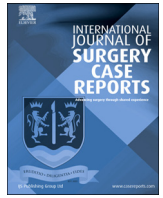




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## Common iliac artery aneurysm as a cause of massive hematuria post TURBT. Case report

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### ABSTRACT

**INTRODUCTION:** Transurethral resection of bladder tumor (TURBT) is an outpatient simple procedure that aims to remove bladder masses. Bleeding post TURBT is usually minimal and resolve completely within days or weeks. Massive bleeding after TURBT for small bladder masses is unusual. In this article we will report a case of unexpected massive hematuria that occurred after simple TURBT.

**PRESENTATION OF CASE:** A 69 patient who presented to our clinic complaining of intermittent painless gross hematuria. Ultrasound showed 1 cm bladder mass for which TURBT was done. On the 3rd post operative day the patient presented to ER complaining of massive hematuria and drop in hemoglobin. CT scan showed large left common iliac artery aneurysm which was managed using Endovascular graft repair (EVAR).

**DISCUSSION:** Common iliac artery aneurysm is rare entity. Usually it is asymptomatic. However if it is large it can compress the perivesical vessels causing engorgement of these vessels that can manifest as massive hematuria after minimal endoscopic manipulation of the bladder.

**CONCLUSION:** Massive hematuria after simple TURBT is unusual for urologists. If it happens it may indicate iliac aneurysm or vascular malformation.

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## 1. Introduction

Transurethral resection of bladder tumor (TURBT) is a commonly performed minimally invasive urologic procedure which is usually done on an outpatient basis. TURBT for small bladder mass is not considered a major surgery and symptoms are self limited with full recovery in days to weeks.

However, as with other surgeries there are risks, some of which could be serious. Bleeding is one of its complications. Large tumor size, patient bleeding tendency, liver dysfunction and patients on antiplatelets or anticoagulants are at higher risk of bleeding after TURBT. But in most cases bleeding is usually minimal and disappears completely within days or weeks without the need for transfusion, re-admission or re-intervention.

Urologists usually expect rapid recovery for patients after TURBT. Especially in low risk patients, and when excellent intra-operative hemostasis of the tumor bed was done.

In this article we will report a case of unexpected massive hematuria after TURBT for a small bladder mass in which common iliac artery aneurysm (CIAA) was the cause.

The work has been reported in line with the SCARE and PROCESS criteria [1,2].

## 2. Case report

A 69 year old male patient, smoker and known to have hypertension, presented to our clinic complaining of painless intermittent gross hematuria. His medications were: enalapril 10 mg and Tamsulosin 0.4 mg. Outpatient laboratory investigations showed normal urine analysis, hemoglobin of 14 mg/dl, kidney and liver function tests were within normal range. Urinary tract ultrasound showed small 1 cm bladder mass in the left lateral wall.

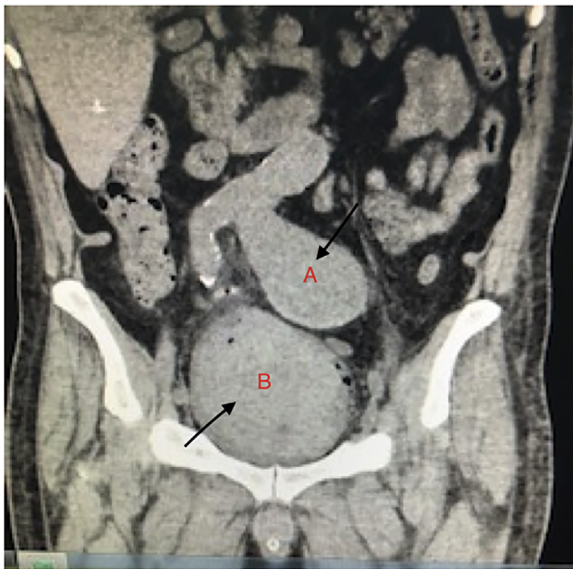
Cystoscopy was done and showed small 1 cm bladder mass on the left lateral wall for which TURBT was done. Hemostasis for the tumor bed was excellent with no intraoperative complications. In

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**Fig. 1.** CT scan showing large left common iliac artery aneurysm compressing the distended bladder. Bladder is full with blood clots. Aneurysm (A), Bladder (B).

the evening his urine was clear without irrigation so we removed the indwelling catheter and the patient was discharged.

