Epidemiological study of traumatic hand injuries at the Lic. Adolfo López Mateos Regional Hospital ISSSTE

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Background
The hand is one of the most complex structures in the human anatomy, it is the segment most exposed to trauma, and corresponds to a significant part of the demand for emergency services. DISCUSSION: Hand injuries make up a high percentage of injuries treated in emergency departments around the world. There is not enough information on the epidemiology of hand injuries in Mexico. For this reason, the experience in our hospital is added. Hand injuries were more common in men, in places of work activity, so one solution could be to create safety programs at work. The characteristics found in our study show similarity with the results reported in hospital units in the country.

Keywords: Traumatic hand injuries.

Original Article

Plastic Surgery

OPEN ACCESS

The hand is one of the most complex structures in human anatomy and, together with speech, dominates cerebral cortical function (1). The hand consists of a main body known as the palm and five digits: a thumb and four fingers. Each hand is attached to the forearm at the wrist joint. There are twenty seven bones within the hand, arranged in three distinct groups: carpals, metacarpals, and phalanges (2).

The hand has a volar surface that includes the palm and a dorsal surface that is commonly known as the back of the hand. The two lateral borders of the hand are commonly known according to their relationship to the bones of the forearm, with the thumb forming the radial border and the little finger related to the ulnar border (2).

The hand is part of the individual's letter of introduction, giving them close contact with their environment; They are used as a means of communication both consciously and unconsciously, forming an important part of body language (3).

The hand is the segment most exposed to trauma and corresponds to a significant part of the demand for emergency services, 20% of the number of visits in general (4). This number of injuries is due to constant exposure at work, home or leisure environments. Therefore, we found a predominance of hand trauma in all age groups and populations (5).

These injuries occur mainly during industrial activities, they can also occur at home, in public places, in traffic accidents and during sports activities (6).

For the economically active population, hand trauma implies temporary or permanent losses and results in social and economic costs, which involve the treatment and rehabilitation period (7).

Methods

Retrospective study carried out at the Adolfo López Mateos Regional Hospital (ISSSTE) on patients with a diagnosis of traumatic hand injury, evaluated and treated in the Plastic and Reconstructive Surgery service, from March 2022 to June 2023.

Results

During the study period, 1033 patients with hand pathologies were treated; cases of hand burns, tenosynovitis, and peripheral nerve compression were excluded. Traumatic hand injuries, contusions, cutting injuries, blunt cutting injuries, crush injuries, bite injuries, and those injuries with fracture or open fracture in the hand were included. Giving a total of 795 cases.

55.3% (440) correspond to people of the male gender and 44.7% (355) to the female gender (graph 1). The age range in which injuries occurred the most was 50 to 59 years of age, representing 23.8% of all injuries. The next age range was from 30 to 39 years

From Plastic and Reconstructive Surgery Service, Lic. Adolfo Lopez Mateos Regional Hospital, Institute of Security and Social Services of State Workers, Mexico City, Mexico. Received on September 30, 2023. Accepted on October 6, 2023. Published on October 8, 2023.

DOI 10.5281/zenodo.8419927

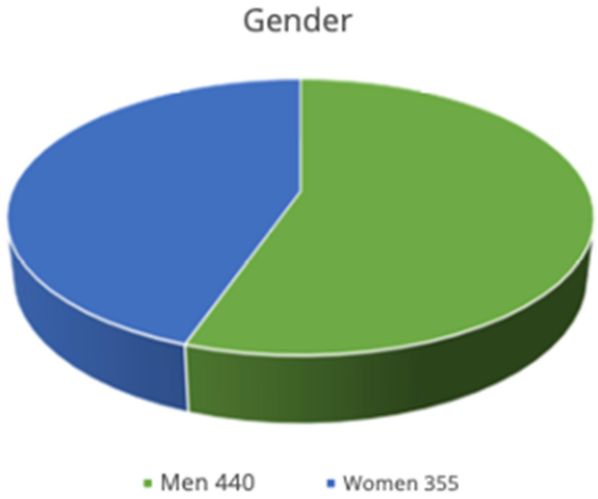

Figure 1. Gender of the population studied.

(19.3%), and the third place was occupied by the range from 40 to 49 years (15.2%). (graph 2).

Regarding the affected hand, greater involvement was observed in the dominant hand, in the right hand in 494 (62.12%) cases, left hand in 275 (34.59%) cases and both hands in 26 (3.27%) cases (graph 3).

Regarding the work area, a relationship of 699 (87.92%) cases was found, related to different work areas.

It was found that the most common pathology was simple hand contusion with 315 (39.62%) cases, followed by hand fractures with 219 (27.54%) of the cases, and cutting wounds with 172 (21.63%) cases. Regarding cutting wounds, injuries were most common from knives and saws for cutting wood. (Chart 4)

Discussion

The Spanish Society of Plastic Reconstructive and Aesthetic Surgery defines that hand surgery is a wide series of different types of hand surgery. Where efforts are made to recover not only the functionality of the limb, in addition to caring for and maximizing the aesthetic appearance (8).

