



## Case Report

## Delayed presentation of a firearm injury in a patient with recent use of phencyclidine: A case report

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## ARTICLE INFO

## Keywords:

Phencyclidine  
 Gunshot wound  
 Delayed presentation

## ABSTRACT

The rapid delivery of care for penetrating traumatic injury, such as gunshot wounds, is essential to minimizing the morbidity and mortality rate. It is highly unusual for a patient who has sustained a firearm injury to present over 24 h after the event and even more unusual for the patient to be amnesic to the event. We report a case of a 44-year old woman who presented to the Emergency Department (ED) with an abdominal firearm injury sustained over 24 h earlier. The patient had no recollection of the events surrounding this injury. An abdominal Computed Tomography (CT) scan confirmed an intra-abdominal injury consistent with ballistic trauma. Upon further questioning, the patient continued to deny having sustained a gunshot but did reveal that she smoked phencyclidine (PCP) one day earlier with her boyfriend. The patient was admitted for emergency laparotomy and bowel resection and had a prolonged hospital course due to development of necrotizing soft tissue infection of the abdominal wall and an enterocutaneous fistula. This case represents an unusual delayed presentation of ballistic trauma after recreational consumption of PCP.

## Introduction

The rapid delivery of care for traumatic injury is critical to minimizing morbidity and mortality associated with the event. The “golden hour” concept is based on the idea that patients who sustain penetrating injuries must be treated in the first hour to minimize the risk of shock and death [1]. The need to expedite management of acute traumatic injury underpins much of the U.S. Emergency Medical System (EMS). Today, it is highly unusual in the U.S. for a patient who has sustained a firearm injury to present over 24 h after the event and even more unusual for the patient to be amnesic to the event. Herein, we describe a case of a 44-year-old woman who presented to the Emergency Department (ED) with an abdominal firearm injury sustained over 24 h earlier and to which she had no recollection of how it occurred. The patient described smoking PCP 24–48 h prior to presentation.

## Case report

A 44-year old woman presented to the ED complaining of two days of abdominal pain, nausea, vomiting, constipation and drainage of fluids from two puncture wounds in her abdomen. The nursing triage note listed the patient's chief complaint as “boil” because the patient believed that she was developing a cutaneous abscess similar to a prior episode. She denied any prior medical or surgical history but did report smoking PCP 24–48 h prior to arrival. On arrival to the ED, the patient was awake and in moderate

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<https://doi.org/10.1016/j.tcr.2019.100272>

Accepted 30 November 2019

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distress. Her vitals included: temperature of 97.8 °F, heart rate of 137 bpm and initial blood pressure 63/44 mm Hg. The patient was oriented and alert with fluent speech. Physical exam revealed a circular wound to the left upper abdomen and a foul-smelling purulent wound to the left flank. The patient had no active bleeding. The patient had peritonitis on exam. Computed tomography (CT) of the abdomen revealed a defect in the abdominal wall, air in the adjacent small bowel mesentery and a moderate amount of free fluid. Laboratory studies were notable for an elevated creatinine of 5.6 mg/dl and elevated lactic acid of 11.9 mmol/l, while her white blood cell count was 8.7 K/mm<sup>3</sup>. The urine toxicology test was positive for PCP. Following resuscitation, the patient was transferred to a nearby Level I trauma center where she underwent an emergency laparotomy including resection of a 75 cm segment of small bowel and debridement of the left flank. Her complicated hospital course included the development of necrotizing soft tissue infection of the flank and an enterocutaneous fistula. Ultimately, the patient received split-thickness skin grafting to assist in wound healing and closure. She required numerous debridement and TPN. She was discharged to home after 2 months.

## Discussion

Firearm injuries typically present soon after the event and the cause of injury is straightforward. In this case, the recent use of PCP created an amnesic state so that our patient did not realize she had sustained an abdominal firearm injury and presented over 24 h after the sustaining the injury. Prior case reports have described delayed presentation of abdominal firearm injuries up to 20 days for injuries that were not immediately life-threatening at time of injury [2]. Certain organs such as traumatic injury to the diaphragm are often missed at initial presentation and not diagnosed until later [3]. However, it is unusual for patient to have both a delayed presentation and to be unaware of being a victim of a firearm injury.

In the United States patients with firearm injuries are usually rapidly transported to a medical facility. The median total pre-hospital time for patients who sustain a firearm injury in the US is 36 min which is the shortest transport time of any mechanism of injury [4]. Prehospital time is an independent predictor of patient mortality in all patients with traumatic torso injuries. Most deaths from truncal hemorrhage occur within 30 min after injury [5]. More recently, data from the wars in Iraq and Afghanistan suggest that battlefield survival after injury is closely linked to the interval from injury and evacuation to the first surgical intervention [6,7]. The use of police transport in Philadelphia to rapidly transport gunshot victims has shown promise at reducing mortality [6].

There are other reasons why a patient might be unaware of sustaining a firearm injury thus, leading to a delayed presentation in the ED or trauma center. One cause of delayed presentation is intoxication with alcohol or drugs which is known to be associated with a delay in prehospital transport times. Perhaps because of this delay in diagnosis, PCP intoxication is associated with higher rates of mortality and significant impact on clinical outcomes after trauma [8]. PCP is a drug of abuse known for its mind-altering effects including hallucinations, behavioral changes, dissociative state and memory loss. Once in the hospital, there may be further delay because the physician's index of suspicion for an unreported firearm injury is low [9]. Cases are frequently diagnosed by radiological images without a clinical suspicion of a bullet injury [10]. In addition to delaying care for penetrating trauma, PCP intoxication may mimic traumatic neurological injury. In one case report, a 43-year-old patient presented in a flaccid state and was unresponsive to verbal commands after a motor vehicle collision. Initially, the patient was assumed to have sustained severe blunt head trauma until he regained consciousness twelve hours later and admitted to using PCP [11].

## Conclusion

While firearm injuries usually present soon after a known shooting event, there are several reasons for a delayed presentation and for why the victim might be unaware of the injury. Mind-altering drugs such as PCP can both obscure and mimic serious traumatic injury. Patients who are intoxicated with drugs or alcohol have been shown to have an increased risk of delayed diagnosis of traumatic brain injury and other types of traumatic injury [12,13]. Here, we have reported a case of a delayed presentation of an abdominal firearm injury in a patient who had no recollection of being shot 24 h after PCP use. Delayed presentations of firearm injuries are unusual in the U.S. and associated with stray bullets and an intoxicated state.

## Declaration of competing interest

The authors declare no conflicts of interest.

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