



## CASE REPORT / ПРИКАЗ БОЛЕСНИКА

# Migrated bullet in the bladder presenting 30 years after a gunshot wound to the gluteal region

Nikolay Dimitrov, Valentin Yotovsk, Aleksandar Timev, Velko Ivanov, Ivan Lilyanov

Alexandrovska University Hospital, Department of Urology, Sofia, Bulgaria;  
Medical University of Sofia, Department of Urology, Sofia, Bulgaria

## SUMMARY

**Introduction** In current practice, genitourinary trauma secondary to gunshot wounds is relatively rare. Even less common is the migration of a bullet decades after the trauma, with only a few cases described in the literature.

This article illustrates the sporadic occurrence of bullet migration into the urinary system. It underscores the importance of prompt diagnosis and timely treatment, as the time period from the trauma occurrence to symptom onset can be extremely long.

**Case outline** We present a case of a retained bullet that migrated into the bladder 30 years after the injury in the gluteal region. This is the longest period from the occurrence of the gunshot wound to the onset of symptoms described in the literature. After failed attempts at retrieving the bullet endoscopically, a small cystostomy was performed with successful evacuation of the foreign body.

**Conclusion** The time gap from the occurrence of the trauma to the appearance of symptoms can complicate the diagnostic and treatment process. The history of a gunshot wound in this region suggests the exclusion of bullet or shrapnel migration into the bladder, regardless of the time distance since the trauma. Although migration is rare, it highlights the need for both short-term and long-term follow-up of patients with retained bullets and shrapnel.

**Keywords:** foreign-body migration; complications; urogenital system injuries; urogenital system surgery

## INTRODUCTION

Foreign-body entry into the urinary tract is most often due to the insertion of objects into the urethra by the patient or an intimate partner, and less often to ballistic trauma with direct involvement of the urinary tract. Gunshot injuries to the genitourinary system are rare in daily practice in developed countries. The genitourinary system is affected in about 10.5% of gunshot wounds [1]. The bladder is the second most commonly affected part after the kidney [2]. When considering injuries to the lower urinary tract, bladder involvement accounts for 37.93% of them [3]. Much less commonly, a foreign body can migrate into the bladder from the perivesical tissues after trauma or surgery. Given the scarcity of cases in the literature,

attention should be paid to the possibility of late migration of a foreign body into the urinary system, as it may complicate and delay the diagnostic process and treatment.

## CASE REPORT

A 63-year-old man presented to the urology office with an acute onset of dysuria, pollakiuria, difficult urination with cessation of the urinary stream acting like a valve mechanism, and pain in the suprapubic area. The complaints started suddenly a few weeks before the visit. The patient also reported a feeling of not emptying the bladder and several episodes of blood in the urine after physical exertion. He denied a history of urinary stones. The antibiotic therapy

