

Ureteroscopy-Assisted Biopsy for a Retroperitoneal Tumor: A Case Report

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Key Words

Ureteroscopy · Retroperitoneal tumor · Retroperitoneal fibrosis

Abstract

Introduction: Retroperitoneal tumor is often seen in urology clinical practice. To diagnose the tumor, tumor specimens must be obtained. However, in some cases, the tumor is penetrated by vessels around the ureter, and it may be difficult to detect the optimal spot for obtaining a specimen, even when performing open surgery. **Case Presentation:** A 53-year-old male patient was referred to our hospital for further examination of left back pain due to hydronephrosis. Enhanced computed tomography demonstrated ureter stenosis in front of the ilium, which was surrounded by a retroperitoneal tumor. The tumor was penetrated by blood vessels; therefore, we performed an open surgical biopsy on the suspicion of a retroperitoneal tumor using ureteroscopic assistance. The diagnosis of idiopathic retroperitoneal fibrosis was made according to the biopsy. **Conclusion:** We herein report the first case of a ureteroscopy-assisted biopsy for the pathological diagnosis of a retroperitoneal tumor.

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Introduction

Retroperitoneal fibrosis was first reported by Albarrán [1] in 1905, and Ormond [2] established the concept of this disease in 1948. A fibrosing retroperitoneal process may be secondary to a wide spectrum of causes including lymphoma, sarcoma, and infections; thus, the diagnosis of idiopathic retroperitoneal fibrosis (IRPF) using computed tomography (CT) or magnetic resonance imaging (MRI) is often challenging [3]. We herein report a case of ureteroscopy (URS)-assisted biopsy for the pathological diagnosis of a retroperitoneal fibrosis.

Case Presentation

A 53-year-old male was referred to our department for further examination of left hydronephrosis. CT and retrograde pyelonephrography showed a retroperitoneal tumor surrounding his ureter in front of the ilium (fig. 1, fig. 2). His laboratory examination, including LDH and IgG4, showed no remarkable findings.

We planned to perform an open biopsy for his retroperitoneal tumor in assistance with URS. We firstly checked the ureter using URS and detected the stenosis without ureteral tumor (fig. 3a). Then we approached the retroperitoneal cavity through pararectus abdominis muscle incision. The tumor was rigidly surrounding the ureter, but not apparent on CT. We reinserted the URS to the stenosis position, and ureteroscope lighting assistance was provided to the operator to obtain biopsy specimens (fig. 3b). Because the intraoperative rapid pathological diagnosis did not demonstrate any tumor malignancies, we did not perform complete resection. We concluded this operation with the insertion of a ureteral stent.

The pathological diagnosis was IRPF, and the patient was subsequently started on steroid therapy (fig. 4).

Discussion

IRPF is a rare disease that generally presents as a fibrous periaortic tumor obstructing the ureter and causes renal insufficiency [3]. The incidence of this disease is one to 0.2 million, and the common age is between 50–60 years [4, 5]. Retroperitoneal tumors typically originate from postradiation therapy, malignant tumors, and external injury; however, 70% of all retroperitoneal tumors are idiopathic [5]. Recently, the association between IgG4 and sclerosing processes has been demonstrated [3, 6, 7]. The standard therapies utilize steroid medication or surgical operation to remove the ureter from the tumor.

CT and MRI are considered to be standard modalities in the diagnosis of IRPF [3, 8]. Dalla-Palma et al. [9] reported the CT findings in 7 cases of retroperitoneal fibrosis and revealed that CT can accurately define the extent of a fibrotic mass and the involvement of adjacent anatomic structures. A fibrosing retroperitoneal process may be secondary to a wide spectrum of causes including lymphoma, sarcoma, and infections; thus, the diagnosis of IRPF using CT or MRI is often challenging [3]. Furthermore, tumor specimens are still necessary for the pathological diagnosis.

