J HK Coll Radiol 2002;5:193-196

CASE REPORT

Urinary Bladder Leiomyoma

FK Wong, YFM Wong, KF Ma, CY Lui

Department of Diagnostic Radiology, Princess Margaret Hospital, Hong Kong

ABSTRACT:

A case of urinary bladder leiomyoma in a patient initially diagnosed as having urethritis on account of a 2-week history of purulent urethral discharge is presented. The clinical presentation, imaging findings, and management of this rare benign tumour are discussed. The use of various imaging modalities (intravenous urography, computed tomography, magnetic resonance imaging) contributed to the diagnosis of urinary bladder leiomyoma, which was confirmed histopathologically after transurethral cystoscopy was used to partially resect the lesion.

Key Words*: Bladder neoplasms, Diagnostic imaging, Leiomyoma*

INTRODUCTION

Leiomyoma of the urinary bladder is a rare benign tumour predominantly found in women, although men can also be affected. Typically, it occurs in the fourth and fifth decades of life. The most common presenting complaints are urinary voiding symptoms such as obstruction and irritation.

We describe here a case of urinary bladder leiomyoma in a young middle-aged man experiencing purulent urethral discharge. Although not initially suspected, the diagnosis of urinary bladder leiomyoma was subsequently histologically confirmed.

CASE REPORT

A 39-year-old man presented with a 2-week history of purulent urethral discharge, which was diagnosed as urethritis. Intravenous urography (IVU) was performed and showed a smooth filling defect at the inferior aspect of the urinary bladder (Figure 1).

Subsequent CT of the pelvis confirmed a soft tissue mass present at the right posterolateral aspect of the urinary bladder wall, encroaching posteriorly on the vesicoureteric junction. There was bulging at the lateral wall of the bladder. Mild uniform contrast enhancement was seen (Figure 2).

MRI demonstrated the lesion to be homogenously hypointense on T1- and T2-weighted images (Figures 3a and 3b, respectively), with mild contrast enhancement after gadolinium injection (Figure 3c). MRI also clearly showed that the lesion was submucosal with an intact bladder mucosa (Figure 3d). There was no invasion into the seminal vesicles, prostate gland, and pelvic side walls.

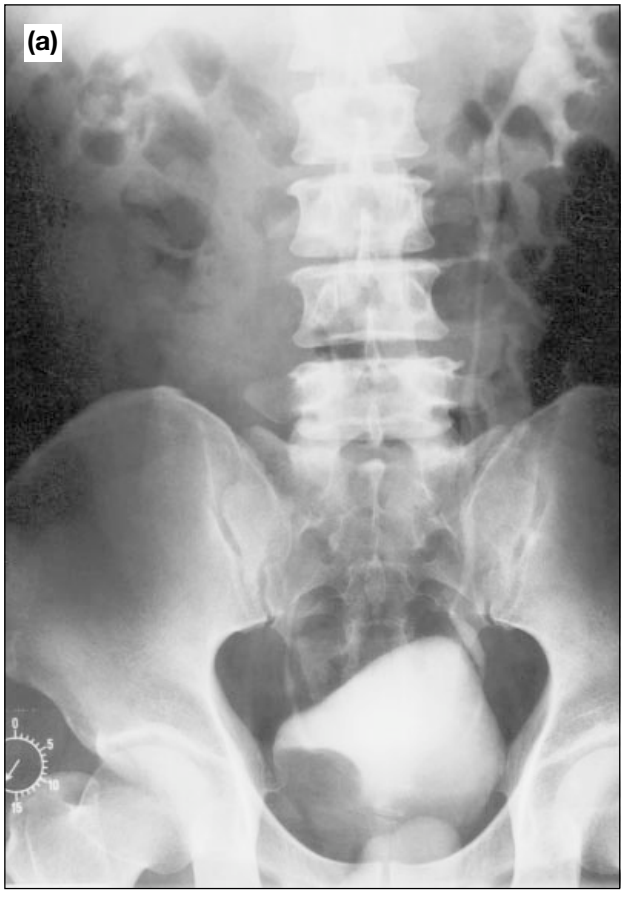
Transurethral cystoscopy with partial resection of the lesion was performed. Macroscopic examination showed firm tan-coloured tumour tissues. Microscopic examination revealed that the tumour mass was composed of interlacing fascicles of smooth muscle cells. Mitotic figure or cellular atypia was not seen. The pathological diagnosis was leiomyoma.

