

HEMOPERITONEUM AFTER TRANSPERINEAL PROSTATE BIOPSY

MARÍA FLORENCIA FRASCHERI¹, PABLO CONTRERAS¹, LEANDRO BLAS¹,
NICOLÁS BONANNO¹, CARLOS AMERI¹

¹*Servicio de Urología, Hospital Alemán de Buenos Aires, Argentina*

Abstract Bleeding is the most common complication after a prostate biopsy, commonly self-limited. We describe a case of a patient who developed a hemoperitoneum after a transperineal prostate biopsy. A 65-year-old man with a history of prostate cancer diagnosed in 2016 by transurethral resection, with no further urologic control until 2020 when a rise in the serum prostate-specific antigen was diagnosed: 4.49 ng/ml. Prostate digital rectal examination had no pathologic findings. Magnetic resonance imaging informed unequivocal lesion. A target transperineal fusion biopsy was performed, guided by ultrasound (US). Pre-surgical blood tests, including coagulogram, were normal. No immediate postoperative complications were recorded, and the patient was discharged. Hours later, he returned after a head concussion due to orthostatic hypotension and diffuse abdominal pain. Blood test showed a drop in hematocrit and hemoglobin values. Abdominal US and abdominopelvic computed tomography scan showed free intraperitoneal fluid and intraperitoneal hematic collection on top of the bladder of 104 × 86 mm with no active bleeding. The patient was admitted to intensive care unit due to persistent hypotension despite fluid restoration. He received a single-unit blood transfusion and had a good response to vasopressors. Abdominal pain decreased. He was finally discharged with stable hematocrit 48 hours after admission. Clinical management with no surgery or radiologic angio-embolization was required. We found no clear origin of the intraperitoneal bleeding, but we hypothesize that maybe the previous transurethral resection of the prostate made anatomical changes that facilitated blood passage to the abdominal cavity after puncture of branches from the inferior vesical artery.

Key words: haemoperitoneum, complication, transperineal prostate biopsy

Resumen *Hemoperitoneo tras biopsia prostática transperineal.* La complicación más frecuente tras una biopsia prostática es el sangrado, generalmente autolimitado. Aquí describimos un caso de hemoperitoneo secundario a dicho procedimiento. Hombre de 65 años con antecedentes de cáncer de próstata diagnosticado en 2016 por una resección transuretral de próstata, sin seguimiento urológico, consultó en 2020 por aumento del antígeno prostático específico: 4.49 ng/ml, asociado a tacto rectal normal y una resonancia multiparamétrica de próstata mostró una lesión indeterminada. Se realizó una biopsia prostática transperineal por fusión guiado por ecografía. Los análisis preoperatorios, incluido coagulograma, eran normales. No se registraron complicaciones intraquirúrgicas y se indicó el alta. Horas más tarde, consultó al hospital por hipotensión ortostática y dolor abdominal difuso. Los análisis demostraron caída del hematocrito y hemoglobina. Una ecografía y posterior tomografía computada evidenciaron una colección supravescical de 104 × 86mm sin signos de sangrado activo. Se indicó internación en sala de cuidados intensivos debido a hipotensión refractaria a expansiones con requerimiento de vasopresores. Recibió una transfusión de glóbulos rojos. Por favorable evolución, 48 horas después del ingreso recibió el alta. En este caso, fue posible un manejo conservador, sin requerimiento de cirugía o embolización. Si bien no se encontró sitio exacto del sangrado, creemos que la resección transuretral previa podría haber generado cambios anatómicos que facilitarían el pasaje de sangre, posiblemente proveniente de ramas de la arteria vesical inferior a cavidad abdominal luego de la punción.

Palabras clave: hemoperitoneo, complicación, biopsia prostática transperineal

In order to diagnose prostate cancer, a prostate biopsy needs to be performed either under general or local anesthesia.

As with any puncture, bleeding is the most common complication after a prostate biopsy. Hematuria, hema-

tospermia, and rectal bleeding are commonly self-limited complications and occur in up to 90% of patients¹.

We describe the case of a patient who developed a hemoperitoneum after a transperineal prostate biopsy.

