Acta Med. Nagasaki 36 : 38－41

A Large Periureteral Lipoma Associated with Renal Lithiasis and Hydronephrosis.

Tomayoshi HAYASHI, M. D.[1], Atushi IMAMURA, M. D.[2]
Nobuo TSUDA, M. D.[1], Osamu SHIMADA, M. D.[1]
Naofumi MATSUNAGA, M. D.[3] and Yutaka SAITO, M. D.[2]

1) Pathology Division, Central Diagnostic Laboratory, Nagasaki University Hospital; 7-1 Sakamoto-machi, Nagasaki 852, Japan
2) Department of Urology, and 3) Department of Radiology, Nagasaki University School of Medicine; 12-4 Sakamoto-machi, Nagasaki 852, Japan

Received for publication, February 8, 1991

SUMMARY : A rare case of large periureteral lipoma in a 66-year-old woman is reported. The tumor measuring 16×7×7cm in size was located from the upper portion of the right ureter to the renal pelvis. It is considered that the severe hydronephrosis and renal lithiasis occurred as a result of stenosis in the upper urinary tract due to compression by the tumor. Although the differential diagnosis was difficult radiologically, the tumor was easily diagnosed as lipoma by histopathological investigation.

INTRODUCTION

Primary tumors of the retroperitoneum are rare and show nonspecific symptoms. We report a case of large periureteral lipoma associated with renal lithiasis and hydronephrosis of the right kidney. The clinical features and pathologic findings of the case are presented with a discussion of differential diagnoses based on radiographic and histopathological findings.

CASE REPORT

A 63-year-old woman was admitted to the hospital complaining of oppressive feeling of the chest. She had no history of disease of the urinary tract.

Physical examination revealed a large mass in the right upper abdomen. The laboratory data were as follows: BUN 13 mg/d*l*, serum creatinine 1.1 mg/d*l*, and serum cholesterol 184 mg/d*l*.

Urinalyses revealed red blood cells 3-5/HPF and white blood cells 30-40/HPF.

The right urinary tract was not visualized by excretory urography. Only a calcified lesion was noted in the right kidney (**Fig. 1**). Computed tomography revealed a homogeneous mass with fat density in the retroperitoneum but did not show any invasion to surrounding tissues. The upper ureter penetrated the center of the mass (**Fig. 2**).

At the operation, a retroperitoneal tumor involved the right upper ureter and the right kidney was enlarged. The tumor was removed along with the involved ureter and enlarged kidney.

HISTOPATHOLOGIC FINDINGS

Macroscopically, a yellow mass measuring 16×7×7cm in size was located from the upper portion of the right ureter to the renal pelvis. The tumor was encapsulated by thin fibrous connective tissue (**Fig. 3a**).

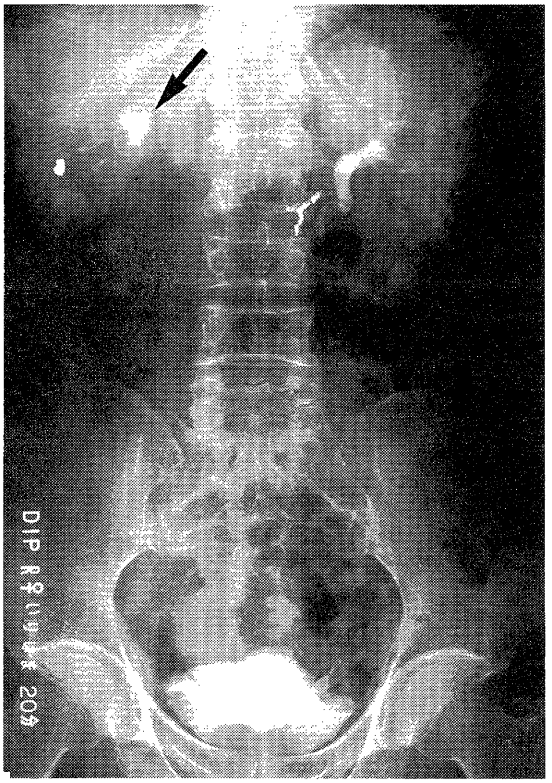

Fig. 1. Excretory urography.
Excretory urography reveals no right upper urinary tract except for a calcified mass (arrow).

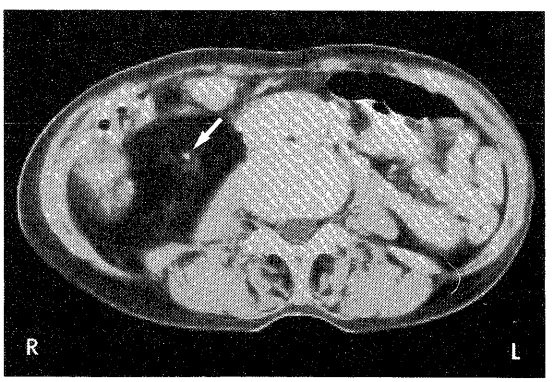

Fig. 2. Computed tomography.
Computed tomography shows a large retroperitoneal mass with uniform fat density. The right upper ureter penetrated the center of the mass (arrow).