DISCUSSION

Urinary bladder leiomyoma is very rare, accounting for only about 0.04 to 0.5% of all bladder tumours.[1] It is, however, the most common benign urinary bladder tumour.[2] A review by Goluboff et al of 37 cases in the English language literature showed that the mean patient age was 44 years and that 76% of patients were women.[3] The site and dimension (mean diameter, 6 cm) influenced the symptomatology, type of surgery performed, and prognosis. Patients presented most

Correspondence: *Dr. FK Wong, Department of Radiology, Princess Margaret Hospital, Lai King Hill Road, Kwai Chung, Hong Kong. Tel: (852)2990 1344/1340; Fax Number: (852)2990 3276; E-mail:fatkeew@netvigator.com*

Submitted: 22 May 2002; Accepted: 4 July 2002.



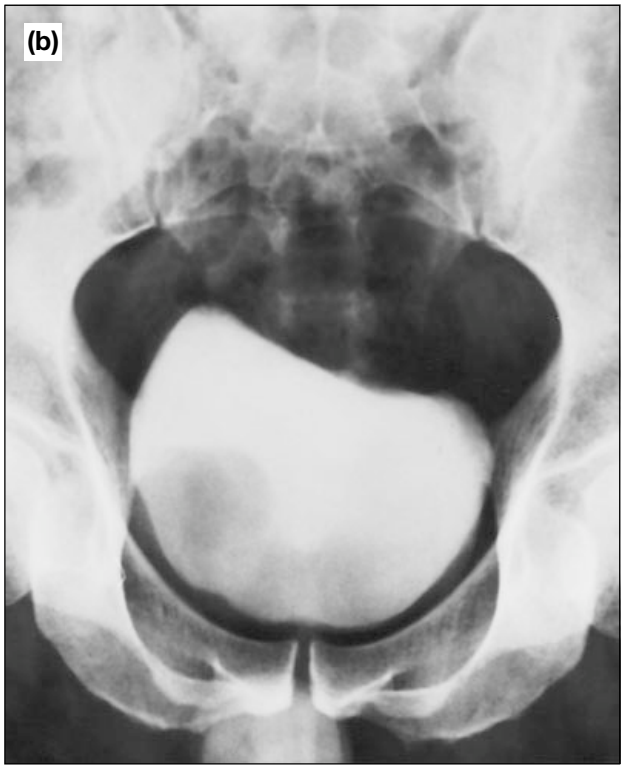


Figure 1. Intravenous urography examinations showing a large smooth filling defect at the right side of the bladder. (a) Kidney, ureter, and bladder; (b) bladder view.

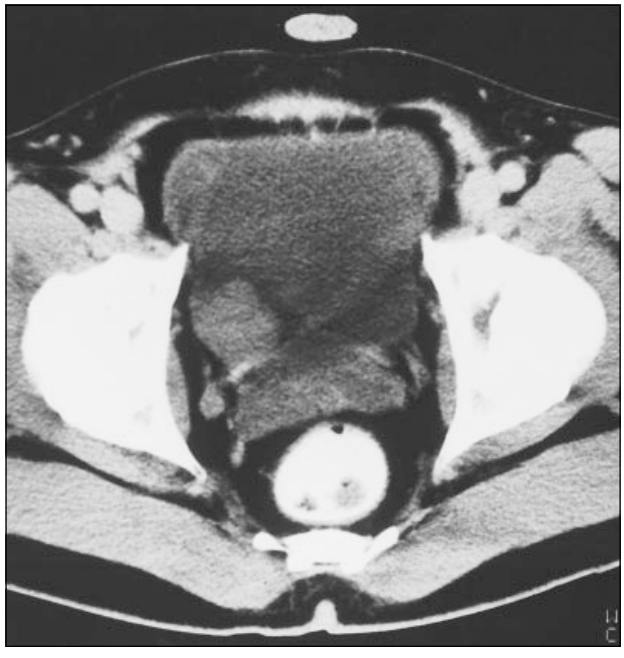


Figure 2. Contrast computed tomography showed homogenous enhancement of the lesion.

