

Keywords: Injury; Trees; Fall; Walnut tree

Introduction

Fall from trees are rare and may lead to severe consequences [1]. Trees responsible for most of the deaths and injuries include the coconut palm, betel palm, mango, and breadfruit [2]. Fall from walnut tree is a significant occupational risk in Kashmir which is amenable to public health interventions [3]. Injuries due to falling from the walnut tree are not unusual in parts where it is grown. Most commonly implicated in tree fall injuries overall is the fall from walnut tree in Kashmir. In Kashmir, climbing walnut tree to harvest walnuts is an important part of rural life and the means of livelihood. The harvest season falls during the months of September and October. Adults climb to collect fruits from various trees but often children climb trees while playing and collecting fruits in excitement. The traditional method of harvesting the walnut crop is notorious for fall and inflicting injury. The conventional methods of climbing these trees and either using a long stick or is resorting to vigorous shaking to dislodge the fruit. Abdominal and chest trauma are also seen quite frequently [4]. Fall from walnut trees constitutes an important entity that leads to a significant mortality and morbidity amongst those engaged in fruit collection [5]. Trauma prevention programs directed toward heightened public awareness of these injuries during harvesting season are needed. The aim was to the profile of abdominal injury suffered from fall from walnut tree.

Type of abdominal organ injury	No. of Patients
Splenic laceration	8
Liver Trauma	3
Kidney Trauma	2
Hemorrhage in cyst of APKD(Hit by falling branch)	1
Gut Perforation	2
Mesenteric Tear	1
Others	5

Table 3: Showing abdominal viscera injured.

Discussion

In tree related injuries, fall from a tree is the most common cause of injuries [6]. Injuries resulting from a fall from a walnut tree are commonly restricted to a particular season usually in harvesting season [7]. Farmers or labourers involved in harvesting walnuts are mostly injured. In view of being a seasonal injury, emergency health resources of the region are swamped over a small period of time [4]. Fall from walnut tree usually affects single person. The risk of fall increases with age [8]. Climbing the trees, usually barefooted, and striking at its branches with long sticks, the very length of which necessitates the use of both hands is the traditional method of harvesting the walnut crop. Vigorous shaking of the branches may be attempted to dislodge the fruit. Harvesting of walnut is done before attaining full ripeness. Fruit being attached more tenaciously to the tree at this stage necessitating more force required to be exerted to detach fruit, usually leading unbalance and fall. The slippery nature of the bark adds to the probability of fall. The second pattern of fall is the branch giving way while the worker is perched on the branch. There is no formal training to farmers in harvesting walnut from climbing trees. Children sustain injuries sometimes to carry out the work of fruit or sometimes climb tree for playing in harvesting period and in during the post-harvest phase they climb these trees to claim the residual fruit. In non harvesting season, fall is seen usually in children who climb walnut tree for playing. Age of person, height of the fall, landing surface, orientation at the time of hitting the surface determines type and severity of injuries [9]. Nature of the injuries is varied by horizontal, rotational and gravitational forces acting upon the falling body.

Most common injury inflicted from walnut tree fall is skeletal injury [10]. Type of abdominal injury inflicted from fall from walnut tree is determined by part of abdomen having brunt on tree branches or on ground. Spleen is commonest organ damaged in fall from walnut tree followed by liver. This is same as spleen most common organ damaged in blunt abdominal trauma. Laceration in solid viscera is usually one or two most often managed conservatively in liver and kidney. Mesenteric tear or gut perforation is single. Hemorrhage in cyst of APKD (Adult Polycystic kidney disease) is to be managed conservatively. Patients from walnut tree often have a polytrauma. A whole body computed tomography scan is needed for diagnosis of any unsuspected injury. A polytrauma requiring surgical intervention for any injury has morbidity of associated injury.

The following measures are suggested to prevent the morbidity and mortality attributable to harvesting walnuts [11]. Cultivation of grafted walnut trees, a simulating measure adopted in West Africa where with the introduction of grafted dwarf palm trees, incidence of trauma due to fall from a palm tree has decreased considerably [12]. Imparting proper education to farmers regarding the proper time of harvest of walnut crop will be a safety measure. Legislation allows only the properly trained personnel to carry out harvesting. These preventive measures are similar as based on legislation in Georgia and Louisiana for tree-stand related injuries and deer stand falls respectively [13]. Designing protective gear and tethering of the harvesting farmer or laborer by a proper restraining apparatus to prevent them from falling to the ground could be preventive measure for preventing injuries from fall from walnut tree. Stopping small boys climbing walnut trees could avoid injuries in children [2].

Conclusion

Fall from walnut trees is common in harvesting season. Skeletal injuries are common. Spleen is commonest organ damaged in abdominal trauma from fall from walnut tree. Proper education, training and legislation will reduce incidence of injury from fall from walnut tree.

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