Hand injuries constitute a high percentage of injuries treated in emergency departments around the

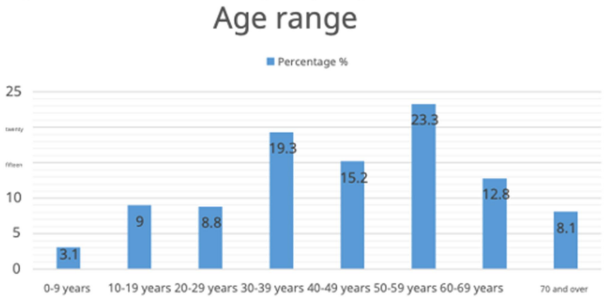

Figure 2. Age range of the population studied.

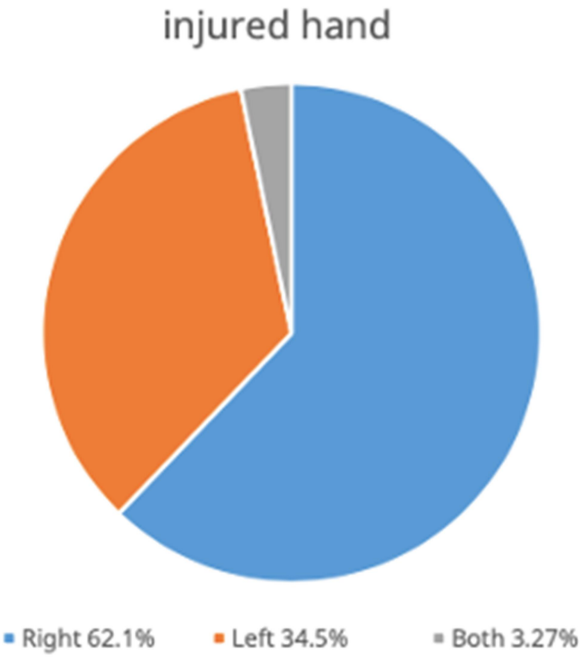

Figure 3. Injured hand: Right, left or both.

world. They are usually work-related and can be underestimated. There is some information about the epidemiology and economic impact of these injuries on workers. However, there is little information on hand injuries in the non-working population (9).

According to Marek Trybus et. al., reported in their results that men predominated in the group of patients studied (80.6%). The age of the patients ranged from 14 to 79 years with the average age of 37 years. The dominant hand was injured 51.2% of the time; the non-dominant hand was injured 46.6% of the time; and both hands were injured 2.1% of the time. Among the different professional groups, manual workers predominated (50.5%) (10).

Vascular injury is a complication that can lead to the total loss of blood supply to a part of the hand, and in the initial evaluation it can be obvious or doubtful (11). Patients try to preserve any segment of the limb even if there is an indication for amputation.

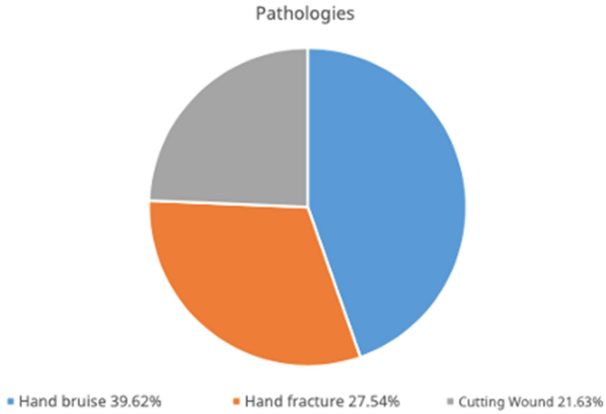

Figure 4. Most frequent type of hand injuries.

DOI 10.5281/zenodo.8419927

For this reason, when the patient does not give consent before surgery, it is better to wait until the lesion is delimited and then, in consensus with the patient and his family, proceed to definitive treatment (12).

The reference between the levels of care of the health system in Mexico must be optimized to provide better guidelines that allow adequate care of hand and wrist injuries by a hand surgeon (13). Another finding of injuries that require urgent attention by a hand surgeon and may require microsurgical procedures were those that were previously evaluated at another health care facility. This takes up time and can lead to further complications.

There is not enough information on the epidemiology of hand injuries in Mexico. A report from the Mexican Social Security Institute (IMSS) in 1999 revealed a 26.51% rate of hand injuries in workers (77.9% of the total hand injuries treated) and men are more affected than women (80%). Patients between 20 and 39 years of age constituted 62.48% of all hand injuries (14).

Conclusion

In our study, one of the objectives was to collect epidemiological data, due to the little information available in Mexico. Hand injuries were more common in men, in places of work activity, so one solution could be to create safety programs at work. The characteristics found in our study show similarity with the results reported in hospital units in the country. Hand injuries continue to be common and require timely attention.

Conflicts of interests

The authors have no conflicts of interest to declare.

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 DOI 10.5281/zenodo.8419927