commonly with obstructive urinary symptoms (49%), followed by irritative symptoms (38%), flank pain (13%), and haematuria (11%). Some small leiomyomas were asymptomatic. Tumour development is primarily intravesical (63%), but both extravesical growth (30%) and intramural growth (7%) are not uncommon.[2]

Various imaging modalities can contribute to the diagnosis of urinary bladder leiomyoma. US usually reveals a smooth-walled hypoechoic solid tumour, with varying degrees of internal echoes, covered by a thin hyperechoic line of mucosa.[4] Intravenous urography (IVU) shows a smooth filling defect at the urinary bladder.[1] Both CT and MRI can be used to assess the site and dimensions of the tumour, as well as the presence of any invasion. However, MRI offers superior contrast and spatial resolution to CT and should therefore be considered the modality of choice.

At MRI, the normal bladder wall is of intermediate signal intensity on the T1-weighted image, while there is an intermediate signal outer band and a low signal inner band on the T2-weighted image.[5] On both T1- and T2-weighted images, non-degenerative leiomyomas are usually visualised as low intensity nodules with smooth surfaces, as seen in the present case. The submucosal location with intact mucosa is a characteristic feature of urinary bladder leiomyoma, and resembles uterine leiomyoma.[6] By contrast, the more common transitional cell carcinoma affects the mucosa.

