Management of bleeding from ileal conduit using arterial angioembolization

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INTRODUCTION

Ileal conduit is prepared after radical cystoprostatectomy for urinary diversion. Bleeding from the stoma or conduit bare among its many complications. Approximately 10% of patients have stoma bleeding. In 4%, it originates from the loop beneath the fascia. Bleeding may be difficult to manage due to cirrhosis and varices.[1] This bleeding is managed by minimally invasive methods such as transjugular intrahepatic portosystemic shunt (TIPS).[2] Ileal conduit bleeding from the bowel loop is managed by the conservative methods such as pressure, cauterization of bleeding points, blood transfusion, and supportive measures.[3]

CASE REPORT

A 79-year-old male patient presented with the first episode of gross hematuria of recent onset from an ileal conduit. He had undergone radical cystoprostatectomy 8 years prior for transitional cell carcinoma of the bladder at another hospital. He was on oral anticoagulants due to a history of stroke. His prothrombin time, international normalized ratio, and activated partial thromboplastin time was normal. He was evaluated with ultrasound abdomen; contrast-enhanced computed tomography urography and urine cytology. He was diagnosed to have a large 5 cm × 4 cm irregular stone in ileal conduit. No cancer recurrence or new upper tract malignancy was found [Figure 1a]. He did not show features of portal hypertension and cirrhosis on ultrasound. The anticoagulants were stopped after consultation with neurologist. Pneumatic lithotripsy was performed through the stoma using a rigid nephroscope and 24F Amplatz sheath. The Amplatz sheath prevented over distension of the ileal loop. Complete stone clearance was obtained [Figure 1b]. During the procedure, no active bleeding or any mucosal ulceration or erosion was found. Immediate postoperative period was uneventful, but the bleeding recurred on postoperative day 1. The patient’s hemoglobin dropped by 3 g% and we transfused two units of packed red blood cells. A contrast angiogram of superior mesenteric artery was obtained which showed active contrast extravasation from an intramural branch of superior mesenteric artery supplying the ileal conduit [Figure 2a]. As the patient had persistent hematuria, super selective arterial catheterization and embolization was performed after informed consent The bleeding intramural arterial branch was occluded with 300–500 micron polyvinyl alcohol particles. Postembolization angiography showed...
that bleeding from the bleeding intramural arterial branch had stopped, and the rest of the conduit vessels were patent [Figure 2b].

**DISCUSSION**

The complications following ileal conduit construction include wound infection, intestinal obstruction, dermatitis, wound dehiscence, ventral hernia, and leakage at ureteroileal anastomosis.\(^1\) Bleeding mostly occurs from stomal varices due to portal hypertension and cirrhosis and is managed by the TIPS procedure. Bleeding from the ileal segment is usually managed conservatively. In our patient, initially the stone was suspected to be cause of hematuria and was removed along with stoppage of oral anticoagulants. As the hematuria did not resolve, it was decided to proceed with angiography of superior mesenteric artery as it was the main arterial blood supply of ileal conduit. A bleeding intramural arterial branch was found and super selective embolization of the terminal branch of SMA, which was bleeding, was possible using polyvinyl alcohol particles.

Many substances which have been used for arterial embolization including gelfoam, collagen, thrombin or polyvinyl alcohol particles, coils (pushable, injectable, and detachable), liquid agents (alcohol and glue), etc. Polyvinyl alcohol particles are biocompatible, and there is cumulative clinical experience with polyvinyl alcohol particle embolization. We were able to localize the bleeding artery and polyvinyl alcohol particles were used for embolization. Post-embolization angiography showed that bleeding from the intramural arterial branch had stopped, and rest of the conduit vessels were patent [Figure 2b]. Immediately, after embolization, the hematuria decreased and settled completely by 2 days and patient’s hemoglobin stabilized. The patient did not suffer any complications postembolization. At 3 months follow-up, he was stable with clear urine, stable hemoglobin, and no bowel complications.

It is important that the embolization be highly selective, since there is a possibility of embolizing normal vessels leading to bowel ischemia. It is advisable to perform these procedures with the help of vascular interventionist. Furthermore, the choice of embolic material used either chemical or particulate depends on the pathology. Completion angiogram should be carried out to rule out any inadvertent embolization of healthy vessels.

We report this novel method of treating persistent bleeding from ileal conduit, not related to portal hypertension, by arterial embolization. To the best of our knowledge, the use of arterial embolization for this condition has not been reported in the literature.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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