

Evaluation of Patients Applying to the Emergency Service with Complaint of Isolated Hand Injuries

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Abstract

Aim: Hand injuries can be considered among the most common cases observed in emergency services. Isolated hand injuries constitute a considerable proportion of occupational accident related injuries. In this study, patients with isolated hand injuries who presented to the emergency service were investigated.

Materials and Methods: We have retrospectively investigated the data of the patients applying to the emergency service of a third-level hospital between November 2011 and October 2012 with the complaint of isolated hand injuries.

Results: This study included 96 patients (69 males and 27 females) applying to the emergency service with the complaint of isolated hand injuries in a year. The average age of the patients was 27.95 ± 18.91 (1-75). It was observed that patients applied to the hospital mostly during the day (8 am-4 pm) and less during the night (12 am-8 am). It was found that almost 50% of the patients (46.9%) applied to the hospital in the first hour following the injury. The rate of frequency of injury mechanisms was 50%, penetrating injuries 27%, labor accident 21% and the other causes of injuries 2%. The injuries were mostly seen on the fingers. Finger amputation was reported in 24 of the injury cases and mostly on the distal phalanges.

Conclusion: In this study, fingers were the most commonly affected part in all cases of isolated hand injuries and consultation was demanded for most patients. (*JAEM 2015; 14: 54-6*)

Keywords: Emergency department, hand injuries, labor accidents

Introduction

Hands are very important for adaptive skills. Hand injuries may seriously affect both the individual and society. Negative economic results may also be observed because of the impacts of hand injuries on the working performance of individuals. In today's productive era, the main reason for hand injuries is occupational accidents. Isolated hand injuries constitute a considerable proportion of occupational injuries. In the case of workers, finger cuts and lacerations are the most commonly seen disorders after low back pain and leg pain. Furthermore, hand injuries can be considered among the most common cases observed in emergency service; injuries represent a wide range from a simple cut on the skin to an amputation (1).

In this study, it was aimed to investigate the patients applying to our emergency service with the complaint of isolated hand injuries.

Materials and Methods

We have retrospectively investigated the data of the patients applying to the emergency service of a third-level hospital between November 2011 and October 2012 with the complaint of isolated hand injuries.

The patients with injuries on the distal part of the wrist were included in the study. The patients with injuries on the proximal part of the wrist and those subjected to concomitant polytrauma were excluded from the study. The study group involved 96 patients who applied to the service with the complaint of isolated hand injuries during the study period. Examination cards of the patients and related data recorded in the computers were analyzed.

Statistical analysis

Statistical analysis of the data was conducted using the Statistical Package for the Social Sciences (SPSS Inc. Chicago, IL, USA) 15.0



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program. The frequency, average, and standard deviation were used as descriptive values.

Results

The total number of patients applying to the emergency service during the study period was 28 313; of which, 96 patients were included. In all, the percentage of patients suffering from isolated hand injuries was 0.34%. Furthermore, 48% of the patients were between 18 and 50 years old, 33% were under 18 years, and 19% were more than 50 years. The average age of the patients was 27.95 ± 18.91 (1).

It was observed that 71% of the patients applied to the hospital during the day (8 am–4 pm), while only 2% applied during the night (12 am–08 am). It was found that the main cause of the injuries was sharp objects (Table 1). Moreover, 75 patients were no information was recorded about the preference of 10 patients for the use of a hand. Injuries were mostly observed on right hands rather than on left hands (58.3% and 41.7%, respectively).

The injuries were mostly seen on the fingers and less frequently on the palms and backs of the hands (Table 2). Multiple finger injuries were observed in 19 cases. Injuries were most frequently observed in the third and second fingers (39/89 and 28/89, respectively) (Figure 1). Distal phalanges were injured most frequently, followed by middle and proximal phalanges (Figure 2). Finger amputation was reported in 24 cases.

The most commonly encountered injury was cuts on skin (80%), as observed in 77 cases. Tendon cuts were observed in 13 cases (13.54%), while bone fractures were found in 21 cases (21.87%). Primary saturation (n=36) and stump closure (n=17) were the most preferred procedures among the treatments administered to the patients. It was recorded that consultation was demanded for 76% of the patients, 59% of the patients were discharged from the emergen-

cy service, 39% of the patients were hospitalized, and that 2% of the patients refrained from the treatment.

