

ABSTRACT

Background: Ureteroarterial fistula comprises a rare vascular condition, referring to the anomalous fistulous connection between an artery and an ureter. It is often associated with pelvic malignancy, abdominal surgery and radiation. Despite its rarity it's a potentially life threatening condition, demanding prompt diagnosis and management.

Methods: We performed a retrospective analysis from 2013 until 2019 concerning patients who received treatment for UAF. All patients presented with symptoms suggestive of uretero-arterial fistula. Preoperative assessment included physical and laboratory examinations and medical history, while diagnosis was established through CTA, DSA or ureteroscopy.

Results: A total of 8 patients with UAF were included in the study. Macroscopic hematuria was the main presenting symptom, with two patients being admitted due to hemorrhagic shock. Endovascular treatment was achieved in 6 cases, with 4 of them having single stentgrafting of the target vessel, one having deployment of an IB device and one patient having coil embolization of the IIA. Open surgical repair was performed in two cases due to previous vascular operation. Persistent hematuria and stentgraft infection were postoperatively observed in two and one case respectively, all of which were ultimately managed through open surgery with no further complications.

Conclusions: UAF is a challenging clinical scenario demanding prompt diagnosis and management due to its high mortality rate. Although open surgical repair offers a viable solution with good results, the introduction of minimal invasive techniques along with their excellent technical results, low complication rates and promising long-term outcomes render endovascular surgery the current treatment of choice.

BACKGROUND

UAF is a rare medical condition referring to the anomalous formation of a connection between an iliac artery and the ureter. The most common clinical presentation is macroscopic hematuria. UAF requires prompt diagnosis and management due to its high mortality rate. An endovascular approach offers a minimal invasive alternative.

PURPOSE

Aim of this study is to present our experience with open and endovascular techniques for this type of pathology.

METHODS

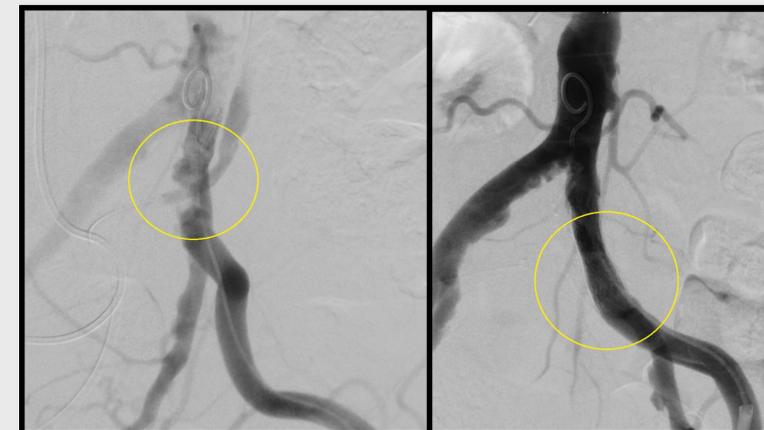
A retrospective data analysis was performed concerning patients who were treated for UAF from January 2013 until December 2019 through open surgery or endovascular means. All patients were referred in our center with symptoms suggestive of UAF, hence macroscopic hematuria or bladder tamponade, with two patients being admitted with hemorrhagic shock due to gross hematuria. Evaluation included physical and laboratory examination along with medical history. Diagnostic confirmation of the UAF was made through CTA, DSA or ureteroscopy. Treatment of UAF was carried out either endovascularly or through open surgical repair. Postoperative evaluation of target vessel patency was made through duplex ultrasound (DUS) every 6 months.

RESULTS

A total of 8 patients underwent endovascular or open surgical repair of an UAF. Ureteroscopy revealed the fistula in three cases. In four other cases diagnosis of UAF was achieved through CTA, while in the last patient establishment of the diagnosis was made intraoperatively through DSA upon persistent hematuria.

Endovascular exclusion of the UAF was carried out in six cases. In 4 cases this involved single stentgraft deployment, in one patient an IB device was installed, while one patient underwent coil embolization of the IIA.

RESULTS



Open repair was performed in two cases, with one patient receiving exclusion of the fistula, ligation of the CIA and execution of an extraanatomical femoro-femoral bypass.

In the second case the infected part of a previously implanted bifurcated graft along with the UAF was resected and a new interposition graft took place.

RESULTS

Operative success was met in all cases, with no major intraoperative or immediate postoperative complications. No early re-interventions (<30 days) were noted. Mortality during hospital stay was zero.

Mean follow up was 14.3 ± 10.3 months. UAF-related late re-intervention (>30 days) was required in three patients, all of them initially managed endovascularly. In two cases patient developed an infection of the initially implanted stentgraft (6th and 14th FU month) Both patients underwent open surgical repair, In the third case, patient presented with recurrent hematuria during the 13th postoperative month. Symptoms ceased in all three patients and no further re-interventions were required.

One patient who was initially managed through open developed during the 6th postoperative month an enterocutaneous fistula. This led to infection of the previously bypass which was ultimately treated with removal of the old prothesis and implantation of a new crossover deep vein bypass. No further complications were noted.

CONCLUSION

In conclusion, UAF is a challenging clinical scenario demanding prompt diagnosis and management due to its high mortality rates.

Endovascular surgery seem to offer a feasible approach in patients with significant comorbidities, with acceptable mid-term durability.

DISCLOSURES

All authors declare that they have no conflict of interest.