On cut surfaces, the tumor located at the upper portion of the right ureter. The tumor surrounded and encased the upper ureter. The

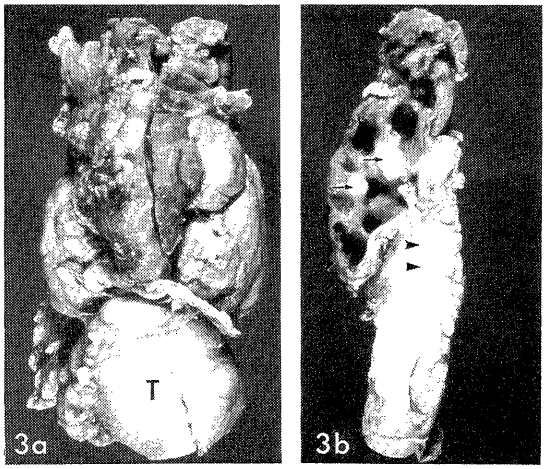

Fig. 3a. Gross appearance of the resected specimen.
A yellow mass measuring 16×7×7cm (T) in size is located from the upper portion of right ureter to the renal pelvis. The tumor has a thin fibrous capsule.

Fig. 3b. Cut surface.
The tumor is located at the upper portion of the ureter. The upper portion of the ureter is narrowed (arrowheads). The kidney presents the dilated renal pelvis and thinned renal parenchyma. The tumor shows the protrusion at the dilated renal pelvis (arrows).

right kidney had dilated pelvis and thinned parenchyma. The tumor emerged in hemispherical protrusion from several points in the mucosa of the dilated renal pelvis (**Fig. 3b**). In concurrence with the X-ray findings of calcification, three stones of varying size were found in the renal pelvis. The largest stone was approximately 1 cm in diameter.

Microscopically, the mass was comprised of mature fat cells and encapsulated by fibrous connective tissue (**Fig. 4**). The tumor surrounded the ureter. The border between the mass and the ureter and/or renal pelvis was not clear (**Fig. 5**). On the basis of these findings, the mass was diagnosed as lipoma. In the renal parenchyma showing marked thinning, inflammatory cell infiltration, tubular atrophy and tubular dilatation with numerous colloid-like casts were observed. Almost all the glomeruli showed sclerotic changes. The renal small vessels showed moderate intimal thickening.

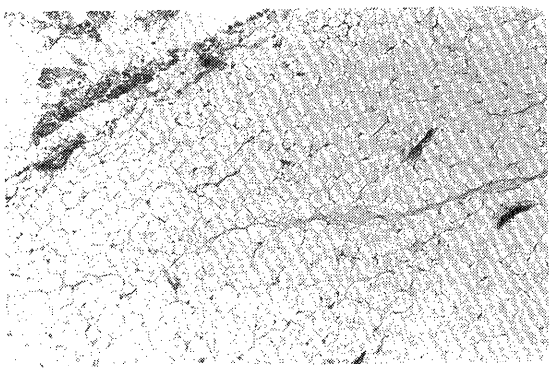

Fig. 4. Microscopic appearance.
The tumor consists of mature fat tissue with a fibrous capsule.

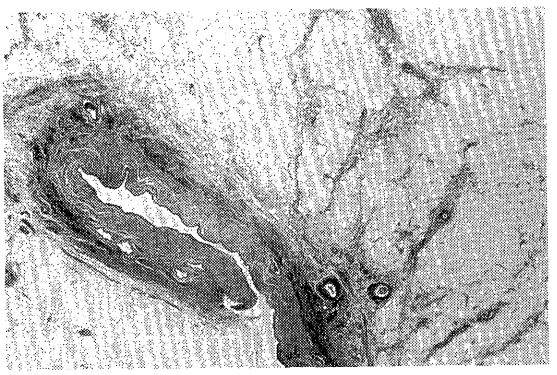

Fig. 5. Microscopic appearance.
The tumor composed of mature fat cells surround the ureter. The ureteral lumen is not obstructed.

DISCUSSION

The differential diagnosis of tumors with fat density occurring in the perirenal area includes liposarcoma, renal replacement lipomatosis, pelvic lipomatosis, and pseudotumoral lipomatosis of the retroperitoneum[3, 6, 7].

Although difficult to differentiate radiologically, our case was easily diagnosed as lipoma, because, histopathologically, it was composed of mature fat cells and possessed a capsule.

