Asian Journal of Research and Reports in Urology

4(2): 1-3, 2021; Article no.AJRRU.65676

Bilateral Subcapsular Renal Hematoma Following Lithotripsy by Laser Ureteroscopy: A Case Report

Oussama Elidrissi[1*], Mustapha Rkik[1], Choaib Waffar[1], Mohamed Dakir[1], Adil Debbagh[1] and Rachid Aboutaieb[1]

[1]Ibn Rochd University Hospital Center Casablanca Urology Service, Morocco.

Authors' contributions

This manuscript is the collaboration of all the authors. Author OE has designed the outline of the manuscript and the production of the first version. Authors MR and CW have helped to collect data as well as bibliographic research. Authors MD, AD and RA have supervised the work All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Punit Bansal, RG Stone and Superspeciality Hospital, India.
Reviewers:
(1) Tchebegna Patrick Yvan, University of Yaounde I, Cameroon.
(2) Dra. Ana Maria Garcia Rodriguez, Spain.
(3) Hamidreza Baghani Aval, Sabzevar University of Medical Sciences, Iran.
Complete Peer review History: http://www.sdiarticle4.com/review-history/65676

Case Study

Received 10 December 2020
Accepted 17 February 2021
Published 20 March 2021

ABSTRACT

Sub-capsular renal hematoma is a rare complication after laser ureteroscopy with an incidence that varies between 0.02 to 0.45%. The authors report one case of bilateral sub-capsular renal hematoma after ureteroscopic lithotripsy revealed by febrile low back pain. Our attitude was conservative with a favorable evolution.

Keywords: Urolithiasis; ureteroscopy; renal hematoma.

1. INTRODUCTION

The treatment of urolithiasis increasingly being carried out endoluminally using endoscopic techniques. Nowadays, ureteroscopy with laser lithotripsy plays an important role in lithiasis fragmentation. A study conducted in 2017 reported 7.4% of ureteroscopic lithotripsy complications. The main complications were bleeding, fever and urinary tract infections [1]. Out of 4454 patients who underwent the procedure, subcapsular renal hematoma accounted for 0.02% of complications [2]. Sub capsular renal hematoma is a rare complication

**Corresponding author: Email: oussama.elidrissialami@gmail.com;*

following laser ureteroscopy for lithiasis fragmentation with well-codified management. Based on one case encountered in our practice, we discuss the diagnostic and therapeutic aspects with different data from the literature.

2. PRESENTATION OF CASE

37-year-old patient with no particular medical history, who benefited from bilateral fragmentation of calcified double J probes placed in the context of urolithiasis. At day one postsurgery, the patient presented with abdominal pain and an acute febrile loin pain without hematuria. She was hemodynamically stable. The CT scan performed showed a bilateral subcapsular renal hematoma without extravasation of the contrast medium (Image. 1).

The biological assessment showed an infectious syndrome with hyper leukocytosis at 12540/ mm3 and an elevated c-reactiv protein at 183 mg/l. Our therapeutic attitude was the introduction of antibio therapy “Ceftriaxone and Gentamicin”, analgesics, good rehydration“2L” and clinical and lab monitoring with complete bed rest. The ultimate evolution was favorable by the amendment of signs and the normalization of biological parameters.

3. DISCUSSION

The global literature reports an increase in the prevalence of urolithiasis. Ureteroscopy is currently the most widely used treatment modality for urinary stones in many countries [3]. The rate of postoperative complications of ureteroscopic lithotripsy is low, the most common complication is fever [3]. Subcapsular renal hematoma after ureteroscopic lithotripsy occurs very rarely. Its incidence varies according to studies [2,4], ranging from 0.02 to 0.45%. It is more frequent in female with a mean age of 53 years and a stone size of 1.7 cm [4]. our case is about one woman aged 37 years.

Four main factors have been significantly associated with the development of Subcapsular renal hematomas: stone size, degree of hydronephrosis, duration of the operation, and infusion pressure of the hydraulic irrigation [5]. Two factors have been identified, the size of the stones and the perfusion pressure of the hydraulic irrigation.

The subcapsular area of the kidney is a potential space where fluid can accumulate, causing compression of the renal parenchyma [6]. The occurrence of a hematoma is probably due to the change in intra-pelvic pressure that induces sudden expansion and rupture of the renal parenchyma and/or capsular vessels. Blood and fluid accumulates in the sub-capsular area of the kidney, the renal capsule gradually separates from the parenchyma and the hematoma forms [7]. Subcapsular renal hematomas generally occur following renal trauma or extracorporeal shock wave lithotripsy but rarely following ureteroscopic lithotripsy as in our case.

The CT scan is the best diagnostic test. This was confirmed in our case, as the ultrasound could not direct the diagnosis. The hematoma is characterized by an irregular and heterogeneous area around the kidney, with an attenuation value lower than that of the renal artery or parenchyma, with no active bleeding. It also makes it possible to define the extent of renal lesions, the diameter of the hematoma accurately, and the presence of active bleeding [8]. Subcapsular hematomas can be treated conservatively in most cases because it resolves quickly and spontaneously. The attitude to adopt is similar to that for renal trauma [9].

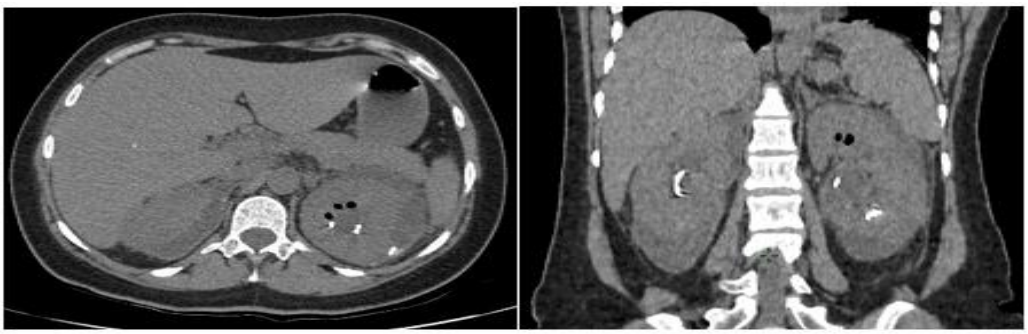

Image. 1. A bilateral subcapsular renal hematoma without extravasation of the contrast medium

When active bleeding is not controlled by conservative management, or in case of hemodynamic instability, super-selective embolization under angiography or open surgery may be performed [10]. Depending on the clinical presentation, our attitude was conservative. It consisted of antibio therapy, analgesic treatment and complete bed rest. Monitoring was focused on the evaluation of low back pain, fever, diuresis and biological monitoring (creatinine, white blood cells and c-reactiv protein). The ultimate outcome was favorable.

4. CONCLUSION

Subcapsular renal hematoma following lithotripsy by laser ureteroscopy must be managed by a non-surgical approach, since the majority of lesions resolve spontaneously. An interventional approach is indicated only in cases of hemodynamic instability, intense low back pain, or persistence of the hematoma. Bilateral ureteroscopic lithotripsy at the same time as the operation should be avoided.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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