

### Comparison Across Years

The number of hand injuries fluctuated over the seven-year study period without a consistent increasing or decreasing trend. However, in every year, the highest number of cases was consistently observed on the first day of Eid al-Adha. Overall, the first day accounted for the majority of injuries (105 cases), followed by the second day (31 cases), third day (25 cases), and fourth day (22 cases) (Table 2).

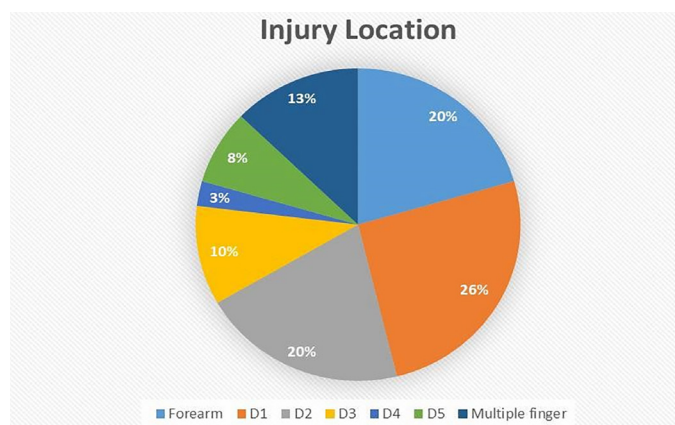
### Statistical Findings

A statistically significant difference was observed in the frequency of injuries between the first and subsequent days of Eid al-Adha ( $p < 0.05$ ). No significant difference was found between the right and left hand injury distributions ( $p > 0.05$ ).

**Table 1. Patient demographic statistics by year, gender, and age group**

Year	Total patients	Male patients	Female patients	Minimum age	Maximum age	Male age average ( $\pm$ SD)	Female age average ( $\pm$ SD)
2016	9	9	0	15	72	39.89 ( $\pm$ 19.01)	-
2017	28	25	3	27	81	39.57 ( $\pm$ 15.89)	56.33 ( $\pm$ 16.19)
2018	17	15	2	21	61	41.71 ( $\pm$ 16.44)	31.00 ( $\pm$ 6.36)
2019	30	27	3	16	72	41.83 ( $\pm$ 13.56)	38.00 ( $\pm$ 5.48)
2020	44	42	2	25	78	39.57 ( $\pm$ 15.86)	46.00 ( $\pm$ 5.66)
2021	29	27	2	23	88	42.24 ( $\pm$ 17.39)	45.50 ( $\pm$ 10.60)
2022	26	14	12	17	67	36.23 ( $\pm$ 13.84)	44.67 ( $\pm$ 13.40)
<b>Total</b>	<b>183</b>	<b>139</b>	<b>44</b>	<b>15</b>	<b>88</b>	<b>39.14 (<math>\pm</math>13.95)</b>	<b>42.73 (<math>\pm</math>12.81)</b>

