

## Original Article

## Fingertip Injury, Is it a Minor Injury?

Husam Mohamed Basheer, Foad Roshdi Rabea  
Al-Razi Orthopaedic Hospital, Kuwait

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## ABSTRACT

**Objective:** To study the financial and medical impact of fingertip injury. To call attention to fingertip injuries that are often neglected and overlooked as minor injuries and to review possible ways of reducing its incidence.

**Design:** Retrospective

**Setting:** Al- Razi Orthopaedic Hospital, Occupational Health Department, Kuwait.

**Subject/method:** A retrospective study of those patients with fingertip injury who attended the hand surgery clinic and made workman's compensation claims during

the year 2000.

**Results:** Sixty hundred and thirty adult patients were treated for acute fingertip injury. Four hundred ninetyeight patients made official compensation claims. Cost per patient was 1175 Kuwaiti Dinars (KD), with a total annual cost of KD 623,527. The average sick leave period per patient was 30 days.

**Conclusion:** Fingertip injury is medically and economically an expensive injury to the patient, employer, and society.

KEYWORDS: fingertip injury, medical cost, occupational, workman's compensation

## INTRODUCTION

Fingertip injury is a common presentation in the casualty department; its incidence is highest in industrial communities. In developing countries, where the labour regulations and safety measures are lax, accidents happen at a higher rate than in developed countries<sup>[1]</sup>. In a small country like Kuwait, this problem is aggravated by the scarcity of skilled labour. Shop and factory owners import unskilled labour at low cost from other countries. Lack of proper training and laxity of safety measures predispose these workers to accidents.

Costs have become critical statistics in medical care debates<sup>[2]</sup>. Cost estimates of injuries and illnesses, whether occupational or otherwise have received some attention because of their great impact on healthcare<sup>[3]</sup>. The annual cost for many illnesses and injuries are available in the USA<sup>[4]</sup>, for example circulatory diseases cost 127 billion dollars, Diabetes Mellitus 47.5 billion dollars, and motor cycle accidents cost 8.7 billion dollars<sup>[3-5]</sup>. The cost of all occupational injuries in California was 20 billion dollars, which exceeded the cost of all cancers put together.

The overall cost of fingertip injury is not known and has not been previously reported. The cost of the injury includes the cost of medical care, loss of productive capacity, and the cost of insurance benefits. All the above costs are related to the disability, and the magnitude of the injury, in addition to the duration of time off work.

There is a consensus that fingertip injury is a minor trauma with little consequences. This study aims to explore the size and the cost of the injury in terms economics and loss of productive capacity.

The study covered all patients with fingertip injuries that were followed up in the hand surgery clinic, including all simple, and compound fractures of the distal phalanx, and amputations of the fingertip. Patients with simple wounds were excluded, as they usually do not follow up in the hospitals.

## MATERIAL AND METHOD

In Kuwait, all cases of hand injuries that attend the casualty departments of the general hospitals are referred to one main orthopaedic hospital. Only one provincial general hospital has its own orthopaedic department that handles minor hand traumas including fingertip injuries. All hospitals refer their workman's compensation claims to the department of occupational health. Doctors in this department will revise the disability originally reported by the hospitals where patients received treatment. In turn, the final percentage of total disability and the sick leave duration is reported to the concerned insurance companies.

The "human capital method" is used to calculate cost of injury<sup>[2]</sup>. This method breaks down the cost into direct and indirect. Direct cost consists of the medical expense, as well as insurance administration cost which is beyond our means to assess. Indirect cost includes the lost earnings of

Address correspondences to:

Dr. Husam M. Basheer, P.O. Box 12057, Shamiya 71651, Kuwait. Tel: 5410680; Fax: 5410679; Email: hbasheer@maktoob.com

the injured and the loss of their productive capacity to the employer. Usually, estimates are lower than the actual figure because they ignore 1) cost associated with pain and suffering 2) home care provided by other members and 3) the number that were lost to follow up.

