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Original article

Surgical exploration of hand wounds in the emergency room: Preliminary study of 80 personal injury claims



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ABSTRACT

Background: The SHAM Insurance Company in Lyon, France, estimated that inadequate hand wound exploration in the emergency room (ER) accounted for 10% of all ER-related personal injury claims in 2013. The objective of this study was to conduct a critical analysis of 80 claims that were related to hand wound management in the ER and led to compensation by SHAM.

Material and methods: Eighty claims filed between 2007 and 2010 were anonymised then included into the study. To be eligible, claims had to be filed with SHAM, related to the ER management of a hand wound in an adult, and closed at the time of the study. Claims related to surgery were excluded. For each claim, we recorded 104 items (e.g., epidemiology, treatments offered, and impact on social and occupational activities) and analysed.

Results: Of the 70 patients, 60% were manual workers. The advice of a surgeon was sought in 16% of cases. The most common wound sites were the thumb (33%) and index finger (17%). Among the missed lesions, most involved tendons (74%) or nerves (29%). Many patients had more than one reason for filing a claim. The main reasons were inadequate wound exploration (97%), stiffness (49%), and dysaesthesia (41%). One third of patients were unable to return to their previous job. Mean sick-leave duration was 148 days and mean time from discharge to best outcome was 4.19%. Most claims (79%) were settled directly with the insurance company, 16% after involvement of a public mediator, and 12% in court. The mean compensatory damages award was 4595 Euros.

Conclusion: Inadequate surgical exploration of hand wounds is common in the ER, carries a risk of lasting and sometimes severe residual impairment, and generates considerable societal costs.

Level of evidence: IV.

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1. Introduction

The hand is a complex and vulnerable part of the body that is often exposed to injury. The many vessels, nerves, and tendons in superficial locations just under the skin, together with the complex physiology of the hand, create the conditions for potentially severe injuries. In France, 1,400,000 hand injuries occur each year, of which 620,000 carry a risk of leaving residual impairments [1]. The costs associated with hand injuries is high, due to the considerable frequency of functional impairment [2]. Of the total cost of hand

injuries borne by the statutory health insurance system in France, 80% is due to compensation for loss of income and only 20% to care (admission, procedures, investigations, and medications) [2]. In 2013, 735 emergency rooms (ERs) in France managed 5,100,000 injuries [3]. Hand wounds were the most common trauma-related emergencies [4]. SHAM, the leading healthcare institution insurer in France, estimated that 10% of personal injury claims of negligent ER care filed by insured patients in 2013 were related to unexplored or inadequately explored hand wounds. SHAM suggested a study of personal injury claims related to hand wounds managed in French ERs in healthcare institutions insured by them. ER accreditation by the French federation of emergency hand injury care (FESUM) was not required for study inclusion.

The primary objective of this study was to evaluate personal injury claims filed with SHAM and related to hand wounds that were explored inadequately or not at all in the ER.

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2. Material and method

2.1. Personal injury claims

This observational study included all personal injury claims filed with SHAM between January 1, 2007, and December 31, 2010 and related to complaints about the ER management of hand wounds in adults. SHAM collected the claims and divided them into three groups based on the type of procedure set in motion by the patient: direct submission to SHAM of a request for compensation, involvement of a public mediator (*Commission régionale de conciliation et d'indemnisation* [CRCI]), or lawsuit.

The claims came from French, public or private healthcare facilities insured by SHAM. Only claims that had been definitively settled at the time of the study were considered.

Claims that did not meet the inclusion criteria were not eligible for the study. In particular, claims for injuries in minors and those for personal injury related to surgery or anaesthesia (as opposed to initial exploration in the ER) were not eligible.

2.2. Assessment method

We anonymised the claims, jointly with the SHAM legal department. All data were centralised at the SHAM offices, where the claims were examined for the study. For each claim, we looked at the report by the personal injuries assessment expert and at the medical information available in the SHAM database. The study authors undertook to handle all data confidentially. We also analysed the legal proceedings.

2.3. Statistics

The biostatistics department at the Rouen University Hospital, France, computed descriptive statistics and analysed the data using the exact binomial test.

The following were collected:

- epidemiological and patient-related data (e.g., age, gender, body mass index, occupation, and dominant hand);
- main comorbidities capable of influencing the post-operative course (e.g., smoking, diabetes, and depression);
- circumstances of the injury, and information about ER care (e.g., qualification of the examining physician, exploration method, and circumstances of the explorations).

