

# A case of metastatic prostate adenocarcinoma to an inguinal lymph node

Mitsuru Komeya, Tamami Sahoda, Shinpei Sugiura, Takuto Sawada, Kazuo Kitami

Department of Urology, Fujisawa City Hospital, Kanagawa, Japan

## KEY WORDS

prostate adenocarcinoma ► postoperative recurrence ► inguinal lymphadenopathy

## ABSTRACT

A 47-year-old man presented with dysuria. The prostate-specific antigen level was 65.5 ng/mL. Retropubic radical prostatectomy and regional lymphadenectomy revealed moderately differentiated adenocarcinoma (Gleason score 3 + 4 = 7, pT2N0). Postoperative adjuvant hormonal therapy was started immediately. Three years later, hormonal therapy was changed to anti-androgen monotherapy. Monotherapy was continued for eight years and then discontinued because the PSA level was maintained at <0.04 ng/mL. However, biochemical recurrence occurred 12 months after adjuvant hormonal therapy was discontinued. A computed tomography scan showed left inguinal lymphadenopathy. Biopsy of the swollen inguinal lymph node revealed metastatic prostate cancer. We report a rare case of metastatic prostate adenocarcinoma only to the inguinal lymph nodes.

## INTRODUCTION

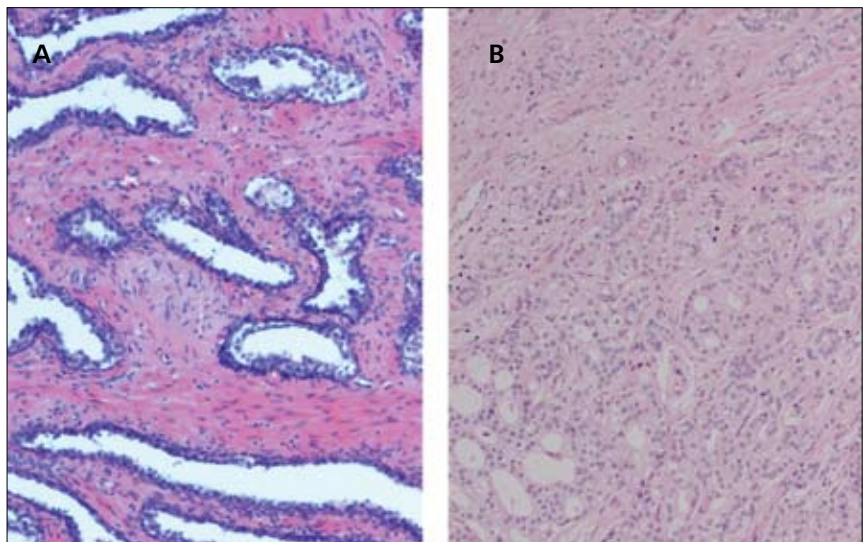
Prostate adenocarcinoma is the most common cancer in males and the second leading cause of cancer death [1]. Approximately one-half of patients with prostate cancer have metastatic lesions at presentation. Bones and regional lymph nodes are the most common sites of metastasis. However, metastasis to inguinal lymph nodes in the absence of pelvic lymphadenopathy or other metastases is uncommon. Prostate cancer spreads via the lymphatics from the obturator lymph nodes to the pre-sacral, lateral sacral, internal and external iliac, and inguinal lymph nodes. Inguinal lymphadenopathy is also a manifestation of carcinoma, metastatic disease, lymphoma, and leukemia. In such cases, biopsy of the lymphadenopathy can be an effective diagnostic tool. We report a rare case of metastatic prostate adenocarcinoma only to the inguinal lymph nodes.

## CASE REPORT

A 47-year-old man presented with dysuria. Digital rectal examination revealed a nodule in the left lobe of the prostate. The prostate-specific antigen (PSA) level

was 65.5 ng/mL. Transrectal biopsy of the prostate revealed adenocarcinoma. A computed tomography (CT) scan, magnetic resonance imaging, and bone scan showed no metastasis. After two months of neoadjuvant hormonal therapy (leuporeline and bicalutamide), retropubic radical prostatectomy and obturator lymph node dissection were performed. The pathological finding was a moderately differentiated adenocarcinoma (Gleason score 3 + 4 = 7) (Fig. 1 A). The surgical margins and obturator lymph nodes were negative.