To diagnose a retroperitoneal tumor, a pathological examination is essential. In retroperitoneal tumors, a CT-guided needle biopsy, surgical excision, and a laparoscopic biopsy are widely used procedures to obtain the specimens. A CT-guided needle biopsy is less invasive compared to the other procedures; however, most cases of retroperitoneal tumors are

near vessels. Therefore, surgical or laparoscopic biopsies are typically required in order to avoid injury to the surrounding vessels.

In this case, we utilized a technique using URS lighting assistance. In 1964, Marshall [10] first reported the use of a flexible URS. Subsequently, in 1971, Takagi et al. [11] reported a passively deflectable flexible ureteroscope. In recent years, there have been major advances that have made the observation of the ureter and renal pelvis easier, and it is therefore now possible to perform a wide range of procedures using URS [12]. Our lighting technique enabled the surgeon to easily detect the target site of the biopsy. A retroperitoneal tumor is typically challenging to observe on CT or MRI. Therefore, detecting the target spot to obtain a biopsy sample is important. URS not only allows for easy detection of the target site for a biopsy, but it also evaluates intraureteral stenosis arising from ureteral carcinoma.

Conclusion

We herein describe the successful diagnosis of a retroperitoneal tumor using URS lighting assistance for determining the optimal biopsy site. This procedure is useful for decreasing the operation time and detecting the optimal biopsy spot with a higher level of accuracy.

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Statement of Ethics

Written informed consent was obtained from the patient.

Disclosure Statement

The authors declare that they have no competing interests.

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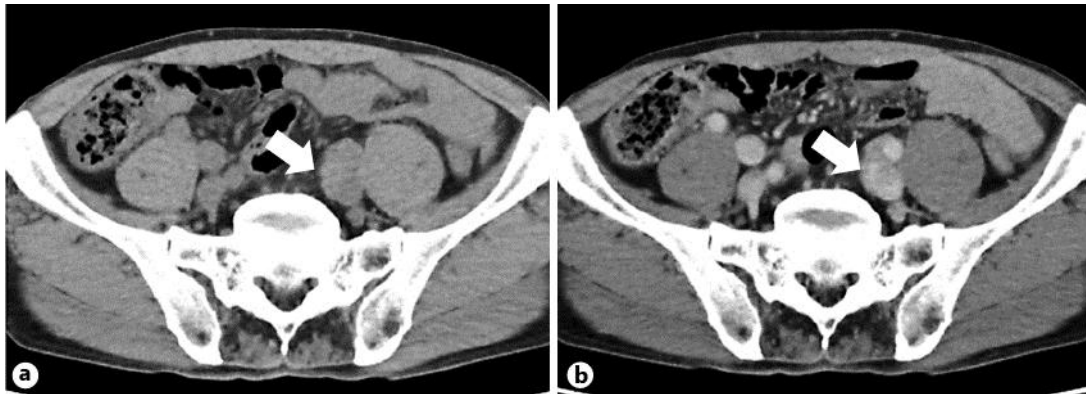


Fig. 1. Preoperative noncontrast (a) and contrast CT (b).