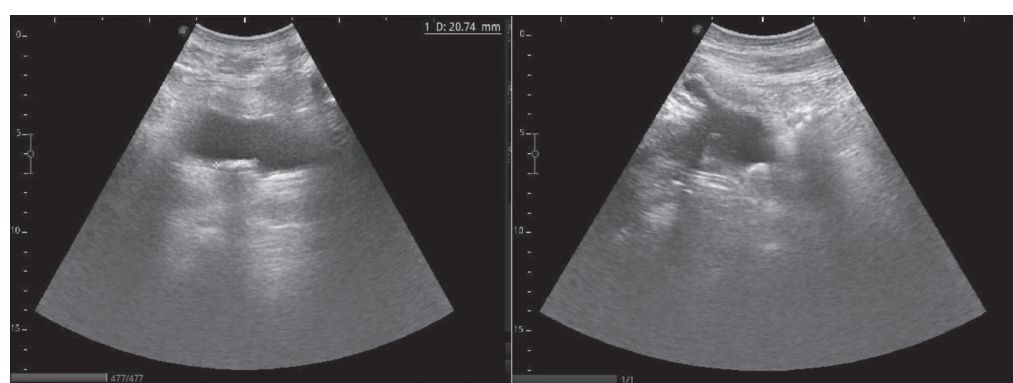


Figure 1. Ultrasound image of the bladder with hyperechoic structure inside

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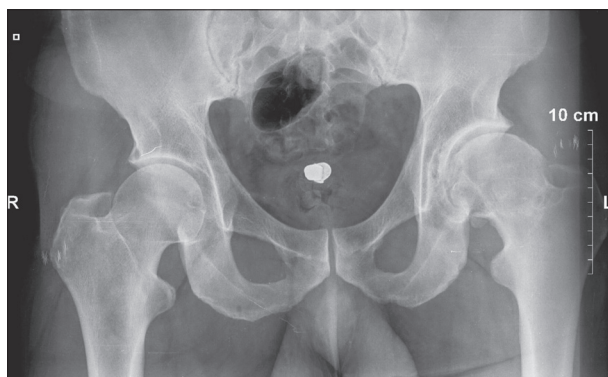
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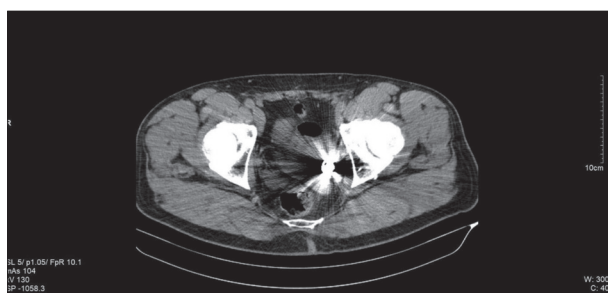
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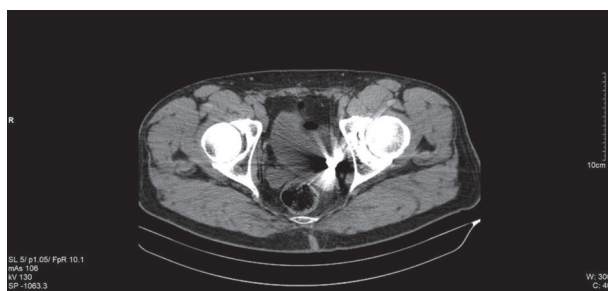
Nikolay DIMITROV  
Alexandrovska University Hospital  
Department of Urology  
Medical University of Sofia  
Department of Urology  
1 Georgi Sofijski Street  
Sofia 1431  
Bulgaria  
[nbdimitrov12@gmail.com](mailto:nbdimitrov12@gmail.com)



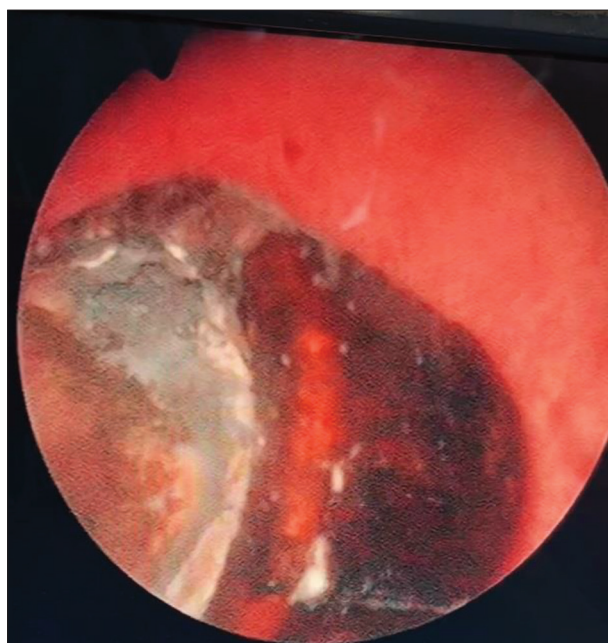
**Figure 2.** X-ray of the pelvis showing the foreign body



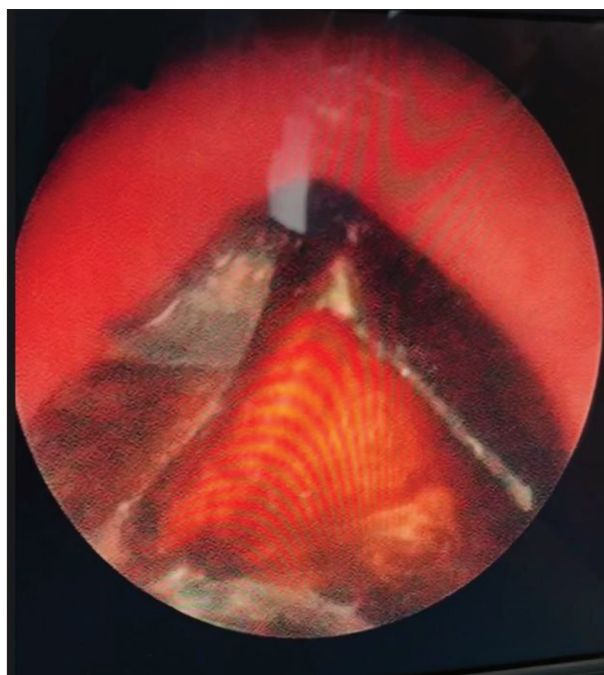
**Figure 3.** Computed tomography of the pelvis showing a foreign body with metallic density in the bladder cavity



**Figure 4.** Computer tomography of the pelvis showing a foreign body with metallic density in the bladder cavity



**Figure 5.** Endoscopic view of the bullet that migrated into the bladder



**Figure 6.** Endoscopic view of the bullet that migrated into the bladder

prescribed by his personal physician had no effect, after which he was referred to a urologist. After a thorough history of previous illnesses and hospitalizations, he reported a gunshot wound in the gluteal region 30 years previously – during treatment of the wound, part of the bullet had been evacuated, but a fragment had been left in the wound channel. The wound healed without complications.

