Asian Journal of Urology 9 (2022) 101–102

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Clinical Image

Subcostal artery bleeding after endoscopic combined intrarenal surgery: Signs and treatment

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Received 3 June 2020; received in revised form 7 February 2021; accepted 9 February 2021
Available online 24 April 2021

Percutaneous nephrolithotomy is the first option in renal stones >2 cm. One of the most serious complications of this procedure is postoperative bleeding [1]. Various risk factors (multiple punctures, position, access size, stone volume, operative time, and non-papillary puncture) were considered in the literature with no clear conclusions [1–2]. Despite the discordance about the risk factors, the etiology is clear. Bleeding can occur in the perioperative period, due to the injury of a renal segmental artery or vein or delayed due to the formation of arteriovenous fistula or pseudoaneurysm. All these injuries take place during the renal puncture and the track dilation. In most cases, the grade of bleeding after percutaneous nephrolithotomy is negligible and self-limiting, but in case of severe hemorrhage, angiography and super-selective angioembolization is the treatment of choice also for renal function preservation [3]. Hypotension and hematuria are the most common presentations. We reported the case of a 55-year-old male, who underwent supine endoscopic combined intrarenal surgery for a right staghorn stone with X-ray guided lower pole papillary puncture access, below the 11th rib. The procedure was uneventful. A few hours after surgery, he developed loin throbbing pain and hypotension without hematuria. Abdomen ultrasound did not reveal kidney hematoma or hydronephrosis. Computed tomography (CT) scan showed an 8 cm retroperitoneal hematoma with active bleeding from the XI subcostal artery. The patient underwent blood transfusion and angioembolization of the XI subcostal artery. No further treatments were necessary. Subcostal vessels injury is a very rare event. One case was reported in the literature, with hematuria through the nephrostomy tube [4]. As in the previously reported case, we did not find any clear causes, nor could we suggest any additional preventive measures. With hemorrhagic complications, an early diagnosis is important to avoid misdiagnosis and mistreatment. In our case, the absence of hematuria and subcapsular or perinephric hematoma, with the self-reported loin throbbing pain (secondary to the dissection of the retroperitoneal space) are signs of extra-renal bleeding. These features should be considered for timely diagnosis. CT scan and angioembolization of arterial bleeding are the correct managements (Figs. 1 and 2).

Author contributions

Study concept and design: Davide Campobasso.
Data acquisition: Carla Marcato.

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Peer review under responsibility of Tongji University.

https://doi.org/10.1016/j.ajur.2021.04.005

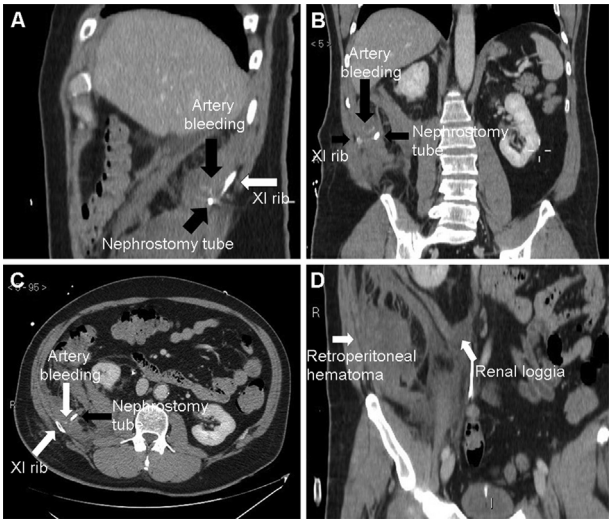

Figure 1 Computed tomography images. (A—C) Computed tomography scan revealed subcostal artery bleeding with a retroperitoneal hematoma; (D) The perirenal space was intact.

Drafting of manuscript: Davide Campobasso.
Critical revision of the manuscript: Roberto Menozzi, Antonio Frattin.

Conflicts of interest

The authors declare no conflict of interest.

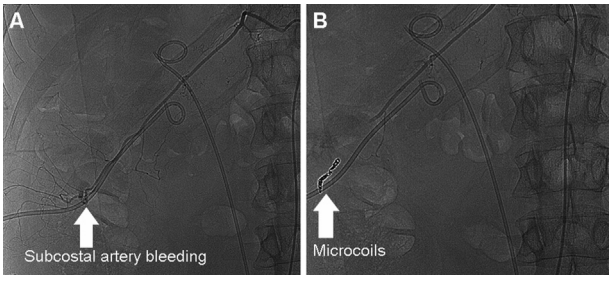

Figure 2 Angiographic exam. (A) Angiographic confirmation of subcostal artery bleeding; (B) Result after embolization using microcoils.

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