We also recorded the characteristics of the legal proceedings (e.g., method used, duration of the adjustment process, and reason for the claim) and of the personal injuries (time spent unable to earn full income), time to best outcome (recovery or stabilization of impairments), and need to change jobs).

3. Results

Of 80 claims that were collected and analysed, 10 were excluded (complication of anaesthesia, $n = 1$; wound infection, $n = 2$; or claims related to surgical care, $n = 7$). This left 44 males and 26 females with a mean age at injury of 39.5 years (18–72). Among them, 87% were right-handed. Of the 70 injuries, 30 (43%) involved the right hand and 29 (41%) the dominant hand. There were 42 (60%) manual workers, and 18 (26%) claims were for work-related injuries. One-fourth of patients were factory workers. In most cases (89%), the patient visited the ER within 6 hours after the injury.

Of the 70 ERs, 65 (93%) were in public healthcare institutions. A senior emergency physician explored the wound in 41 (59%) cases. Among the patients who underwent exploration, only 40%

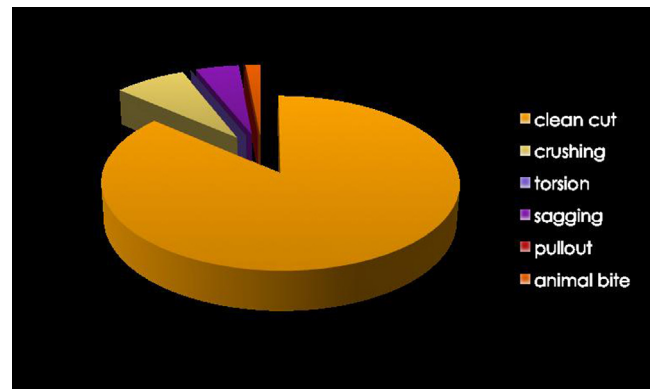


Fig. 1. Mechanisms of the hand wounds.

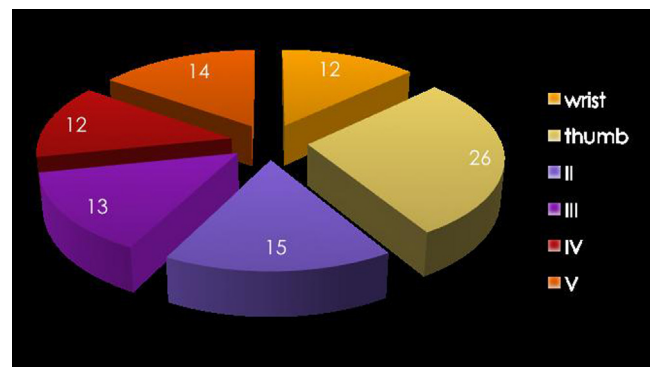


Fig. 2. Location of the hand wounds.

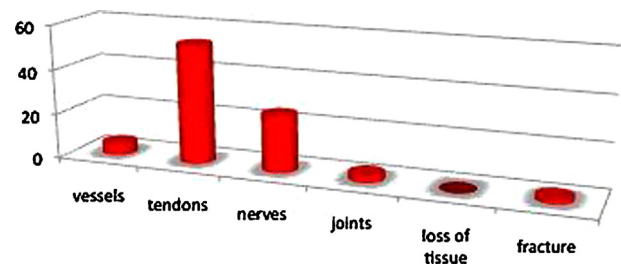


Fig. 3. Missed lesions.

received local anaesthesia; furthermore, the advice of a surgeon (orthopaedic surgeon or plastic surgeon) was sought for only 16%.

Most wounds (86%) were clean cuts (Fig. 1). The volar aspect was involved in 61% of cases. The most common sites were the thumb ($n = 26$, 37%), index finger ($n = 12$, 17%), and multiple digits ($n = 8$, 11%) (Fig. 2). Missed lesions involved tendons in 74% of cases, nerves in 29%, vessels in 6%, and a joint in 5% (Fig. 3).

The claim was filed directly with the insurer in 72% of cases, whereas a mediator was involved in 16% of cases and a lawsuit filed in 12% of cases. There was usually more than one reason for the claim: inadequate or absent wound exploration in 68 (97%) cases, stiffness in 49%, dysaesthesia in 41%, foreign body left in the wound in 9%, and wound infection in 9%.

Mean sick-leave duration was 148 days (0–1460 days) overall and was three times longer (343 days) in the subgroup with work-related injuries. Mean time from discharge to best outcome was 4.19% (0–25%). Surgical revision was required in 63 (90%) patients; among them, 49% had revision surgery as a day-case procedure. The mean personal injury damages award was 4595 Euros (0–24 490 Euros).

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