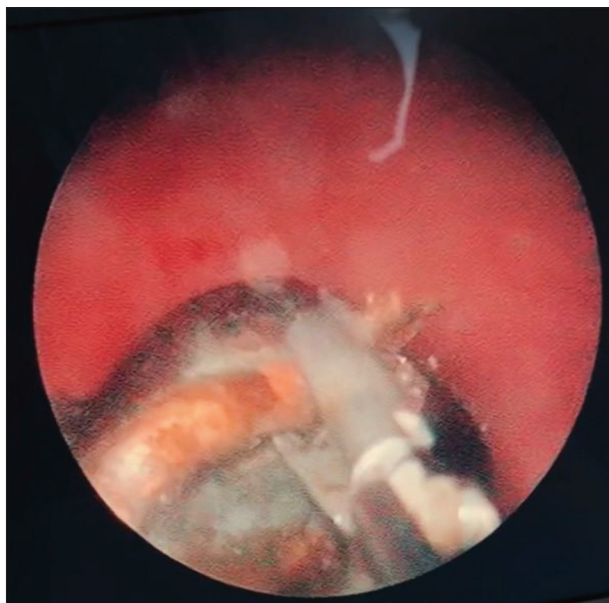
An ultrasound examination was performed, which revealed a hyperechoic shadow within the bladder measuring about 20 mm (Figure 1). An X-ray of the kidney–ureter–bladder region was performed, showing a metal-density shadow about 16 mm in diameter (Figure 2). Computed tomography of the abdomen and pelvis showed a metallic-density foreign body, suspicious for part of a bullet, measuring about 14 mm, with an intact bladder wall and no extravasation of contrast material. The kidneys were without hydronephrosis (Figures 3 and 4).

Cystoscopy confirmed a migrated, free-floating bullet fragment in the bladder (Figures 5 and 6). On careful examination, no defect or fistula was found on the bladder wall. An attempt was made to remove the foreign body endoscopically, but it did not pass through the bladder neck (Figures 7 and 8).

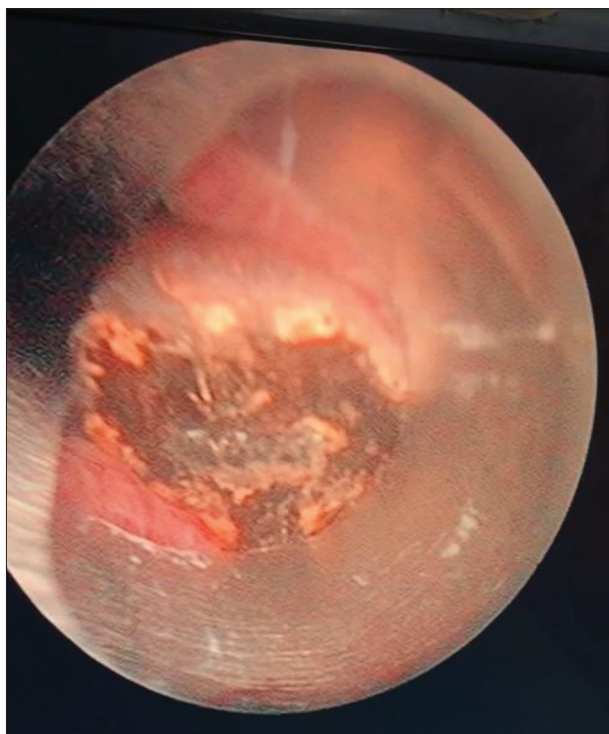
The possibility of retrograde ejaculation after a bladder-neck incision and the risk of urethral injury, given the size of the foreign body, were explained to the patient. An informed decision was made to perform a cystotomy with foreign-body extraction. A suprapubic incision with a small cystotomy was performed, and a part of the bullet measuring 14 × 10 mm was removed (Figures 9 and 10).