The 100% body disability for living patients is calculated as the salary for 2000 days<sup>[6]</sup>. The average daily wage of workers in Kuwait is seven Kuwaiti Dinars (KD)<sup>[7]</sup> (1 KD=3.3 US dollars approx). The occupational health department corrects this figure to KD 10. Thus the average 100% "total" disability for living patients is equal to KD 20,000, which means that a 1 % disability would generate KD 200. The percentage of disability was calculated according to the statute of the Ministry of Social Affairs in Kuwait<sup>[6]</sup>, which allocates a percentage for the loss of an actual part of the body, or its function. The loss of productivity is presented by the sick leave compensation. The sick leave compensation is calculated by multiplying the sick leave days by daily wages by 0.75<sup>[2]</sup>.

Medical costs were obtained from the Ministry of Health analysis of costs for 1996-1997<sup>[8]</sup>. The medical cost includes the cost of physicians, nurses, X-rays, ambulance services, medical supplies, medications, and prosthetics. According to the official general hospital cost, the average cost of medical care was KD 289<sup>[8]</sup>.

We collected records of workman compensation from the department of occupational medicine for patients with fingertip injury for the year 2000. We also collected the medical records from the casualty departments of the main orthopaedic hospitals for patients with fingertip injury between the ages of 18-55 years.

The records were studied for:

1. Disability.
2. Sick leave.
2. Incidence, type, and pattern of injury.

## RESULTS

The population of Kuwait is 2.254 million<sup>[7]</sup>. Out of this, 805,725 people are considered as the work force. The total number of patients that visited the orthopaedic casualty during 2000 was 83,802, which is 3.7% of the total population. The number of patients with isolated upper limb injury was 13,985, which is 16.6% of the total number of visitors. The total number of patients with fingertip injury was 630, which constitutes 4.5% of all upper limb injuries.

Out of the 630 patients, only 498 claimed compensation from their insurance companies, or a third party. Sick leave ranged from 3-90 days, with a median of 28 days. The total sick leave days were 14,861 with an average of 30 days per patient. The

**Table 1**  
Cost of the fingertip injury

Cost factors	Amount in KD
Total calculated medical cost for all claiming patients with fingertip injury	182,070
Total cost of disability	230,000
Total cost of sick leave	111,457
Total medical cost	38,148
Total financial cost of finger tip injury for claiming and non-claiming patients	623,527
Average financial cost of finger tip injury per claiming patient	1,175

**Table 2**  
Types of fingertip injury

Type of injury	No. of cases
Simple fracture	86
Compound fracture	231
Amputation	164
Soft tissue	125
Nail bed injury (associated with other injuries)	88
Total injuries	694

**Table 3**  
Incidence of injuries according to finger

Finger involvement	Right side	Left side	Total
Thumb	58	34	92
Index	73	72	145
Middle	85	96	181
Ring	73	65	138
Little	23	27	50
Total number of fingers	312	294	606

**Table 4**  
Cause of injury amongst claimed injuries

Causative factors	Number
Machinery	185
Fall of a heavy weight	268
Electric saw	25
Glass injury	7
Door	3
Explosion	1
R T A	7
Sport	2

total percentage of disability for all claiming patients was 1650. The average disability given per patient was 3.3% of total body disability. Calculating all costs for the claiming patients, the average cost per patient was KD 1175. Total cost for the 630 patients was KD 623,527 (Table 1).

All patients were male, aged between 18-55 years. 99.1% of them were right handed. Eighty six injuries were simple fractures without soft tissue involvement and 231 were compound fractures. One hundred twenty five had fingers with soft tissue involvement (severe skin and soft tissue maceration, leaving raw area, without bony involvement). Eighty eight patients had nail bed injuries in addition to the above injuries (Table 2).

The total number of fingers injured was 606 (Tables 3). The finger that was most frequently affected was the left middle finger ( $n = 181$ ) whereas the least injured was the right little finger ( $n = 50$ ).

The most frequent cause of injury was fall of heavy objects ( $n = 268$ ), followed by the use of machines ( $n = 185$ ). There were two sport injuries that were included amongst the claiming workers because they had a 24-hour insurance coverage (Table 4).