Clinical case

A 65-year-old man with a history of prostate cancer diagnosed in 2016 by transurethral resection of the prostate (TURP), with 5% well-differentiated prostate ductal adenocarcinoma, no Gleason score informed, presented to our hospital. He

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Postal address: María Florencia Frascheri, Hospital Alemán de Buenos Aires, Av. Pueyrredón 1640, 1118 Buenos Aires, Argentina
e-mail: mfrascheri@hospitalaleman.com

had no further urologic control until 2020 when a rise in the serum prostate-specific antigen (PSA) was diagnosed: 4.49 ng/ml compared to values of 2.11 ng/ml in 2016. Digital rectal examination showed a 2 × 2 cm prostate with no suspicious nodules. Magnetic resonance imaging (MRI) informed a 20g prostate and a suspicious lesion reported as Prostate Imaging-Reporting and Data System (PIRADS)² III in the right mid gland, at the peripheral zone, lateral posterior with no extracapsular extension.

As most prostate tumors are localized in the peripheral zone, which was not biopsied by the previous TURP, a target transperineal fusion biopsy was performed guided by ultrasound (US). Pre-surgical blood tests including coagulogram were normal. There was no associated medical condition recorded. There was no history of aspirin or anticoagulant drugs intake.

Under general anesthesia, 24 cores were taken: Six cores into the target zone and an additional standard biopsy of 18 cores. No immediate postoperative complications were recorded, and the patient was discharged from the hospital hours after the procedure.

Twelve hours later, he reached our emergency service after a head concussion due to orthostatic hypotension. Additionally, he referred increasing diffuse abdominal pain. He had presented hematuria just in the first micturition after the biopsy, which is expected after this kind of procedure.

A brain computed tomography (CT) scan was performed due to the head concussion, with no abnormal findings. Blood test showed a drop in the hematocrit and hemoglobin values (9% and 3 g/dl points after surgery respectively). Abdominal US showed free intraperitoneal liquid with echogenic material in the bladder dome, suggesting clots (Fig. 1).

Consequently, an abdomino-pelvic CT scan showed free intraperitoneal fluid with intermediate density in perihepatic, perisplenic regions, interloop spaces, and along the paracolic gutter (Fig. 2). Additionally, a hematic collection on top of the bladder and in straight relation to the prostate of 104 × 86 mm (intraperitoneal) was observed. No leakage of urine from a bladder or ureters was seen. Active bleeding was excluded.

The patient was admitted to the intensive care unit because of persistent hypotension despite fluid restoration. The patient received a single-unit blood transfusion with an increase of 2 points in hematocrit and 0.6 g/dl hemoglobin and presented good response to vasopressors. No further images

were performed. Abdominal pain decreased. The patient was discharged from the hospital with stable hematocrit 48 hours after the admission.

One month after the surgery, an abdominal CT scan showed a 71mm hematic collection surrounding the prostate (previously measuring 104 mm) (Fig. 2). The pathological report showed a prostatic adenocarcinoma Gleason score 3+4 in 3 out of 24 cores, just 1 of these was from the target zone. Radiotherapy 80 Gy plus androgen deprivation therapy for six months was indicated. The patient did not have sequels and there was no further collection at CT performed for radiotherapy planning, 5 months after the biopsy. (Fig. 2).

Discussion

Some of the most common complications after prostate biopsy are infection and bleeding^{1,3}, usually presenting as haematuria, which is self-limited. These seldom require hospitalization with a readmission rate within 1-4%^{4, 5}. Even though there are many publications about extensive bleedings after the procedure⁶⁻⁹, we have not found previous reports of hemoperitoneum after transperineal prostate biopsy.

Because there was a suspicious area, we took more samples than we usually do in patients with negative RMN. However, we do not consider this as the cause of such bleeding.

CT has a high sensitivity for the detection of even small effusions of blood in the peritoneal cavity¹⁰. Specific CT signs, such as a sentinel clot or extravasation of intravascular contrast material, may indicate the source of bleeding and help direct management. In addition, the configuration of accumulated blood may help identify the injured organ¹¹.

In most cases of hemoperitoneum, CT obviates invasive procedures such as exploratory laparotomy and catheter angiography, making conservative therapy a vi-

Fig 1.– Image A shows US with hematic collection on top of the bladder measured 80 × 89 mm. Image B shows US with hematic collection measured 75 × 50 mm

