INTRODUCTION

High velocity fire arm injuries with suicidal or homicidal intent are the most common presentation of the penetrating trauma in the last few decades. In countries and regions where weapons are in abundance and law and order situation are suboptimal, various bullets are fired blindly in open air, out of jubilation on festive occasions.

These blind projectiles after travelling a certain distance in the open skies fall as free falling bodies and act as a potential mode of injury to the general public sleeping in the outdoors without shelters. In urban area, risk of such injuries is rare, but the frequency is much higher in those areas where due to dense population, people sleep on rooftops more often.

These injury tracts are always blind and the missile is found inside the body at various depths. The severity of injury range from a minor graze/sub-cutaneous tract in obese victims to major intra-abdominal/intra-thoracic injuries in thin lean patients and can prove fatal. There is no cavitations effect in these missiles and the extent of injury is directly related to the damage by the penetration effect of the missile.

More rarely a bullet enters a blood vessel and acts as an embolus by traversing the vascular system. Pellets being lighter in weight and more in number have a greater chance of embolism proximally to heart and distally to peripheral vessels due to gravity.1-3

The literature rarely reports lodging of bullets in the heart or pulmonary vessels, while embolism into inferior vena cava is even rarer.4 The present report describes one such ease.

CASE REPORT

A young boy, 13 years of age, presented in the Emergency Room with history of being hit by a stray bullet injury to right hypochondrium just medial to the mid-clavicular line. There was no exit wound and patient had history of lying in a left lateral position on the rooftop. His vitals at presentation were; 110/minute pulse, temperature of 98.6oF, respiratory rate of 19/minute and blood pressure of 100/70 mmHg. He was pale and clammy with adequate urine output. Abdominal examination revealed mild to moderate tenderness in right hypochondrium corresponding to the area around the fire arm entry wound. Whereas the rest of the abdomen showed no rigidity or guarding and the digital rectal examination was normal. Urine was clear and there was no evidence of hematuria. Nasogastric aspirate revealed gastric contents only.

Baseline investigations were sent which revealed normal clinical values of biochemistry and haematology. Chest and abdominal radiographs (Figure 1) showed rifflle bullet on the right sacroiliac joint. Ultrasound abdomen showed some fluid in the pelvis and right sub-hepatic pouch while the heart, pericardium and the chest cavity was normal.

Exploratory laparotomy was performed with suspicion of liver injury (hemoperitoneum) with tract leading retroperitoneally into the inferior vena cava. The bullet was found wandering inside the vena caval lumen.

Stray bullets are presumed to remain limited to the soft tissues. However, the trajectory, impact velocity and the involved region ultimately determine the outcome and influence management.

Key words: Stray bullet. Inferior vena cava. Hemoperitoneum.
Stray bullet in inferior vena cava

Cholecystectomy was done with primary repair of the rent in the common hepatic duct and hemostatic sutures placed on the liver to stop the haemorrhage.

During exploration of the pelvis, bullet was incidently palpated in the right common iliac vein freely mobile into and out of the pelvis. The infra-renal part of the IVC was bruised. Bullet was removed through an infra-renal venotomy after taking proximal and distal control (Figure 2). Venotomy was closed with prolene 6/0 and abdomen closed.

Patient had an uneventful postoperative recovery and was discharged on 4th postoperative day. T-tube was removed on 10th postoperative day.

**DISCUSSION**

This is a unique report of venous embolism due to a stray/wandering raffle bullet. The severity of injury with firearm is always assessed taking into account the mode of injury, the nature of the weapon, the distance from which it is fired at the victim. The projectiles from firearms have the most unreliable path into the soft tissues. Freely falling bodies are rarely associated with major vascular injuries.1-3

Such intravascular missiles need to be removed under flouroscopic control and re-located at an accessible site or extracted through baskets into the injury site due to risk of later embolisation anywhere in the vascular system. Other option being peripheral surgical removal.5,6

It was believed that due to the low velocity, the stray bullet can merely penetrate the soft tissues but due to more sophisticated weaponry this injury can easily prove fatal. Unlikely circumstances of victim sleeping in an open space can lead to delay in transfer of such cases to hospital as well delay in door to theatre time considering the mode of injury as trivial. Patients with such injuries need to be taken care of urgently and investigations sent immediately to prevent any untoward incident.

**REFERENCES**