

ORIGINAL ARTICLE

Occupational-Seasonal Spine and Other Orthopaedic Injuries due to Fall from Java Plum Tree

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ABSTRACT

Background: Falling from a Java Plum (Jamun) tree is one of the primary causes of Spine and other extremity fractures during the Monsoon season (when it is harvested) in Pakistan.

Objective: To assess the distribution of patients with different fracture types presented with the history of fall from Jamun tree during Monsoon season.

Study Design: Retrospective study

Place and Duration of Study: Department of Orthopaedics & Spine Surgery, Ghurki Trust Teaching Hospital, Lahore 1st May 2020 to 31st August 2020,

Methodology: Forty two male patients age ranged from 12-55 years of age were enrolled. Information was obtained from the hospital's trauma registry, and medical records were retrospectively reviewed for data about the type of fractures, occupational status, pre-hospital immobilization, time of presentation, and the time between fall and management and length of hospital stay were reviewed.

Results: The average age of the patient was 34.6 years. Twenty four (57.14%) had spine fractures and 18 (42.8%) suffered other axial and skeletal fractures. Nearly three-fourths needed surgical intervention. In contrast, 26.1 % were managed conservatively.

Conclusion: During monsoon season, we received 4.6% of extra patients with different injuries following fall from Jamun tree. In most cases, young men from lower socio-economic status suffer from varying degrees of disability and experience financial problems.

Keywords: Fall, Java Plum, Mass awareness, Occupational-seasonal injury, Spine fractures

INTRODUCTION

Java Plum (also known as Syzygiumcumini) tree belongs to family Myrtaceae and is known to be naturalized throughout Southeast Asia and the Pacific Islands.¹ It is found in various regions of Pakistan and locally is called JAMUN, JAMBU.² The small scented flowers bloom on black plum trees during Spring. By the time the Monsoon Season rolls around, the fruit is ready to be harvested. The taste of S. cumini is sweetish-sour and a little bit astringent. Whereas, the colour of the ripe fruit is deep purple or blackish.³ The usual trend by the farmers and the general public in the country is to climb and harvest the treasure that lies on the branches of its trees. In doing so, it becomes a game of life and death to pluck the plums from height of 30 m tall.⁴

Although various studies had been conducted regarding spinal trauma due to fall from height⁵ and number of those studies include fall from various trees like walnut.⁶ We have received patients with the history of fall from Java Plum. The present study aimed to assess the distribution of patients with different fracture types presented with the history of fall from Jamun tree during Monsoon season.

MATERIALS AND METHODS

This retrospective study was conducted at the Department of Orthopaedics & Spine Surgery, Ghurki Trust Teaching Hospital, Lahore, in June and July 2020, after approval from Hospital Ethical Committee and consent of patients. A total of 42 patients were included in the study of fall from Java plum. Informed consent was taken from each patient. Information related to different types of fractures and associated injuries were obtained from the hospital's trauma registry, medical records, and physical examination in 6 weeks post-operative outpatient departmental follow up. The demographic information regarding occupational status, pre-hospital immobilization, time of presentation, mode of transportation, the time between fall and surgery, length of hospital stay, and pre and post-op neurology were also recorded. All the data were entered and analyzed using SPSS-22.

RESULTS

The average age of the patient was 34.6 years. Thirteen patients had experienced a transient loss of consciousness after their fall. The

minimum follow-up duration of the patients was six weeks. More than half of them, 24 (57.2%) had fractures of the spine at different levels; among these two patients had associated calcaneal fractures as well which were managed conservatively. Compression and burst fractures were the most commonly seen. Out of 24 spine fracture patients, the majority of spine fractures, i.e. 20 (83.33%), needed surgical intervention (transpedicular screw fixation with or without posterior decompression), while fewer 4 (16.67%) were managed conservatively. However, 18 (42.8%) patients suffered from other extremity fractures. Since the patients fell on outstretched hands, the fractures of the distal radius and ulna (05) were the most common injuries involving the upper limb. Similarly, eleven cases of lower limb fractures were diagnosed. Being a high energy injury involving fall from a height, calcaneal fractures, 7 were the common in this category. Two patients had sine fracture with calcaneal fracture as well. Others include couple of cases of femoral shaft and patella fractures. Likewise, the shaft of the tibia and fibula fracture was seen in one patient. Furthermore, one patient had clavicle fractures and required conservative management. Similarly, a dislocated shoulder joint was reduced in single case. According to our study, only one patient had an open fracture that, too, was of 2nd metatarsal in which K-wire fixation was done. Pre-op immobilization was not given to all of the cases; only (n=10 spine fractures, n=4 other fractures) were given back slab or cervical collar in pre-hospital settings. The majority of the cases were presented late within 12-36 hours as 20 (47.6%), while fewer cases were presented early <12 hours as 9 (21.4%).