Under direct inspection, the bladder wall was found to be intact. The bladder was closed in two layers, and a catheter was placed for five days. The postoperative period went without complication\*; the\* patient was discharged five days after the surgery with complete resolution of complaints. He was followed up for a period of six months,





**Figure 7.** Unsuccessful endoscopic attempt to remove the bullet from the bladder



**Figure 8.** Unsuccessful endoscopic attempt to remove the bullet from the bladder

without any complaints from the genitourinary system. The postoperative ultrasound found no abnormalities.

**Ethics:** Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

## DISCUSSION

We present one of the few cases in the literature of a bullet migrating into the bladder several decades after the



**Figure 9.** The extracted bullet



**Figure 10.** The extracted bullet

gunshot wound. To our knowledge, this is the longest period from injury to bullet migration and onset of complaints reported in the literature. The sudden onset of complaints and the gunshot-wound scar in the gluteal region point to a projectile migrating 30 years after the trauma. Another fact confirming the recent migration of the bullet is the absence of incrustations on the metal surface. In similar cases in the literature, at the onset of the complaints, encrustations have already formed around the bullet or the shrapnel fragment, leading to laser lithotripsy of the encrusted shell at the first stage [4].

Primary bullet penetration into the bladder following a gunshot wound often presents with hematuria [5]. The possibility of involvement of other parts of the genitourinary tract due to their proximity should not be forgotten. Injury to them can occur both during trauma and during migration of the foreign body [6]. Bullet migration into the bladder shortly after extraperitoneal trauma has been

described, with no contrast extravasation identified on imaging studies either during the extravesical placement of the bullet or after migration into the bladder several days later [7].

The migration of a bullet in the urinary tract is most often manifested clinically with dysuric symptoms and hematuria. A review of the literature shows that it can also occur with the onset of acute urinary retention after causing obstruction by entering the urethra [8]. Migration of the foreign body into the ureter can also manifest as renal colic [9].

The variety of complaints and the different size of the migrated foreign body determine the subsequent behavior, which can be both conservative and invasive. Conservative management is appropriate in cases where the size and location of the bullet allow for its spontaneous elimination. Consideration should include the use of alpha-blockers and non-steroidal anti-inflammatory drugs. When, despite conservative measures, the foreign body cannot be eliminated, a more invasive approach should be undertaken. Depending on the location and size, this varies from

endoscopic extraction of the foreign body [5] to surgical removal by cystotomy – which was the approach in our case.

In conclusion, only a small number of cases of bullet migration into the bladder have been described. After consulting the literature, the 30-year period from the occurrence of the gunshot injury to the onset of symptoms presented by us is the longest described so far. The time gap from the occurrence of the trauma to the appearance of symptoms can complicate the diagnostic and treatment process. When there is a sudden onset of dysuric complaints, hematuria, and a history of a gunshot wound in this area, the migration of a bullet or shrapnel into the bladder should be ruled out, regardless of the time distance since the trauma. Removal of the bullet in such cases should be considered because of irritative complaints and the possible complications that may occur. Methods of choice that have proven their effectiveness and safety are endoscopic removal and cystotomy.

**Conflict of interest:** None declared.

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## Миграција метка у бешику 30 година након прострелне ране у глутеалној регији

Николај Димитров, Валентин Јотовски, Александар Тимев, Велко Иванов, Иван Лилијанов

<sup>1</sup>Универзитетска болница „Александровска“, Уролошка клиника, Софија, Бугарска;

<sup>2</sup>Медицински универзитет у Софији, Одељење за урологију, Софија, Бугарска

### САЖЕТАК

**Увод** У досадашњој пракси генитоуринарне трауме настале услед прострелних рана релативно су ретке. Још ређа је миграција метка деценијама након повреде, са неколико случајева описаних у литератури.

Овај чланак илуструје спорадичну појаву миграције метка у уринарни систем и подвлачи значај брзе дијагнозе и благовременог лечења, јер период од повреде до појаве симптома може бити изузетно дуг.

**Приказ болесника** Представљамо случај задржаног метка који је мигрирао у бешику 30 година након повреде у глутеалној регији. Ово је најдужи период од настанка прострелне ране до појаве симптома описан у литератури. Након неу-

спелих покушаја ендоскопског извлачења метка, урађена је мала цистостома са успешним уклањањем страног тела.

**Закључак** Временски размак од настанка трауме до појаве симптома може да отежа процес дијагностике и лечења. Досадашњи извештаји о прострелним ранама у овој регији углавном су искључивали могућност миграције метка или гелера у бешику, без обзира на временску дистанцу од повреде. Иако је миграција ретка, она указује на потребу за краткорочним и дугорочним праћењем болесника са задржаним метцима и гелерима.

**Кључне речи:** миграција страног тела; компликације; повреде уrogenиталног система; хирургија уrogenиталног система