## DISCUSSION

To our knowledge, there is no other study that looked at the cost of fingertip injuries. Fingertip injury is generally underestimated. The injury is usually considered a minor trauma and the management is given to the junior staff<sup>[1]</sup>. Knowing that the primary management affects the recovery and the duration of sick leave<sup>[1,9,10]</sup>, proper appreciation of the gravity of the injury would improve results. Time off work is used to represent the severity of injury<sup>[10]</sup>. The longer the time off work, the more severe is the injury. The duration of the sick leave is affected by the dominance of the injured part and the demand of the job<sup>[8]</sup>. Injuries in certain types of jobs tend to be associated with longer time off work than in others.

Johns<sup>[10]</sup> found that manual workers took the longest time off work, due to the severity of the injury, as well as the demand of the job. He also found that the injury to the dominant hand increased time off work to more than 12 weeks. In seventy four percent of cases, the leave was further increased while in pursuit of compensation claim, and was more evident when comparing the same injury between those with claims and the self employed. In industrial communities, time off work was found to be as long as seven weeks<sup>[1,10]</sup>. In our patients with fingertip injury the average time off work was four weeks.

The labour law in Kuwait requires workers to rejoin their duty before settling the workman's compensation claims. Furthermore, according to the sick leave payment law, workers would receive full pay for the first week off-duty, 75% of his wages on the second week, and 50% on the third. After

this, the patient will not be paid until the patient returns to work. On one hand, this motivates many to rejoin work early, although it might be unfortunate for some patients where the injury is severe. On the other hand, if injuries were severe to such an extent that the patient cannot resume job, the patient's contract would be annulled before the workman's compensation claim is settled.

Estimating disabilities is universal with minor differences. They all depend on the severity of the injury, but differ in the way it is computed. In Kuwait, we judge the disability by directly allocating a percentage of the total body according to the level of amputation or the function lost.

Bell<sup>[13]</sup> described the method used for rating disability in the statutes of "Oklahoma Workmen's Compensation Law" that awards the loss of the part or its function by weeks of disability. According to that rating system, the thumb equals 60 weeks, index finger 35 weeks, the hand 200 weeks, *et cetera*. After allocating the equivalent weeks, they compute the results according to set formulas described in the paper to finally yield a percentage value that represents the disability.

Miller<sup>[9]</sup> found that in some patients, less is the injury, worse are the symptoms. These patients, by exaggerating their symptoms attempt to wander off with the longest sick leave, and try to procure more compensation from the insurance company. He also noticed that some patients could manage their usual work while under treatment in bandage, or in a modified cast. In spite of this, the majority had not returned to work, as they felt that wearing a dressing prevents them from working, or being acceptable to their employer<sup>[10]</sup>.

To reduce time off work, Johns<sup>[10]</sup> suggested the following:

1. Prevention of injuries beginning with proper training and strict implementation of safety rules.
2. Improving the standard of treatment.
3. Providing sheltered employment making early return to work a possibility, especially with gradual increase in the intensity of the job.
4. A change in the system for assessing compensation with greater emphasis on the severity of the injury, and less on time off work, hence rewarding early return. This should be judged wisely, so as not to send patients back to work prematurely, which may be dangerous to the worker, and a burden on the employer.
5. Psychological assessment and intervention to go hand in hand with the medical treatment of the wound. Grunet<sup>[12]</sup> found that 70% of their patients continued to have post-traumatic stress disorder for up to six months after return to work.

He also found that psychological assessment and intervention helped their patients' early return to work in spite of their symptoms.

This study reveals the magnitude of the economic loss caused by this somewhat avoidable injury. The estimated loss of more than KD 600,000 to the society is high enough to cause concern. Education and training may play a major role in reducing the incidence of the injury as well as promoting the early return to work, since according to the last census, approximately 47% of the workers had less than primary education<sup>[7]</sup>. Laws defining safety at work have been framed but their implementation is poor. In general, adherence to those rules may play a role in reducing industrial accidents. This paper may have some limitation but it portrays the high incidence and high cost of an injury that is considered trivial by many.

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