Liposarcoma is the most common malignant tumor arising in the retroperitoneum. A diagnosis of liposarcoma could be ruled out in the present case because of the absence of lipoblasts with marked nuclear atypia and abnormal mitoses[10].

Renal replacement lipomatosis is a condition characterized by an increase in fat tissues of the renal hilum to fill in the space left by atrophy of the renal parenchyma occurring as a result of chronic lesions or inflammation of the renal pelvis[11]. The proliferation of fat tissues are reactive and are located at the renal hilum.

Pelvic lipomatosis was defined by Fogg et al as the hyperplasia of normal fat tissue in the vesicorectal area of the pelvic cavity[5]. It is necessary to distinguish this condition from lipoma, which is a true neoplasm. Bender *et al*[2], reported a case of "periureteral lipomatosis" in which fat tissues developed around both ureters. In their summary the authors state, "this case may represent a variant of lipomatosis", but in the discussion they say, "clinically and histologically the fatty tissue in this case was well encapsulated" and "We have considered this collection of adipose tissue to represent a lipoma and, therefore, to be a true neoplasm". Judging from the description that their patient showed an increase in mature fat tissue with a capsule, we consider it to be a case of lipoma. Even unilaterally, the occurrence of lipoma in the periureteral region is very rare. Therefore, a bilateral occurrence, as their case, is extremely unusual. The terms "lipoma" and "lipomatosis", which are confused in the above paper, should be clearly differentiated and used accurately.

Pseudotumoral lipomatosis of the retroperitoneum is a condition characterized by the deposition of fat in the retroperitoneum as a result of obesity or steroid treatment[6]. There has been a report of pseudotumoral lipomatosis of the retroperitoneum displacing the kidneys and ureters[4]. This diagnosis could be ruled out in the present case on the basis of the absence of steroid use and the neoplastic nature of our case.

There have been several reports concerning the compression of the ureters by retroperitoneal lipoma[1, 8, 12]. A case such as ours, however, in which the lipoma occurs in the periureteral region is extremely rare. As far as we know, the only previously reported case is that of Bender *et al*[2] described above.

Although the ureter was not obstructed, the kindney showed severe hydronephrosis. In the

case of retroperitoneal fibrosis, the inhibition of ureteral peristalsis as well as the compression of ureter may cause the hydronephrosis[9]. It is considered that the hydronephrosis in the present case occurred as a result of the pressure and inhibition of peristalsis of the upper ureter by the tumor.

REFERENCES

1) Abe, H., Kawamura, N., Okumura, S., Tomita, M. and Akimoto, M.: Retroperitoneal lipoma: report of a case. *Hinyokika Kiyo* **29**: 1107-1113 (1983). *(in Japanese)*
2) Bender, L. and Kass, M.: Periureteral lipomatosis: case report. *J. Urol.* **103**: 293-295 (1970).
3) Bryan, P. J., Cohn, W. N. and Seidelmann, F. E.: The pelvis, in Haaga, J. R. and Alfidi, R. J. ed.: Computed Tomography of the Whole Body. vol. 2. p. 786. The C. V. Mosby, St. Louis 1983
4) Flatman, J. G.: Displacement of the kidneys and ureters by retroperitoneal fat. *J. Can. Assoc. Radiol.* **29**: 195-196 (1978).
5) Fogg, L. B. and Smyth, J. W.: Pelvic lipomatosis: A Condition Simulating Pelvic Neoplasm. *Radiology* **90**: 558-564 (1968).
6) Lewis V. L., Shaffer, H. A. Jr. and Williamson, B. R. J.: Pseudotumoral Lipomatosis of the Abdomen. *J. Comput. Assist. Tomogr.* **6**: 79-82 (1982).
7) Lipuma, J. P. and Haaga J. R.: The kindney. in Haaga J. R. and Alfidi, R. J. ed.: Computed Tomography of the Whole Body. vol. 2. p. 706. C. V. Mosby. St Louis 1983
8) Mineau, D. E. and Nixon, G. W.: Retroperitoneal lipoma in a child. *Radiology* **126**: 456 (1978).
9) Mitchinson, M. J.: The pathology of idiopathic retropertoneal fibrosis, *J. Clin. Pathol.* **23**: 681 (1970).
10) Rosenthal, D. L.: Primary retroperitoneal tumors. in Coulson WF. Surgical Pathology. 2nd ed. vol. 1. p. 313. J. B. Lippincott. Philadelphia 1988
11) Subramanyam, B. R., Bosniak, M. A., Horii, S. C., Megibow, A. J. and Balthazar, E. J.: Replacement Lipomatosis of the Kidney: Diagnosis by Computed Tomography and Sonography. *Radiology* **148**: 791-792 (1983).
12) Sullivan, W. G., Wesenberg, R. L. and Lilly, J. R.: Giant retroperitoneal lipoma in children. *Pediatrics* **66**: 123-125 (1980).