



Delayed presentation or delayed diagnosis? A retrospective study of prospectively collected data of 482 foot and ankle injuries

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KEY WORDS

Delayed presentation
Delayed diagnosis
Indirect delayed presentations
Foot and ankle injuries
Failure to suspect
Failure to diagnose

ABSTRACT

Background: Delayed presentation of injury cases is common in developing countries like India. It is prudent to study reasons for delayed presentations to focus preventive measures towards responsible factors. Since foot and ankle orthopaedics is in its infancy in India, it was deemed to be worthwhile to study reasons for delayed presentations of foot and ankle injuries.

Methods: Retrospective analysis of prospectively collected data from 482 foot and ankle injuries treated at our three foot and ankle centres over past three years was undertaken. Delayed presentation was defined as cases presenting to us at or after 3 weeks of injury, but with complete records. Reasons for delayed presentations were analysed.

Results: There were ninety eight such cases who fulfilled the delayed presentation criteria and within this group there were twenty different varieties of foot and ankle injuries. Of these twenty six cases were never treated by qualified orthopaedic surgeons and were labelled as direct delayed presentations, and the remaining 72 cases who were treated by qualified orthopaedic surgeons, but could not be diagnosed and presented late, were labelled as indirect delayed presentations. Failure to suspect injury (5 cases) or failure to diagnose injury (67 cases) were reasons for indirect delayed presentations. Failure to diagnose injury on part of clinicians was either due to failure of clinical and radiological analysis (analytical failure – 15 cases) or due to failure to investigate case with further radiological investigations (investigative failure – 10 cases). Forty-two cases had combined failures.

Conclusions: In developing countries like India, patients did neglect their foot and ankle injuries and presented late. In fact, by way of delayed diagnosis, clinicians were more responsible for indirect delayed presentations of foot and ankle injuries. This is contrary to the common belief that in developing countries like India, only patients would be solely responsible for delayed presentations after injury. Because delayed diagnosis by clinicians seemed more alarming than delayed presentation by patients, focus of prevention of foot and ankle injuries in developing countries should shift more towards educating clinicians than patients.

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Introduction

Early diagnosis and prompt management of any injury would result into a better outcome [1]. For early diagnosis, it is mandatory that injury cases present in time [1]. Delayed presentation of injury cases would lead to delay in the diagnosis and compromise in the management leading to poor outcome [1–3]. In the past, studies have been performed to find out the reasons and solutions for missed injuries indirectly leading to delayed presentations [3–7]. Such studies were conducted at trauma centres of developed countries with focus on multiply injured cases [8]. On the other hand true delayed presentation of injuries is a common feature in developing countries unlike developed countries [9] and is not widely studied.

Foot and ankle orthopaedics is in its infancy in developing countries. Consequently countries such as India featured with delayed presentations of foot and ankle injuries [9]. Provided that the factors causing delayed presentations in developing countries are identified, implementing preventative strategies would be easy. To the best of our knowledge, till date; no study has focused on finding out the reasons for delayed presentations of foot and ankle injuries in India or in any other developing countries.

We decided to study types, reasons and underlying responsible factors for delayed presentations of foot and ankle injuries in India.

Materials and methods

This retrospective study was based on prospectively collected data of all foot and ankle injuries cases who presented to our centres between years 2014 to 2016. Three centres located in three different cities participated in this study. Inclusion criteria were all foot and

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ankle injury cases with delayed presentation. We defined delayed presentation as presentation to us at or after three weeks of injury. Exclusion criteria included presentation before three weeks of date of injury, and patients who did not have complete previous clinical and radiological records. Permission was taken from the institutional review board. Informed consent was obtained from every patient.

History taking, clinical examination and study of previously carried investigations were aimed at finding out reasons for delayed presentation. History details covered: mode of injury, injury to treatment timing, investigations carried, type of treatments received and details of treating persons. Study and documentation of all previous clinical records and investigations was undertaken. Findings from recent clinical and radiological examination were compared with the previous ones. Based on our findings, grouping of delayed presentations was done. Analysis of reasons amongst these groups formulated reason subgroups which ultimately led towards factors responsible for delayed presentations.

Results

We had 113 delayed presenting foot and ankle injury cases out of 482 total cases of foot and ankle injuries. 15 cases were excluded due to lack of complete records making final case count of 98 cases.