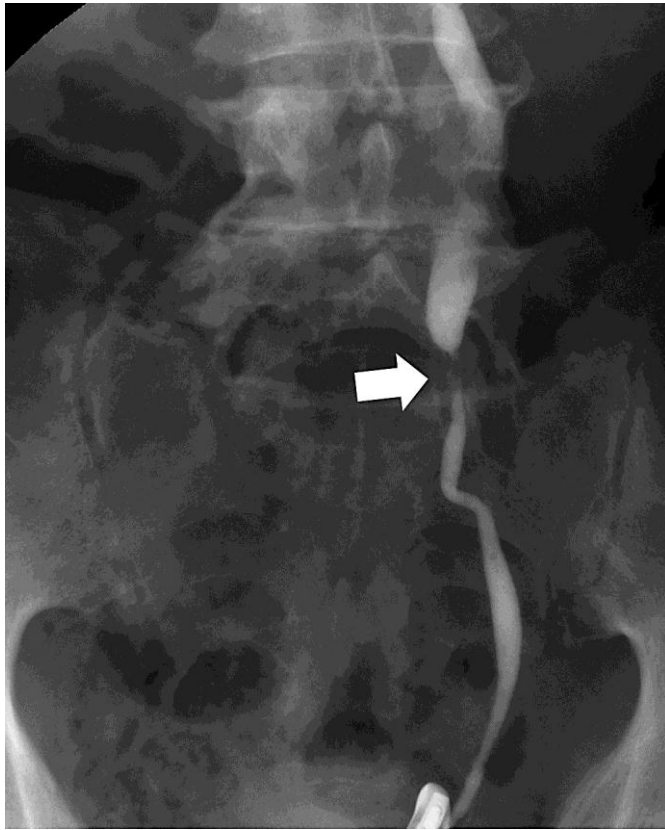


Fig. 2. Retrograde pyelonephrography.

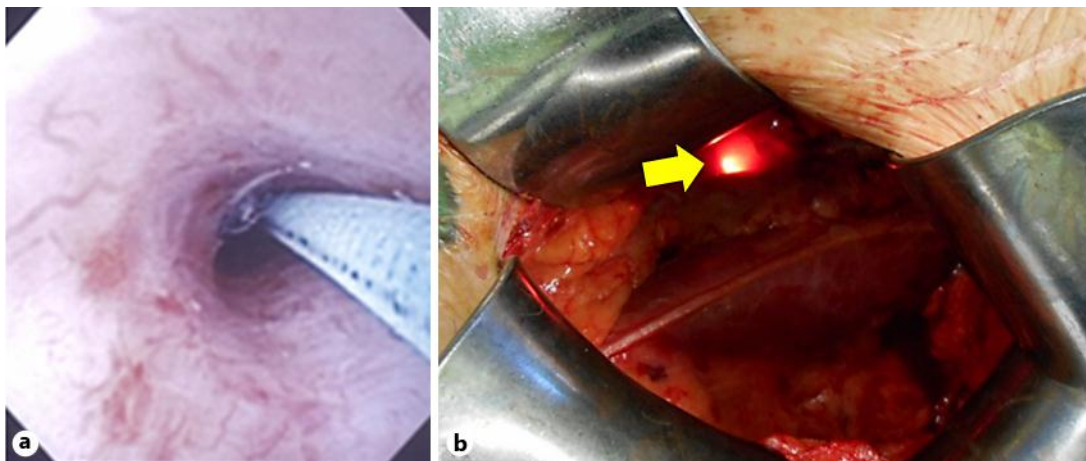


Fig. 3. Ureteroscopic findings (a) and ureteroscopic lighting (b).

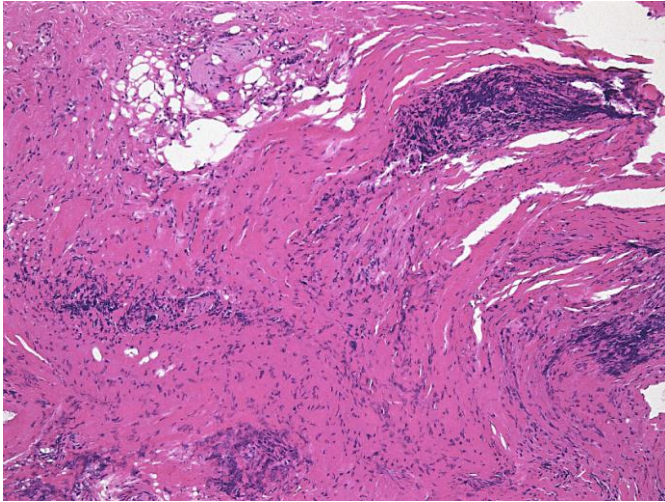


Fig. 4. Hematoxylin and eosin staining of the biopsy specimen.