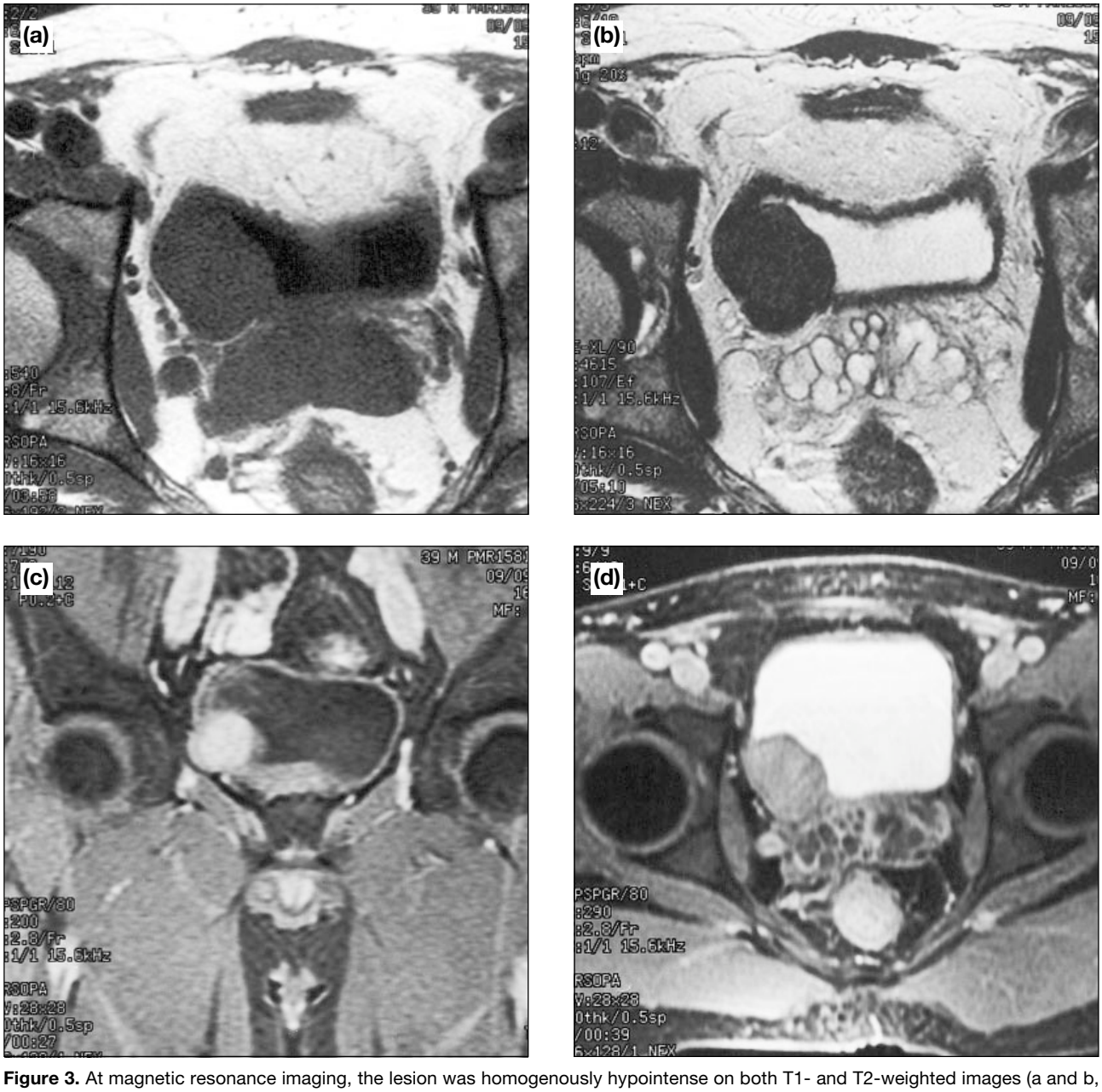


Figure 3. At magnetic resonance imaging, the lesion was homogenously hypointense on both T1- and T2-weighted images (a and b, respectively). Mild uniform contrast enhancement (c) and a dark intact bladder mucosa (d) were seen post-gadolinium.

A variety of tumour enhancement patterns may be seen after gadolinium injection. Some tumours enhance homogenously, while others show little or heterogenous enhancement.[7] Degenerative leiomyoma (e.g. cystic degeneration) has a heterogenous signal intensity on T2-weighted image and on post-gadolinium T1-weighted image.

Although the imaging features, especially on MRI, are suggestive, the definitive diagnosis requires histopathology through urethro-cystoscopy.[4] Small endovesical lesions can be managed by transurethral resection. On the other hand, large lesions with extravesical growth may require open surgery with segmental resection or partial cystectomy.[8] The prognosis is excellent owing to the low rate of recurrence.[9]

In conclusion, we presented the imaging features of a urinary bladder leiomyoma. The smooth filling defect at IVU and smooth outline at CT, together with the characteristic submucosal location with intact mucosa and low intensity signal on T2-weighted image at MRI, all contribute to the diagnosis of this rare tumour.

REFERENCES

1. Yoon IJ, Kim KH, Lee BH. Leiomyomas of the urinary bladder: MR findings. AJR Am J Roentgenol 1993;161:449-450.

2. Maya MM, Slywotzky C. Urinary bladder leiomyoma: magnetic resonance imaging findings. Urol Radiol 1992:14:197-199.
3. Goluboff ET, O'Toole K, Sawczuk IS. Leiomyoma of bladder: report of case and review of literature. Urology 1994;43:238-241.
4. Greco A, Baima C, Piana P. Leiomyoma of the bladder. Report of a case and review of the literature. Minerva Urol Nefrol 1999; 51:33-38. Italian.
5. Sundaram CP, Rawal A, Saltzman B. Characterics of bladder leiomyoma as noted on magnetic resonance imaging. Urology 1998;52:1142-1143.
6. Kabbaj N, Benslimane L, Dafiri R, Benchekroun A, Imani F. MRI of bladder leiomyoma. J Radiol. 1998;79:757-760.
7. Chen M, Lipson SA, Hricak H. MR imaging evaluation of benign mesenchymal tumors of the urinary bladder. AJR Am J Roentgenol 1998;168:399-403.
8. Knoll LD, Segura JW, Scheithauer BW. Leiomyoma of the bladder. J Urol 1986;136:906-908.
9. Sakellariou P, Protopapas A, Kyritsis N, Voulgaris Z, Papaspirou E, Diakomanolis E. Intramural leiomyoma of the bladder. Eur Radiol 2000;10:906-908.