SD: Standard deviation



**Figure 1.** Injury location



**Figure 2.** Injury location (right/left hand)

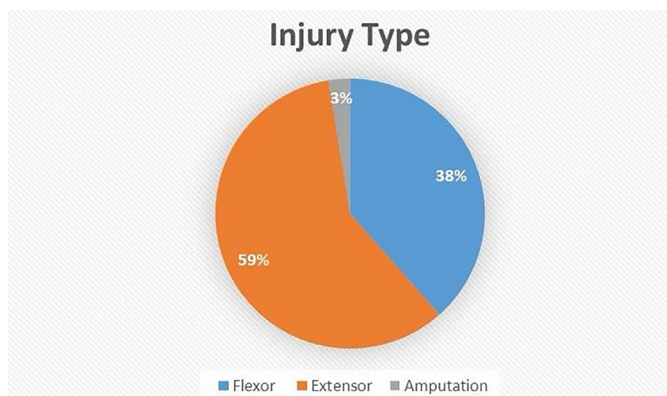


Figure 3. Injury type

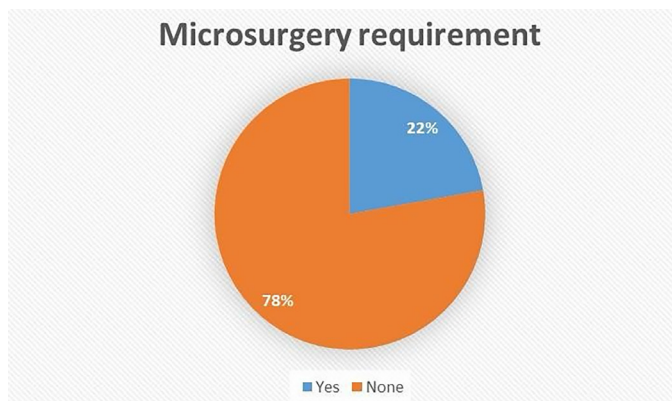


Figure 4. Microsurgery requirements

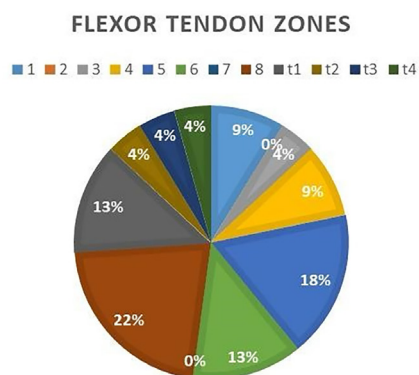


Figure 5. Flexor tendon zones



Figure 6. Extensor tendon zones

Table 2. Distribution of cases by the day of the holiday

Holiday day	Number of cases	Male	Female
First	105	92	13
Second	31	21	10
Third	25	17	8
Fourth	22	9	13
<b>Total</b>	<b>183</b>	<b>139</b>	<b>44</b>

## Discussion

This study provides a comprehensive analysis of hand injuries related to Eid al-Adha sacrificial activities over a seven-year period. Unlike previous studies that focused on short-term data from a single Eid period, our analysis covers seven consecutive years and includes over 180 patients. This provides a broader and more representative overview of the patterns and severity of injuries sustained during Eid al-Adha. The findings highlight the high prevalence of knife-related injuries, particularly among males, and underscore the risks associated with non-professional slaughtering practices [1-4].

The predominance of injuries among men aligns with prior studies, as men are more frequently involved in the slaughtering process [5,6]. The high rate of thumb and second finger injuries corresponds with the mechanics of knife handling, reinforcing the need for improved safety measures and proper handling techniques. Additionally, the distribution of injuries across both upper extremities suggests that both dominant and non-dominant hands are equally at risk during sacrificial activities [7].

Moreover, the need for microsurgical intervention in over one-fifth of cases underlines the severity and complexity of the injuries. This is consistent with findings from previous reports in Türkiye and other Muslim-majority countries, where similar peaks in hand trauma have been recorded during sacrificial holidays [1,3,5]. These injuries not only require advanced surgical care but also lead to functional impairment, particularly among individuals engaged in manual labor. Our microsurgical intervention rate of 22% and amputation rate of 3% are comparable to findings from previous regional studies [1,5,8], indicating a persistent burden of high-severity hand trauma during the holiday period.

Beyond the clinical burden, these cases increase the pressure on emergency and reconstructive services during short periods. Public health systems should consider implementing temporary resource reallocation plans, such as increasing microsurgical staff availability, during Eid al-Adha. Additionally, future studies should evaluate the long-term functional outcomes and economic consequences of these injuries to fully grasp their societal impact.



A significant finding of this study is the concentration of injuries on the first day of Eid al-Adha, when the majority of sacrifices occur [8]. This aligns with previous research, indicating that peak hospital admissions coincide with the initial surge in slaughtering activities. The fluctuation in annual case numbers may be influenced by several factors, including changes in public awareness, availability of professional slaughtering services, and variability in media coverage regarding injury risks. Nonetheless, the consistently high number of injuries on the first day of Eid highlights a predictable pattern that allows for targeted prevention. Given that professional slaughterhouses have been promoted as safer alternatives, further public awareness campaigns may be necessary to encourage their use and reduce the incidence of self-inflicted injuries [9,10]. Unfortunately, the location of the sacrificial activity (e.g., private vs. professional facility) was not documented in the medical records, limiting our ability to analyze the impact of institutional slaughtering practices. Public health campaigns should go beyond general awareness by offering targeted, culturally appropriate educational content, including visual guides on safe knife use, promotion of certified butchers, and encouraging at-risk populations, to avoid direct participation in slaughtering.

