



Hemorrhagic Shock After Transrectal Ultrasound-Guided Prostate Biopsy Successfully Treated With Endoscopic Therapy

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ABSTRACT

Prostate cancer is the second cause of cancer-related deaths among men in the United States. Transrectal ultrasound-guided prostate biopsy is the gold standard for diagnosis of prostate cancer. This is a relatively safe procedure, yet bears the small risk of hemorrhage. In rare instances, the bleeding may require emergent endoscopic or radiologic therapy. However, scarce literature exists depicting the appearance of the bleeding lesions and the successful endoscopic therapies used to treat them. In this report, we present a case of a 64-year-old man who developed massive bleeding after transrectal ultrasound-guided prostate biopsy that was successfully treated with epinephrine injection and endoscopic hemoclipping.

KEYWORDS: rectal bleed; hematochezia; lower gastrointestinal bleeding; prostate biopsy; transrectal ultrasound-guided prostate biopsy

INTRODUCTION

The development of ultrasound-guided techniques for imaging and biopsies has provided significant advantages for patients. Reduced risk, complications, and exposure to radiation make this tool extremely useful in multiple clinical settings such as screening/diagnosing for malignancy. Cancer remains the second leading cause of death worldwide, and therefore, rapid diagnosis and prompt treatment are integral in its management. Of the most common malignancies, prostate is the leading cause of cancer and the second overall cause of cancer-related deaths for men in the United States (according to the Center for Disease Control). Diagnosis involves transrectal ultrasound (TRUS)-guided prostate biopsy, which has historically remained the gold standard. It provides a rapid diagnosis with a relatively low complication profile. A small group of patients may experience mild rectal bleeding, prostatitis, hematospermia, or hematuria.¹ However, one of the most rare complications of TRUS-guided prostate biopsy is massive rectal bleeding requiring angiographic or endoscopic therapy.² In the literature to date, only a few case reports exist describing this. We present a case of hemorrhagic shock after TRUS-guided prostate biopsy that was successfully treated with endoscopic hemoclipping and epinephrine injection.

CASE REPORT

The patient is a 64-year-old man with a history of daily aspirin use who presented to our facility complaining of hematochezia. The patient was 3 days post-TRUS-guided biopsy conducted by interventional radiology, where 12 core tissue biopsies were obtained. The patient's bleeding ceased before arrival; his blood pressure, heart rate, respiratory rate, and oxygen saturation were all within normal limits. Furthermore, he denied any dizziness, chest pain, and shortness of breath. The laboratory study was significant for a hemoglobin level of 8.2 (compared with 13.0 g/dL 3 months before). Remaining values including platelet count, prothrombin time, partial thromboplastin time, and transaminases were all within normal limits. The patient's aspirin 81 mg daily was discontinued a week earlier and resumed 48 hours after the procedure. The patient did not have a history of hemorrhoids, gastrointestinal bleeding, peptic ulcer disease, inflammatory bowel disease, and abdominopelvic surgeries or radiation exposure. Initial plans from the urological and gastroenterology teams were to admit the patient for 24–48 hours to the medical surgical unit for observation given the bleeding had stopped. On day 2 of his hospitalization, he developed 4 large episodes of hematochezia, profound hypotension, and a syncopal episode. Rapid response was called, and he was transferred to the intensive care unit. His repeat hemoglobin had dropped to

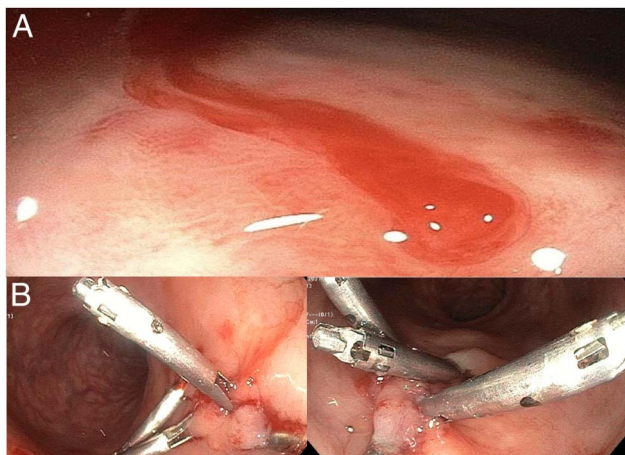


Figure 1. Active oozing from the biopsy site (A). Status post epinephrine and hemoclip placement (B).

5.2 g/dL (was 8.4 g/dL earlier that morning). A massive transfusion protocol was initiated. He received 5 units of packed red blood cells and 2 units of fresh frozen plasma. He was sent for an emergency computed tomography scan with an angiogram where no active bleeding was found, and a subsequent bleeding scan showed no active extravasation.

The patient was scheduled for a flexible sigmoidoscopy pending stabilization of his hemodynamics and hemoglobin level. Two tap water enemas were used for bowel preparation for the procedure. Sigmoidoscopy evaluation to the transverse colon, performed 4 hours later, showed a raised arterial appearing lesion actively oozing from the anterior rectal wall (Figure 1). No other pathology of the gastrointestinal tract was identified to account for the hematochezia. Endoscopic management with injection of 4 mL of 1:10,000 epinephrine and application of 4 resolution clips (Boston Scientific, Marlborough, MA) was used (Figure 2). After endoscopy, the patient's hematochezia resolved and his hemoglobin stabilized. The patient's post-biopsy complication was categorized as Clavien-Dindo grade IV because of signs and symptoms of end-organ dysfunction and intensive care unit admission. The same night, he started a clear liquid diet, and the following morning, he initiated a regular diet. Approximately 48 hours after his sigmoidoscopy, the patient was discharged home. He returned to the gastroenterology office 1 week later with no further episodes of bleeding, normal bowel movements, and stable hemoglobin.