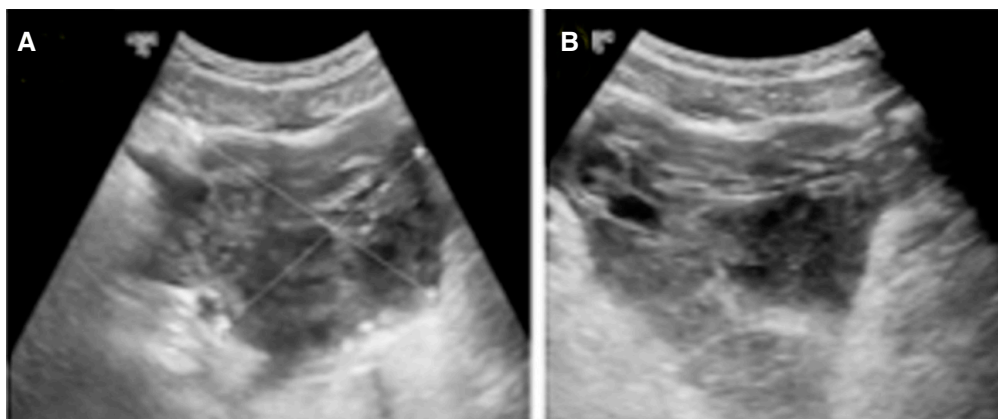
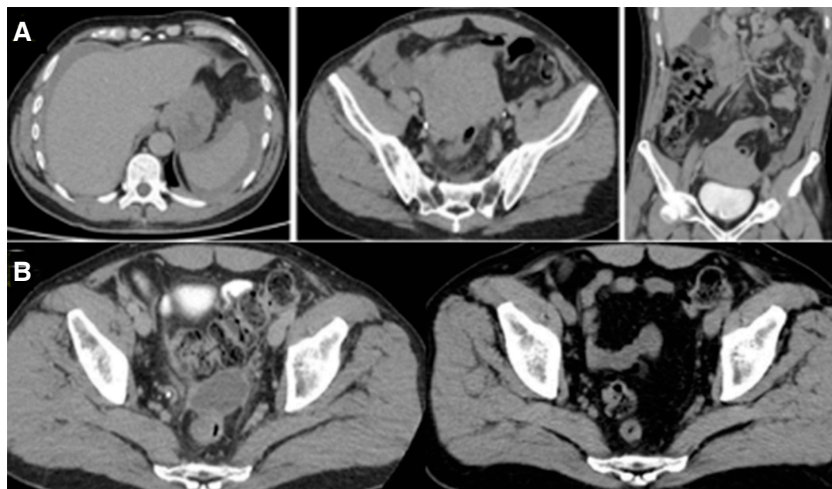


Fig. 2.– Image A, CT scan showing free intraperitoneal fluid with intermediate density in perihepatic, perisplenic regions, interloop spaces, and along the paracolic gutter. Hematic collection on top of the bladder and in straight relation to prostate gland of 104× 86 mm (intraperitoneal). Image B, Left side image: CT scan showing 71 mm hematic collection surrounding prostate gland. Right side image: CT showing no collection after 5 months



able option in patients who are hemodynamically stable¹². The angio-CT (with an initial arterial contrast phase, followed by the venous phase) has a similar diagnosis rate as conventional angiography, allowing to differentiate whether bleeding comes from artery or vein¹³. Although angiography is the best method in cases where a high suspicion of arterial bleeding in the pelvis or extraperitoneal organs is considered, its use is limited when there are various bleeding sites or in venous bleeding.

In cases of active bleeding with unstable patients, the election is to perform surgery¹⁴. The laparoscopic approach or open exploration is recommended in cases of acute abdomen with an uncertain diagnosis. Moreover, urgent radiologic angioembolization should be considered when possible.

As CT showed no active bleeding and the patient was stable with clinical management, no further procedures were needed.

The authors could not find a clear theory to explain this kind of complication. There are two main questions to be answered. The first is which vessel was damaged during the puncture. Secondly, how could the blood reach the abdominal cavity. Damage during the puncture that involved branches from the inferior vesical artery is one of them since blood from this artery is delivered to the bladder fundus, prostate, and seminal vesicles¹⁵. But the reason why the blood passed through the peritoneal layer of the peritoneum to the abdominal cavity remains unexplained. We hypothesize that maybe the previous TURP made some anatomical changes that facilitate the passage to the abdominal cavity.

Conflict of interest: None to declare

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*And now, the end is near;
 And so I face the final curtain. My friend, I'll say it clear,
 I'll state my case, of which I'm certain.
 I've lived a life that's full.
 I've traveled each and every highway;
 And more, much more than this,
 I did it my way.*

Paul Anka, autor. Estrofas cantadas por Frank Sinatra (*).

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