Table 1: Distribution of patients falling from Java Plum (n=42)

Parameter	No.	%
Fracture Type		
Spine	24	57.2
Others	18	42.8
Management of Spine Fracture		
Conservative	4	9.6
Surgical Intervention	20	47.6
Others	18	42.8
Presentation time (hours)		
<12	9	21.4
12-24	13	30.9
25-36	7	16.8
>36	13	30.9



Pre and post op radiographs of patient with L1 Fracture and TPSF D12-L2

DISCUSSION

In this study, we have carried out the epidemiological situation of different injuries after a fall from Java Plum tree. The general prognosis of fall has multiple factors and management of these patients would be testing is fall from height increasing. 5 falls from trees forms major sub-group of injuries resulting from falls from height specially in countries with more rural population depending on trees for livelihood.⁶ It is a common mode of trauma in the less developed countries, but the injuries often are not documented.⁷ Falls mostly affects males⁸, and all the patients in our study were exclusively males.

The major reason for falls from trees is the primitive method of Jamun collection. None of our patient was under the influence of alcohol which is attributed to religious factors. Whereas, alcohol intake is a significant factor in falls from height in other parts of the world.⁹

It was found that most of the patients were young with an average age of 34.6 years, this finding is consistent with the results of other study of fall from walnut tree.¹⁰ Both adult males and boys climb trees in our area for recreational purposes such as fruit gathering. This shows showed that we get extra burden of 4.6% patients during this particular season.

The daunting aspect of our study is that 47.6% patients were presented to our centre more than 24 hours delay which also includes cases of spine injuries as well. A study conducted by Jayaswal et al¹¹ also had a delay arrival in hospital of more than 48 hours of patients with spinal trauma injuries. Twenty two (52.3%) patients arrived within 24 hours after history of fall from Jamun tree which is less than as compared to other study conducted on 106 cases in Burkina Faso where presentation of patient within 24 hours time period was 67%.¹² The reason behind delayed presentation include lack of adequate health care awareness and facilities in the periphery.¹³

The distribution of occupation showed that out of 42, 12 were out-of-school boys, 5 were farm-workers, 4 were school going children, 2 were clerics and one constructor. Sixteen patients were unemployed. This depicts that fall from this particular tree belongs to traditional habit of our people rather than all-occupational injury. Pre-hospital immobilization was given to only 14 patients which highlights the need of creating awareness about management of patients of fall from height.

The anatomic site distribution of a total of 42 injuries showed 57.14% cases of spine fractures, seven cases of upper limb injuries and thirteen cases of lower limb fractures. Distal radius ulna fractures were observed in five patients followed by case each of clavicle fracture and a shoulder dislocation, both managed conservatively. Among lower limb injuries, seven patients sustained calcaneal fractures, one case of open 2nd metatarsal fracture, two patients had femoral shaft and patellar fractures. However, one case of close tibia fibula was managed with IM IL TIBIA Nail.

There is a need to recognize this injury not just as an occupational but also as seasonal injury in our region due to some traditional habits. The numbers which have shown to our tertiary care hospital must be tip of the iceberg. The morbidity following injuries is significant, leaving patients with potentially lifelong disabilities. This does not only impose extra financial burden on our health system, but also creates socio-economic issues to the families of the victims. The primary treatment to these injuries is prevention and using safety harnesses. We have enlightened this issue to create a mass awareness among our general public and related authorities, so that we can overcome this avoidable problem. It is our hope to lower the rate of falls from Java Plum tree by presenting the data to the authorities so that the issue can be highlighted.

CONCLUSION

It is concluded that during monsoon season, we received 4.6% of extra patients with different injuries following fall from Jamun tree. In most cases, young men from lower socio-economic status suffer from varying degrees of disability and experience financial problems. It is an effort to present the scientific data so that regulatory authorities can consider regarding its precautions.

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