DISCUSSION

In patients with mild rectal bleeding from TRUS-guided prostate biopsy, the management is initially supportive care. General bleeding usually becomes apparent immediately after intervention. However, mild delayed hematochezia has been documented to occur in approximately 25% of patients within 3–7 days. For cases involving mild bleeding at the site of biopsy, clinicians typically place rectal gauze for tamponade at the end of the procedure.² Massive bleeding after biopsy requiring

further intervention is rare. In the setting of major rectal bleeding, the approach is typically to pursue conservative management, which consists of digital pressure and rectal packings. If these initial approaches fail, then attempts to control bleeding by balloon tamponade using a Foley catheter can be attempted. Endoscopic management of post-TRUS-guided biopsy is a safe and viable option in the setting of persistent bleeding.^{3,4} Epinephrine administration can be considered the first step. However, a varying combination of endoscopic management (sclerotherapy, clipping, banding, or thermoregulation) has successfully been used in the past. Given post-TRUS-guided biopsy bleeding is rare and often managed by urologists, not much data have been reported to establish the superiority of monotherapy compared with combination endoscopic management.⁵

Several factors have been identified to increase the risk of post-TRUS-guided biopsy bleeding. Patients with a rich vascular bed surrounding the rectum and prostate, which are supplied from the inferior vesicular arteries, the middle and inferior rectal arteries, and dense submucosal venous plexus, could be at higher risk of bleeding.⁶ It is also suggested in the literature that neovascularization secondary to high-grade prostate cancer increases the risk of bleeding after the procedure.² Risk of bleeding is also dependent on the number of core tissue biopsies that are obtained. Currently, the typical number of core tissues that are obtained during TRUS-guided biopsy is 12. This number has increased from 6 in the past. This increase in the number of biopsies that are obtained during the procedure has shown to significantly increase the risk of bleeding. Other

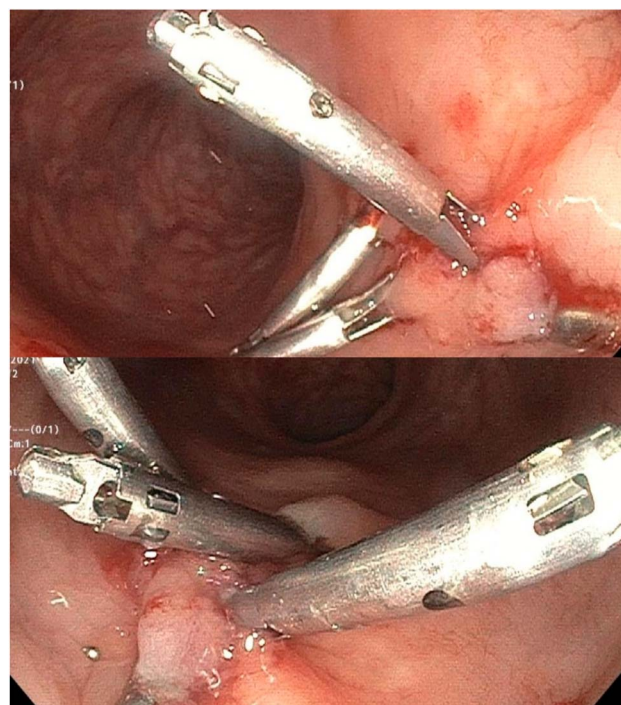


Figure 2. Successful placement of 4 hemoclips and 4 mL of epinephrine with cessation of bleeding.

factors associated with increased risk of post-biopsy bleeding include hemorrhoids, uncontrolled hypertension, constipation, prophylaxis antibiotics such as quinolones, and cephalosporins that increase the activity of warfarin.² In the setting of larger hemorrhoids, studies have shown that patients may benefit from transperineal biopsy rather than transrectal biopsy.⁴

The American Urologist Association and the International Consultation on Urological Diseases have concluded that the use of aspirin does not significantly increase the risk of post-TRUS-guided biopsy bleeding and does not need to be discontinued before the procedure. However, both organizations reported that urologists have varying views and management practices for their patients on antiplatelet and anticoagulation. One UK-based survey reported that 65% of urologists did not stop aspirin before TRUS-guided biopsy of the prostate. Of the physicians who stopped aspirin, 52% discontinued 1 week, 41% 2 weeks, and 6% 3 weeks or more before the biopsy.⁷

In conclusion, TRUS-guided biopsy is the gold standard for the diagnosis of prostate cancer. Delayed rectal bleeding after biopsy is rare, and most cases can be managed with the application of rectal pressure and packing. Endoscopic management of post-TRUS-guided biopsy bleeding that is refractory to conservative treatment should be considered by prompt gastroenterology consultation. Bleeding can be managed by a single or varying combination of endoscopic banding, sclerotherapy, clips, or thermoregulation.

DISCLOSURES

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