### Study Limitations

This study is limited by its retrospective design and single-center setting, which may affect the generalizability of the results. Minor injuries not requiring hospital admission may have been underreported. Additionally, long-term outcomes and functional recovery data were not available. Furthermore, data regarding patients' socioeconomic and educational backgrounds, which may influence both the risk of injury and access to care, were not recorded. The study also includes only individuals who presented to the emergency department, which likely underestimates the true incidence of Eid-related hand injuries in the general population.

### Conclusion

Hand injuries related to Eid al-Adha remain a significant public health concern. Our seven-year analysis highlights the high frequency of knife-related trauma (particularly on the first day of the holiday), most often affecting the second and third fingers and frequently requiring surgical or even microsurgical intervention.

In light of these findings, public health authorities should consider implementing targeted educational campaigns that focus on safe knife handling techniques, the use of protective equipment such as cut-resistant gloves, and the promotion of certified professional butchers. Educational materials should be culturally appropriate and delivered through accessible platforms prior to the holiday period.

Additionally, emergency services and plastic surgery departments should anticipate seasonal surges in hand injuries and allocate resources accordingly. Collaboration with religious leaders and municipalities may also help encourage community members to avoid high-risk practices.

By combining preventive education, surgical preparedness, and policy-level advocacy, it is possible to reduce the burden of these preventable injuries during future Eid al-Adha celebrations.

### Ethics

**Ethics Committee Approval:** Ethical approval was obtained from the İstanbul Medeniyet University, Göztepe Training and Research Hospital Clinical Research Ethics Committee (decision number: 2022/0416, date: 29.06.2022).

**Informed Consent:** Retrospective study.

### Footnotes

#### Authorship Contributions

Surgical and Medical Practices: O.İ., R.R.B., H.P., Concept: O.İ., R.R.B., Design: O.İ., R.R.B., Data Collection or Processing: R.R.B., H.P., Analysis or Interpretation: O.İ., R.R.B., H.P., Literature Search: R.R.B., H.P., Writing: O.İ., R.R.B., H.P.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study received no financial support.

### References

1. Caliskan HM, Erturk ZK, Ocak M, Celik B. Injuries related to animal sacrifice during the Feast of Sacrifice in Türkiye. *Ann Saudi Med.* 2020;40:219-26.
2. Bildik F, Yordan T, Demircan A, Ülkü M, Ergin M, Hacıoğlu EG. The real victims of the Islamic Feast of Sacrifice: injuries related to the sacrifice. *Ulus Travma Acil Cerrahi Derg.* 2010;16:319-22.
3. Oktay MM, Boğan M, Sabak M, Gümüşboğa H, Hakmeh W, Eren SH. Traumatic injuries from sheep sacrifice during the Eid al-Adha holiday: a prospective multicentered study. *Eur J Ther.* 2021;27:8-13.
4. Al-Shaqsi S, Al-Bulushi T, Al-Salmi A, Al-Kashmiri A, Al-Lawatti A. The painful sacrifice: the epidemiology of hand injuries during the holy festivals in the Sultanate of Oman-a 10-year case-control study. *Hand (NY).* 2017;12:242-5.
5. Ersen B, Akin S, Saki MC, Tunali O, Aksu I, Kose M. Hand injuries in 12 days: the outcomes of the Feast of Sacrifice. *World J Plast Surg.* 2016;5:187-9.
6. Sarifakioğlu N, Levent A, Terzioğlu A, Aslan G. Do we sacrifice ourselves? *Plast Reconstr Surg.* 2003;111:1762-3.
7. Oktay MM, Boğan M. Analysis of injuries during sacrifice in feast of sacrifice. *Bagcilar Med Bull.* 2018;55:55-9.
8. Tapan M, Yaşar B, Ergani H, Ceylan SC. Plastic and reconstructive surgery in the wake of the Eid al-Adha: a single-center, five-year investigation. *J Clin Med.* 2024;13:2704.
9. Rahman MM, Al-Zahrani S, Al-Qattan M. Outbreak of hand injuries during Hajj festivities in Saudi Arabia. *Ann Plast Surg.* 1999;43:154-5.
10. Yıldırım G, Selimoğlu M, Karameşe M, Akdağ O, Tosun Z. A periodical increase in hand injuries: the sacrifice feast. *Hand Microsurg.* 2015;4:28-31.