In the third postoperative day the patient presented to the emergency department with massive hematuria and clot retention. Ultrasound showed distended bladder with multiple urinary bladder clots. His hemoglobin was 6 mg/dl so cross match was sent to prepare 6 units of packed red blood cells (PRBCs). Indwelling urinary catheter 24 French was inserted with multiple failed trials of hematoma evacuation. Blood transfusion was started and the Patient was taken to the operating room (OR) for Endoscopic evacuation of the clots but again trial failed.

Computed tomography (CT scan) was done and showed large left common iliac artery aneurysm compressing the distended urinary bladder as shown in Fig. 1. In the next morning we decided to do open evacuation of the bladder clots with suturing of the tumor bed. After open evacuation urine became totally clear while on slow rate irrigation. The patient was given a total of 10 units PRBCs. We consulted the vascular surgery team and their decision was to proceed with Endovascular graft repair (EVAR) as seen in Fig. 2.

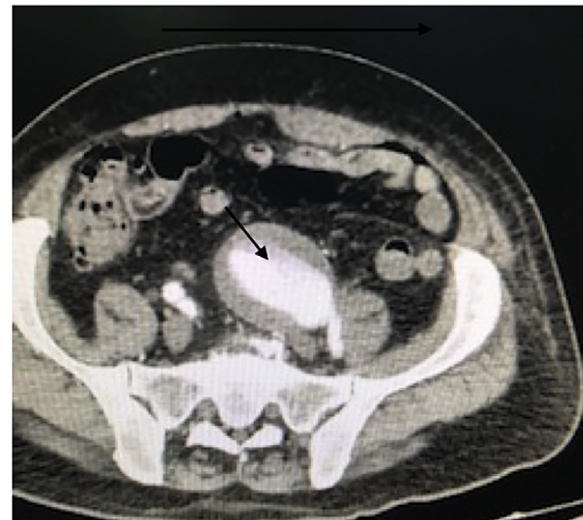
Hematuria stopped completely after Endovascular graft insertion. However, type II Endoleak complication happened 8 months later (Fig. 3) that was managed successfully by single-vessel embolization of the feeding artery. Vascular surgeons recommended yearly follow-up by triphasic CT angiography (as shown in Fig. 4) to detect any complication that could happen post EVAR.

### 3. Discussion

Common iliac artery aneurysm (CIAA) usually associated with abdominal aortic aneurysm. Isolated iliac aneurysms occur in 1–2% of people over the age of 70 years and are more common in men than women [3].

They usually occur in the common iliac artery (89%). Internal iliac aneurysms account for only 10% and external iliac artery aneurysms are very rare (1%) [4]. Usually it is asymptomatic and discovered incidentally on CT scan done for another reason. The most lethal complication is rupture which has high mortality rate of 50% [5].

In the literature there are few reported similar cases of massive hematuria that occur after cystoscopy or minimal endoscopic



**Fig. 2.** Endovascular graft stent is in situ in the left common iliac artery (arrow).



**Fig. 3.** Endoleak 8 months after EVAR procedure showing the endovascular stent (A). Aneurysm sac is large which is at risk for rupture (B).

manipulation at which iliac artery aneurysm was found to be the cause [4–6]. Hematuria in association with iliac artery aneurysm does not mean arteriovesical fistula or rupture but mostly it is due to perivesical venous congestion secondary to aneurysm compression [6].

Our patient in this case report presented with Painless intermittent gross hematuria and giving his history of smoking, bladder cancer was on the top of the differential diagnoses. Tumor was small and resected completely with excellent hemostasis with smooth post operative course. However in the third postoperative day unexpected massive hematuria happened.

For most urologists, bleeding after TURBT or TURP usually attributed to surgical hemostasis or bleeding tendency. Vascular malformations or iliac aneurysms are very rare that does not take the lead in the differential diagnoses and this was the reason why we were late in doing CT scan. Ultrasound which is operator dependent is the first imaging modality that is used to evaluate patient presenting with hematuria, but has low sensitivity in detecting iliac aneurysms [7].