Twenty different varieties of delayed presenting foot and ankle injuries were found, spectrum of which comprised of 27 cases of ligament injuries, 10 cases of tendon injuries, 5 cases of osteochondral injuries and 56 cases of bony injuries.

Table 1 demonstrates a list of all delayed presenting injuries found in our study with numbers.

Out of 98 total cases, 14 cases were part of polytrauma with five different case varieties. Midfoot trauma with 4 cases each of navicular and cuboid fractures and 3 cases of lisfranc injuries was most commonly associated with polytrauma. Fracture neck talus was seen in 2 cases and fracture base of the fifth metatarsal was seen in 1 case.

Table 2 demonstrates a list of delayed presented cases as part of polytrauma.

Study of previous treatment records showed that before reaching us, our study group undertook 5 different varieties of treatments. Based on types of treatments taken, we could categorise them as: cases with only home treatment, only quack and alternative medicine specialist's treatment, only family physician's treatment, only qualified orthopaedic surgeon's treatment and combination of all treatments. 26 cases did not receive any kind of treatment from qualified orthopaedic surgeons. Case distribution was 4 cases of only home treatment, 4 cases of treatment from quacks and alternative medicine specialists and 18 cases of treatment from family physicians (Figure 1); 72 cases were assessed by qualified orthopaedic surgeons. Out of these 72 cases, 41 cases received primary treatment and the remaining 31 cases received secondary treatment (after failure of other treatments) from qualified orthopaedic surgeons; 93 cases received a combination of treatments.

Table 3 demonstrates the varieties of treatments taken by our cases with numbers.

Twenty six cases who did not get treated by qualified orthopaedic surgeons before reaching out to us were classified as direct delayed presentation group. Home treatment cases, quack and alternative medicine treated cases, and family physician treated cases formulated this group. Twelve different varieties of injuries seen in this group comprised of 17 cases of bony injuries, 5 cases of ligament injuries, 3 cases of tendon injuries and 1 case of osteochondral injury.

Table 4 demonstrates case distribution for direct delayed presentation group with numbers.

There were 72 cases who were treated by qualified orthopaedic surgeons before reaching out to us and these were classified as

Table 1

Delayed presenting foot and ankle injuries with numbers

(total n=98)	Number of cases
Fibula fracture	3
Syndesmotic sprain	3
Syndesmotic injury with fracture	11
Deltoid ligament injury	2
Calcaneus body fracture	4
Anterior process calcaneus fracture	5
Lateral talar process fracture	10
Posterior process talus fracture	5
Osteochondral fracture of talus	5
Fracture neck of talus	2
Fracture of navicular	4
Fracture of accessory navicular	1
Fracture of cuboid	5
Fracture of cuneiform	2
Lisfranc injury	23
Fracture of base of 5 th metatarsal	3
Sesamoid injury	2
Tendoachilles rupture	4
Peroneal tendon injuries	2
Rupture of tibialis anterior tendon	2

Table 2

Delayed presenting cases as a part of polytrauma.

(total n=14)	Number of cases
Fracture base of 5 th metatarsal	1
Fracture neck of talus	2
Navicular fracture	3
Cuboid fracture	4
Lisfranc injury	4

Table 3

Type of treatment taken by our cases with numbers.

Type of treatment taken	Number of cases
Only home care	4
Only quack or alternative medicine specialists treatment	4
Only family physician's treatment	17
Only qualified orthopaedic surgeon's treatment	41
Combination treatments	93

Table 4

Case distribution for direct delayed presentation group.

(total n=26)	Number of cases
Fibula fracture	3
Calcaneus body fracture	3
Anterior process calcaneus fracture	2
Lateral talar process fracture	3
Posterior process talus fracture	1
Osteochondral fracture of talus	2
Fracture of cuneiform	1
Lisfranc injury	5
Fracture base of 5 th metatarsal	2
Sesamoid injury	1
Tendoachilles rupture	2
Peroneal tendon injuries	1

indirect delayed presentation group. Clinicians either failed to suspect or failed to diagnose these injuries before these cases presented to us. Nineteen different varieties of injuries seen in this group comprised of 38 cases of bony injuries, 23 cases of ligament injuries, 9 cases of tendon injuries and 2 cases of osteochondral injuries.

Table 5 demonstrates the case distribution of indirect delayed presentation group with numbers.

Comparison between the two groups showed that fracture fibula cases were found only in direct delayed presentation group. Cases such as: syndesmotic injury, deltoid ligament injury, talus neck

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