

## Case Report

**The Unusual Impalement Injuries of the Hand**SANDESH BHARAT SINGH<sup>1</sup>, HARSHA VARDHAN<sup>1</sup>,  
KIRAN SILWAL<sup>1</sup>, DIVYA NARAIN UPADHAYAYA<sup>1</sup><sup>1</sup>King George Medical College, Lucknow, Uttar Pradesh, India

**ABSTRACT:** Impalement injuries are relatively rare. The most common anatomical site of involvement is the extremities. Impalement injuries are defined as penetrating injuries where traumatic agent remains impaled in the human body. Foreign body penetration of hand and wrist usually present as emergency cases. Due to their rarity, the management of this clinical condition remains controversial. Here we report A case of impalement injury of the hand and their successful management. The patient even though injured by such an object had minimum injuries. Case: 42 years old male presented with history of slipping while trying to cross a fence. He sustained penetrating injury over left hand by iron fence finial 7 hours prior to presentation.

**KEYWORDS:** *Finial Injury, Impalement Injury, Hand Injury.*

**Introduction**

Impalement injury can be defined as an injury that results when a foreign object penetrates into the body of a person [1].

The foreign body enters through a puncture wound and can go up to variable depths [2].

These injuries have been classified as:

I: injury which occurs when a mobile body hits a stationary object.

II: those injuries in which a mobile object hits a stationary body [3].

These objects are either visible on examination or may go unnoticed as they may be completely embedded in the body [4].

Here we report a patient with impalement injury of the hand who was successfully managed.

**Case Report**

A 42 years old male presented with history of slipping while trying to cross a fence.

He was initially seen in trauma surgery and later referred to plastic surgery department of our tertiary care hospital in north India.

He sustained penetrating injury over left hand by iron fence finial 7 hours prior to presentation (Figures 1-3).

The person was found hanging for 4 hours till the rescuers managed to cut the fence finial.

Spike of the railing pierced the distal forearm from the volar aspect and exited from the dorsal aspect.

On clinical examination, there was no neurovascular deficit. There was restriction of wrist and finger movements (Table 1).

Tetanus prophylaxis was given. A written informed consent was taken prior to publication of these data.



**Figure 1. Preoperative palmar aspect showing impaled foreign body.**



**Figure 2. Preoperative dorsal aspect showing impaled foreign body.**



Figure 3. The foreign body after removal.

Patient was taken for exploration under brachial block.

Intra-operatively, there was injury of flexor digitorum superficialis muscle of ring and little finger.

Wound on the volar aspect was extended by lazy S incision and then spiked iron top was withdrawn.

The wound was thoroughly lavaged with normal saline.

Repair of the flexor digitorum superficialis tendon was done.

Wound over dorsal and volar aspect was primarily sutured.

Patient was under routine follow up for six months and was doing well without any functional deficit (Table 1).

Table 1. Examination of Fingers.

EXAMINATION	PREOPERATIVE FINDING	POST OPERATIVE FINDING
CAPILLARY FILLING	PRESENT	PRESENT
PIN PRICK	BRIGHT RED	BRIGHT RED
FINGER MOVEMENTS	RESTRICTED	RESTRICTED INITIALLY, FULL RANGE ON 6 MONTHS FOLLOW UP

## Discussion

Metal railings can end in a decorative finial. Sometimes these objects have ends that may have a sharp spear-shaped projection.

The main aim of these sharp ends is to restrict unauthorized access to an area or yard [5].

Series of reports on impalement injuries have advised that the impaling object be left *in situ* and reduced to a size or length which can allow the patient being transported to a health facility [6].

This measure aims to prevent severe life-threatening hemorrhage that may ensue if the tamponading effect by the impaling object on a large vessel be suddenly removed and to also avoid breakage of the impaling object.

There are very few cases of such types of injuries having with successful management that been reported in the published literature.

Management of such injuries requires a great deal of caution, the foreign object should be left as it is until one can remove it in an operation

theatre, the patient should be timely transported to a tertiary care hospital and later an efficient surgical management [7].

Impalement injuries are complex, penetrating injuries with several challenges in pre-hospital care, transportation, and surgical management.

Health-care specialists should be aware of this clinical entity and its challenges [8].

A detailed trauma evaluation and followed by resuscitation should be carried out.

As much as possible minimal manipulation of the impaled foreign body along with extraction in the operating room under vision, thorough wound lavage, and antibiotic administration should be done to prevent infections.

These are the pearls of management of impalement injury [9].

Our patient did not have any serious injury, the chances of which are low in such type of injuries.

He had a full recovery with no loss of hand function on regular follow up.

## Conclusion

Such injuries usually cause severe damages, but our patient presented with minimal injuries which was treated accordingly with no residual functional loss.

## Conflict of interests

None to declare.

## References

1. Horowitz MD, Dove DB, Eismont FJ, Green BA. Impalement injuries. J Trauma, 1985, 25(9):914-916.
2. Goel T et al. Case report of isolated impaling lung injury with successful outcome. Int Surg J, 2017, 4(10):3548-3551.
3. Eachempati SR, Barie PS, Reed RL. Survival after transabdominal impalement from a construction injury: a review of the management of impalement injuries. J Trauma, 1999, 47(5):864-866.
4. Mathur RM, Devgarha S, Goyal G, Sharma D. Impalement injury involving both heart and lung: a rare case report. IOSR J Dental Med Sci, 2013, 9(4):62-65.
5. Karen J. Heath, Allan D. Cala. Metal Railing Fences and Accidental Death. J Forensic Sci, 2018, 63(3):972-975.
6. Akhiwu BI, Adoga AS, Binitie OP, et al. Impalement head injury with a spear. J West Afr Coll Surg, 2016, 6(2):113-124.
7. Basit S, Lone AH, Khursheed O et. al. Penetrating injury of right hand due to impalement of a wooden foreign body in a professional wood cutter: a case report. Int J Health Sci Res, 2015, 5(3):454-456.
8. Salomone JP. More than skin deep: use caution when treating impalement injuries. JEMS, 2011, 36(6):40-43.
9. Banshelkikar SN, Sheth BA, Dhake RP, Goregaonkar AB. Impalement Injury to Thigh: A Case Report with Review of Literature. J Orthop Case Rep, 2018, 8(1):71-74.

---

*Corresponding Author: Sandesh Bharat Singh, King George Medical College, Lucknow, Uttar Pradesh, India,  
e-mail: dr.sndsh@gmail.com*