Discussion

Hand injuries remain common, considering the number of patients applying to the emergency service with the complaint of trauma as they are frequently encountered and their morbidity rates are relatively high. According to the data by American National Trauma Surveillance System, approximately 1,000,000 people apply to emergency services every year because of hand injuries (2). Trybus et al. (3) have declared that hand injuries represented a proportion varying from 6.6% to 28.6% among all types of injuries and that trauma on the musculoskeletal system constituted 28% of the injuries in their studies, which included 1,199 patients. Angermann et al. (4) have stated that hand and wrist injuries constituted 28.6% of all injuries in their study, which included 50,272 patients applying to the emergency service with the complaint of trauma and that this proportion was 25.7% when wrist fractures were excluded.

Occupational accidents have an important role in hand injuries. According to the study conducted by Satar et al. (5), 1.2% (267/22365) of all applications made to the Emergency Service of the Faculty of Medicine, Çukurova University in 2006 were injuries related to occupational accidents. Karasoy et al. (1) have stated that 40% of hand injuries arose from occupational accidents. In contrast, in our study, it was found that 50% of hand injuries were because of sharp object, while 27% resulted from occupational accidents. Moreover, injuries observed on the fingers smashed by doors, particularly reported in children were high among hand injuries, with a rate of 13.5%. Hand injuries are more frequently encountered in men than in women. It was stated that acute traumatic hand injuries mostly occurred in workplaces, with proportions of 76% in male workers and 23% in fe-

Table 1. Causes of injury

Cause of injury	Number	%
Sharp objects	48	50
Occupational accidents	26	27
Smashed fingers	13	13.5
Hands trapped in meat slicing machines	4	4.2
Road accidents	2	2.1
Wounds by firearms	2	2.1
Burn	1	1.1

Table 2. Parts of injury

Parts of injury	Number	%
Back of hands	4	4.1
Palms	6	6.3
Fingers	83	86.5
Back of hands and finger	1	1
Back of hands and palm	1	1
Palm and finger	1	1

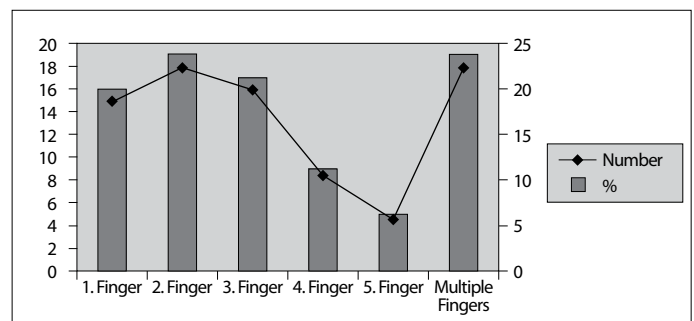


Figure 1. Frequency of finger injuries

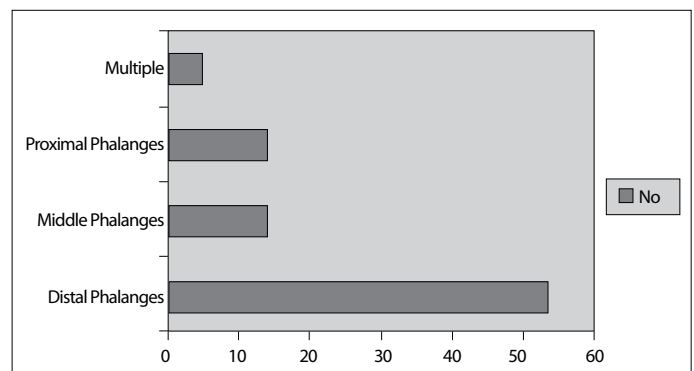


Figure 2. Parts of finger injuries

male workers (2). In a previous study, the proportion between men and women was 5/1 (6), while the male population rate was reported to be 70% in the study by Erguner et al. (7). In our study, male patients represented a higher percentage (72%), consistent with the above-mentioned studies. It may be considered that this high percentage reflects the predominance of men in industries and agriculture.

