Inguinal empalement. Report of two cases

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Abstract

Background: Traumatic inguinal lesions in children are relatively unusual and those caused by impalement are less common. The purpose of this paper is to demonstrate the clinical course of two similar cases.

Clinical cases: A 13-year-old male and a 7-year-old female are presented in this report. During an accidental fall, they sustained an inguinal wound. In the emergency room, a wooden stake and a metallic bar were seen in the inguinal region. The surgical procedure shows absence of vascular, neurological, visceral and testicular damage. Both wounds caused by foreign bodies were subcutaneous and removed without complications.

Conclusions: These types of accidents are uncommon and the absence of damage is the most relevant issue.

Key words: impalement, pelvic trauma, inguinal canal.

Introduction

Home accidents occupy an important place in regard to geographic sites of occurrence. According to some authors, the home is where most traumatic injuries occur. Predominant injuries are falls, burns and ingestion of foreign bodies that often have good prognosis, and strangulation being among those injuries that can cause immediate death.1

Impalement, on the other hand, is a term that, according to the Larousse2 dictionary, means “to traverse the body with a sharp stick” and is applied in surgery to those lesions that pass through some part of the body with the object remaining in situ. It can affect any part of the body but occurs most commonly in the pelvis, trunk and palate.3

This event is not often seen in daily clinical practice because in the majority of cases the impalement is irrelevant and the injuring object is removed from the anatomic region involved. We present two illustrative cases where an injury was observed that is only occasionally seen in clinical practice due to its mechanism of production and to its spectacular and implausible effects.

Clinical Cases

Case 1

We present the case of a 13-year-old boy whose injury took place 4 h prior to admission. The accident occurred when the boy jumped from the second step of a ladder and accidentally pulled with his foot the broomstick that was sharp at the free end. When the patient fell, he became caught in the right inguinal region, causing blood loss of ~50 mL and extreme pain, as well as the inability to walk. He was brought to the emergency room of our hospital with the stick stuck in the inguinal region (Figures 1 and 2). He was alert and with normal vital signs and visible facial pain. The abdomen showed signs of peritoneal irritation.
In the right inguinal region the broomstick was noted, which entered by the fundus of the right scrotal sac and came out in the ipsilateral iliac fossa. There was no active hemorrhage, but the signs of past bleeding were evident. The right leg demonstrated distal pulse, sensitivity and normal capillary refill.

In the operating room and under general anesthesia, the injury was examined and was apparently subcutaneous (Figure 3), and the stick was extracted. The inguinal canal was surgically explored, and all structures were carefully examined especially emphasizing the spermatic cord and peritoneal cavity, which were found to be unharmed. There were a total of four wounds repaired of 3 cm each, two in the scrotum, another in the skin of the inguinal region adjacent to the scrotum, and skin of the abdomen near the ipsilateral iliac crest. Patient’s evolution was satisfactory and he was discharged at 48 h without complications.
We present the case of a 7-year-old girl from the State of Mexico, whose ailment began 2 h before her hospitalization. The father reports that the house where she lives with her family is on an irregular terrain with unfinished construction and an unevenness of ~4 m in comparison with her grandmother’s house next door. It appears that the child would periodically visit her grandmother by going down the slope, but she did so by sufficiently supporting her back and feet against a wall to get there. The day of the accident and during this maneuver, she slipped and fell against an unfinished support, falling and being pierced by a half-inch rebar through the right inguinal region (Figures 4 and 5). She was immediately attended to by her mother who was unable to extract her and requested help from the neighborhood metalworker who freed her in 30 min after cutting the rebar. The transfer to our unit was by helicopter where she arrived conscious and well oriented with stable vital signs. The pulse and color of the affected pelvic extremity were normal. Preoperative management was instituted on the basis of intravenous fluids and analgesics. Laboratory and radiological studies were carried out and the patient was then transferred to the operating room where under general anesthesia the Mexican Red Cross paramedics cut the rebar close to the skin with the “jaw of life,” which allowed for a careful and exhaustive exam. The tract was clean, subcutaneous, and did not damage any vascular, neurological or visceral structures. The child was hospitalized for 48 h and was discharged to her home with mild claudication.

**Discussion**

Even though impalement is a problem mainly of the perineal region, such an eventuality could present in any part of the body in which a piercing wound by a foreign body that is not a firearm, but in particular remains until the patient is seen in a medical center. When the perineal region is affected, imminent risk exists that the lesion may accompanied by intestinal perforation or injury of another organ such as the bladder or large intestine. The lesion could be caused by a metal rebar, a fragment of wood or glass, the antenna of a television, fallow cane field, or the horns of a bull.

Under other circumstances, the effect may be more severe because in the path of the foreign object associated injuries may be found such as tear of large vessels when the pelvis is involved and of the esophagus and upper respiratory tract when the neck is affected.

In special cases the target organ is the brain, in particular when the impalement is a consequence of a fall on the face while the child is carrying a pencil in his mouth.

In the cases we have presented, the inguinal region was the site of entrance and exit, but fortunately in its path the fragments of wood and metal did not injure the spermatic cord, testicle or large vessels in the inguinal region such as reported by Bloker and Redman who relate from their experience the imminent risk of “a child left visibly hanging by the testicle attached to the flag pole after sliding on it.”

Inguinal lesions in which the mechanism is the forced introduction of a sharp object is a very common accident and is particularly frequent in older children and adults who dedicate themselves to the care of bulls for bullfights and of bullfighters.

In a recent report, Ríos et al. reviewed their experience related to injuries by bull’s horns finding that of 15 patients managed of all ages, only one was <15 years of age and 10 had injury of the scrotum and inguinal region.

In conclusion, and according to those cases we had the opportunity of reviewing, these types of injuries are very rare and it is notable that neither of the patients we presented suffered irreversible damage.

**References**