Missed bullet: A case report

Yasien M Taher
Department of Surgery, Gulf Medical College Hospital and Research Centre, Ajman, UAE

ABSTRACT
A 27-year old Iraqi male patient with no known chronic illnesses presented with pain in the lower abdomen associated with frequency of micturition and blood in the urine with bouts of fever of about six years' duration. He gave a history that when he was 10 years old during the war in Basrah, Iraq 1991, while he was playing football in the street one of his friends pointed out a red stain on the side of his T-Shirt. Removal of the shirt showed a small bloody wound over the left side of his back. No surgery was done at that time and the wound was treated by cleaning and dressing.

Physical examination was normal apart from suprapubic tenderness. Blood test normal. Urine analysis-red blood cell 6-8/H.P.F. KUB: full size bullet in the pelvis. CT-Scan: Intravesical metallic foreign body (bullet) with right lateral wall linear calcification likely related to the site of entrance. Operation was done under spinal anesthesia and the bullet extracted from the urinary bladder. The post-operative period was uneventful and the patient was discharged after two days in a good condition and the stitches removed after eight days.

Key words: bullet, lower abdomen, missed bullet

INTRODUCTION
Trauma is a major public health problem worldwide. It is one of the leading causes of death and disability in both industrialized and developing countries. Globally, injury is the seventh leading cause of death, with 5.8 million deaths attributed to trauma in 2006. In the United States, trauma is the leading cause of death in children and adults up to 44 years of age, and it kills more Americans 1 to 34 years of age than all diseases combined. Fatalities due to injuries, however, represent only a small fraction of the scope of the consequences of injury. During 2003 there were 148000 injury fatalities in the United States. Another 2.5 million patients were hospitalized for their injuries and still another 40.4 million were treated at local emergency departments. An estimated 89.9 million patients were treated by primary care physicians or self-doctored at home. The total cost of injury in the USA is estimated to be more than 200 billion per year and these costs only continue to rise.

Missile wounds are caused by bullets or any fragments from exploding shells, mines or bombs. As the missile traverses the body it causes injury by transferring some or all of its available energy, and this is manifested by lacerating and crushing tissues in the path and in some cases injury remote from the missile path. The amount of energy transformed may be represented by the formula KE= ½ M(V1-V2)², where KE is the available energy, M is the mass and V1 and V2 are the velocities at entry and exit respectively.

In general, bullets from handguns are prospected at low velocity and result in low energy transfer wounds. Missiles with high available energy include high velocity assault rifle bullets, and some large fragments have the potential to cause high energy transfer wounds. Low energy transfer wounds are characterized by injury confined to the wound track. High energy transfer wounds also cause local laceration and crush injury but have in addition the potential to cause injury...
remote from the wound track associated with a phenomenon known as temporary cavitation. The extent of cavitation depends upon the density and elasticity of the target organ or structure and in certain circumstances is associated with injury many centimeters away from the missile wound track. So the tissue damage caused by the missile depends mainly on the velocity: the higher the velocity the greater the damage. Bullets that enter the body at their end of flight such as those just falling on the ground may cause damage that depends on the injured organ, with those entering the brain or heart being likely to cause death. The damage may be minimal in the abdomen or the limbs unless a large vessel is injured. If a bullet enters the abdomen without obvious damage then the decision whether to operate or not is a matter of controversy and depends on the clinical state of the patient. But the bullet may be a cause of complaints related to the remote site where it is lodged as in this case.

**CASE REPORT**

1991, in Basra (South Iraq) during the time of war a ten year old was playing football with his friends when one of them pointed out a red stain on the side of his T-shirt. As he removed his T-shirt, his friends noticed a small bloody wound over the left side of his back. They rushed back home where the doctor was called immediately. Upon examination the doctor reassured the parents and cleaned and dressed the wound. As time passed the incident was forgotten. After nearly a decade, the patient came to the UAE and a few months of his arrival he developed lower abdominal pain, increased frequency in micturition and later noticed blood in his urine. He reported to a doctor who advised an ultrasound, the report of which suggested the likelihood of a stone in the urinary bladder. The doctor recommended him to undergo surgery but he wanted a second opinion. A year later here turned to his home country and consulted his family physician who advised him X-ray abdomen. The X-ray report suggested the presence of a bullet in his body and was asked to undergo surgery (through the perineum). He returned to the UAE to seek medical attention once again as his symptoms aggravated. On 30th August 2008 he had his first visit to our surgical OPD. He was 27 years old with no known chronic illness, and presented with pain in the lower abdomen, frequency of micturition and blood in the urine for the previous six years.

The lower abdominal pain was continuous, dull aching in nature, radiating to left flank with no aggravating or relieving factors. No other gastrointestinal symptoms were detected. Urinary symptoms were recurrent episodes of dysuria, increased frequency and hematuria. These complaints were associated with bouts of low grade fever. There was no history of any surgery in the past. He was currently not on any medication (on and off analgesics) and had no history of any known allergies. There was no relevant family history. He was not a smoker or alcoholic.

General examination revealed the patient was conscious, oriented and cooperative. There was no pallor, icterus, cyanosis, clubbing, lymphadenopathy or edema. The vital signs were stable. Systemic examination revealed normal respiratory, cardiovascular and central nervous systems. Per abdomen examination showed soft, suprapubic tenderness with no rebound tenderness or rigidity. There was no guarding, or palpable organomegaly. Bowel sounds were present. Blood examination showed normal hematology and urine analysis showed 6-8 red blood cells.

X-ray of the pelvis and CT-SCAN of the abdomen appear in Figures 1 and 2 respectively. The case was diagnosed as intravesical metallic foreign body (bullet) with right lateral wall linear calcification likely related to the site of entrance.
The post-operative general condition of the patient was good. The vital signs were stable and the patient had no complaints. Antibiotics and analgesics were continued. After removal of the Foley’s catheter, the patient passed urine. He was discharged after two days and was advised to drink plenty of fluids. He was followed up in OPD after one week and the sutures were removed. The patient was doing well and was asymptomatic.

DISCUSSION

The damage that is caused by a missile injury is directly related to its velocity and mass. But the effect of the velocity is much greater than that of the mass. High velocity missiles can cause damage by direct trauma and also by the phenomenon of cavitation.

In this patient the bullet had entered the body at the left upper back and after 17 years was found settled in the urinary bladder. It appears that the bullet was at its end of flight and at a very low velocity- falling down – hence no severe damage occurred at that time to any vital organs, so the patient survived the event without specific treatment apart from a dressing and the event was forgotten. The presence of the bullet in the urinary bladder still remains unexplained. The bullet could not have entered the kidney and then through the ureter to the bladder as the size of the bullet cannot be accommodated by the ureter. The patient should have complained of symptoms and
signs related to renal and ureteric injury like severe renal and ureteric colic and hematuria. If the bullet had entered the kidney, it would have been in the upper ureter while it moved down and the ureter would be obstructed.

The other possibility is that the bullet had either entered the peritoneal cavity or the retro-peritoneal region and passed down by the effect of gravity until settling in the pelvis, and there, by gradual pressure over years on the upper part of the bladder wall entered and settled in the urinary bladder lumen.

CONCLUSION
A missed bullet in the left flank since childhood presented after 17 years as a urinary tract infection. The bullet was discovered by plain x-ray and found settled in the urinary bladder. Surgical removal of the bullet was done. The entry of the bullet into the urinary bladder is not quite clear. Most probably the bullet came down from the left flank to the pelvis by gravity and over many years it entered the urinary bladder by pressure necrosis to present itself as cystitis.

REFERENCES