In their study on occupational accidents, Dagli et al. (8) have stated that 39.9% of all occupational accidents only resulted in hand and finger injuries and that most patients applied to the hospital during the day. Birgen et al. (9) have reported that hands, wrists, and fingers were the most frequently injured parts of the body, with an injury rate of 43.7% in their study conducted in 1999. Ozgenel et al. (10) have analyzed 70 cases, wherein hand injuries were recorded, and they indicated that skin grafting was conducted in 20 cases and that several flap surgical techniques were preferred in 40 cases because of complex soft-tissue injuries. Moreover, in this study, in 50 cases, partial and total amputations were observed; revascularization was administered to almost all of the patients in the earlier period. However, it was stated that the above-mentioned procedure resulted in failure in most of the cases. In the study conducted by Karasoy et al. (1), it has been reported that isolated skin cuts ranked first among other hand injuries, with a rate of 35% in the patients applying to the hospital because of occupational hand injuries, tendon injuries were observed in 22% of the cases, and combined hand injuries were recorded in 15% of the cases. In our study, the most frequently injured part of the body was distal phalanges of the fingers. Skin cuts were the most frequently encountered injury type. Finger amputation was reported in 25% of the cases. In a previous study, it has been reported that in-patient treatment was administered to 14% of the patients applying to the emergency service with the complaint of isolated hand injuries, day-patient treatment was administered to 24% of the patients, and 62% of the patients were discharged from the emergency service (11). In our study, consistent with the aforementioned results, it was recorded that 39% of the patients were hospitalized, 2% did refrain from the treatment, and 59% of the patients were discharged from the emergency service.

Study limitations

The most important constraint in our study is the lack of controls, examinations, and long-term results of the patients. In future, it is required to conduct several studies about the workforce loss and long-term results of the patients with isolated hand injuries.

Conclusion

In this study, fingers were the most frequently injured part in the patients applying to the hospital with the complaint of isolated hand injuries and that consultation was demanded for most of the pa-

tients. Prompt evaluation, correct diagnosis, and treatment are very important for the rehabilitation and continuation of hand functions in the patients applying to the emergency department after hand injuries. Emergency physicians should conduct detailed investigations of the patients suffering from hand injuries and should demand consultation from the clinic performing hand surgeries, if necessary.

Ethics Committee Approval: Due to the retrospective nature of this study, ethics committee approval was waived.

Informed Consent: Due to the retrospective nature of this study, informed consent was waived.

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References

1. Karasoy A, Sakinsel A, Gözü A, Kuran İ, Baş L. Acil el yaralanmalarında deneyimlerimiz. *Ulusal Travma Acil Cerr. Derg* 1998; 4: 265-9.
2. Sorock G, Lombardi D, Hauser R, Eisen E, Herrick R, Mittleman M. Acute Traumatic Occupational Hand Injuries: Type, Location, and Severity. *J Occup Environ Med* 2002; 44: 345-51. [\[CrossRef\]](#)
3. Trybus M, Lorkowski J, Brongel L, Hladki W. Causes and consequences of hand injuries. *Am J Surg* 2006; 192: 52-7. [\[CrossRef\]](#)
4. Angermann P, Lohmann M. Injuries to the hand and wrist. A study of 50272 injuries. *J Hand Surg Br* 1993; 18: 642-4. [\[CrossRef\]](#)
5. Satar S, Kecek Z, Sebe A, Sarı A. Çukurova Üniversitesi Tıp Fakültesi Acil Tıp Anabilim Dalına başvuran iş kazası olgularının analizi. *Çukurova Üniversitesi Tıp Fakültesi Dergisi* 2004; 29: 118-27.
6. Dinçer F, Çetin A, Çeliker R, Çetin M. Causes and consequences of hand injuries requiring hand rehabilitation. *Eur J Phys Med Rehabil* 1998; 8: 113-5.
7. Ergüner H, İnanır M, Dursun N, Dursun E. Travmatik el yaralanmalı hastalarımızın klinik özellikleri. *Romatol Tıp Rehab* 2002; 13: 243-51.
8. Dağlı B, Serinken M. Acil servise başvuran iş kazalarına bağlı yaralanmalar. *JAEM* 2012; 11: 167-70.
9. Birgen N, Okudan M, İnanıcı MA, Okyay M. İş kazasına bağlı olgularda maluliyet oranı hesaplaması. *Adli Tıp Bulteni* 1999; 4: 101-8.
10. Özgenel GY, Akın S, Özbek S, Kahveci R, Özcan M. Çocuklarda traktöre bağlı ciddi el yaralanmaları: 70 olgunun sunumu. *Ulusal Travma Acil Cerr Derg* 2008; 14: 299-302.
11. Hey HW, Seet CM. Hand Injuries seen at an emergency department in Singapore. *Eur J Emerg Med* 2010; 17: 343-5. [\[CrossRef\]](#)