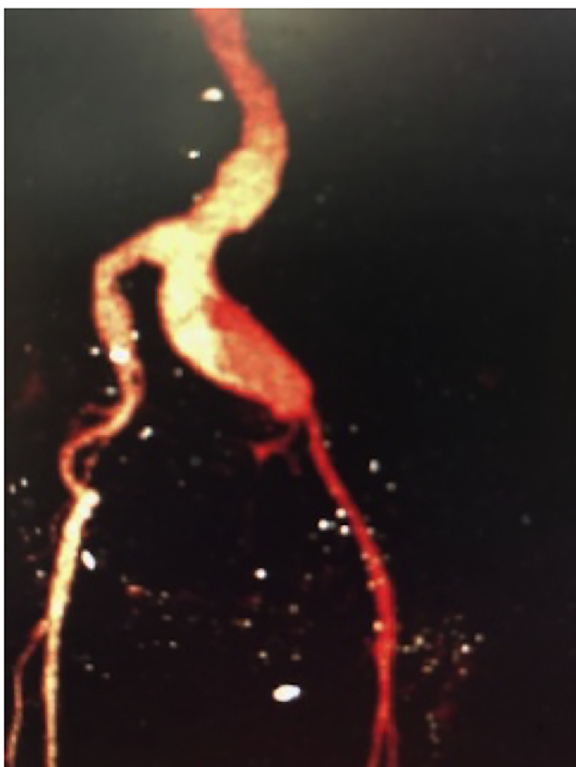


Fig. 4. Follow-up CT angiography showing no leak.

In our management the priority was to stabilize the patient. About 10 units of packed RBCs was given immediate clot retention management and trials to evacuate the clots. Vascular surgery team was consulted on spot.

Although it is contraindicated to open the bladder in case of bladder cancer. We proceeded with this decision after proper counseling and obtaining the proper consent from the patient for the following reasons: 1- Bladder mass was completely resected. 2- Failure of the manual and the endourological approaches to evacuate the clots. 3- The emergent situation of the patient that mandate life saving procedure.

Open surgery has been described as the gold standard for treatment of CIAA but the mortality rates for elective surgery is high (10%) [8]. Endovascular repair of iliac aneurysms is relatively of low risk and showed excellent results in short and medium terms [9]. However, Endoleaks are a complication unique to EVAR and can occur in up to 25% of patients. Endoleaks if not spontaneously resolved or treated can result in aneurysm enlargement and rupture [10]. There are 5 types of Endoleaks with type II being the most common. Type II endoleaks are caused by retrograde flow through collateral vessels into the aneurysm sac [9,10].

Management of type II endoleaks is by doing single-vessel embolization of the feeding artery or by trans arterial approach with coil embolisation of aneurysm sac and the feeding vessel. After EVAR patient should be followed regularly by Triphasic CT angiography (CTA) to detect any complication [9,10].

#### 4. Conclusions

Unexpected massive bleeding after minimal endourological manipulation of the bladder should raise the suspicion of iliac aneurysms or vascular malformations. CT angiography is important modality to diagnose this entity. EVAR is a minimally invasive procedure that shows excellent efficacy and low mortality in treatment of CIAA.

#### Declaration of Competing Interest

The authors declare that no conflicts of interest exist.

#### Funding

None.

#### Ethical approval

Since this was just a case report and patient's confidentiality was assured, there was no need for ethical approval based on our institution regulations.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of the journal on request.

#### Author contribution

**Hassan Alkhatatbeh:** Conceptualization, Methodology, Software. **Dima Alzaghari:** Data curation, Writing Original draft preparation. **Mohammed Azab:** Visualization, Investigation. **Sufian Alharahsheh:** Supervision. **Adeeb Almalkawi:** Software, Validation. **Rami Alnsour:** Writing - reviewing and editing. **Abd AL-Hakeem Abu ALSamen:** Writing - reviewing and editing.

#### Registration of research studies

NA.

#### Guarantor

Hassan Alkhatatbeh.

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