He was young and was a high-risk patient for recurrence; hence, postoperative adjuvant hormonal therapy (leuporeline and bicalutamide) was started immediately. Three years later, hormonal therapy was changed to monotherapy (bicalutamide). Monotherapy was discontinued because the PSA level was maintained below 0.04 ng/mL for eight years. Two years after the discontinuation, the PSA level increased gradually to 0.73 ng/mL. A CT scan showed no metastasis. He was diagnosed with biochemical recurrence and refused to receive salvage radiotherapy. Complete androgen blockade (leuporeline and bicalutamide) was restarted, and an intensive follow-up was performed every 1 to 1.5 months. Twenty-one months after the biochemical recurrence, the PSA level increased to 10.4 ng/mL and a CT scan showed left inguinal lymphadenopathy (Fig. 2 A). The maximum size of the lymph nodes was 2 cm in diameter. To determine whether the lymphadenopathy was caused by metastatic prostate cancer, one of the swollen inguinal lymph nodes was obtained by open biopsy. Pathological findings revealed metastatic prostate cancer (Fig. 1 B). The patient was then treated with estramustine phosphate sodium and dexamethasone for 1 year. The size of the lymph node decreased to 8 mm in diameter, and no other metastatic lesions were found (Fig. 2 B). The PSA level decreased to 0.2 ng/mL.



**Fig. 1.** A. (left), Histopathological examination shows moderately differentiated adenocarcinoma (Gleason score 3 + 4 = 7) (H & E staining,  $\times 200$ ). B. (right), The biopsy of the swollen inguinal lymph node shows adenocarcinoma. The tumor cell cytoplasm shows vacuolar degeneration (H & E staining,  $\times 200$ ).

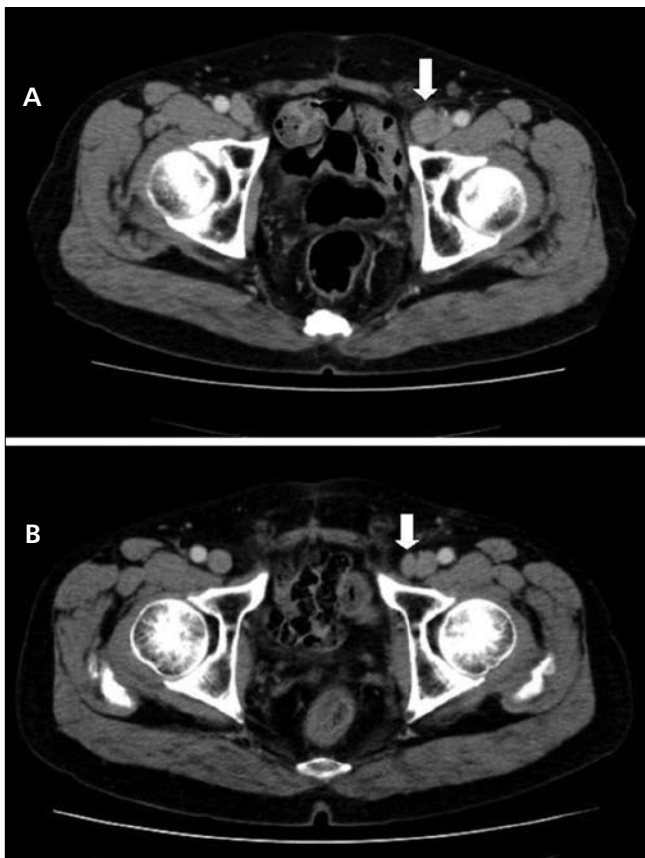


Fig. 2. A. (top), A CT scan shows the swollen left inguinal lymph nodes with maximum size of 2cm in diameter. B. (bottom), The maximum size of the lymph nodes decreased to 8 mm in diameter due to secondary hormonal therapy.

## DISCUSSION

Thirteen years after surgery and adjuvant hormonal therapy, the prostate adenocarcinoma metastasized only to the inguinal lymph nodes in this patient. In a study by Jackson AS et al., 9% of patients with prostate cancer that had metastasized only to the lymph nodes had inguinal lymphadenopathy [2]. However, all patients also had pelvic nodal enlargement. Only two patients presenting with prostate cancer and metastasis to the inguinal lymph nodes have been reported [3, 4]. Our case is the first report in which prostate adenocarcinoma postoperatively metastasized only to the inguinal lymph nodes.

In this case, pathological findings showed no lymphatic or vessel invasion and no metastasis to the obturator lymph nodes. However, metastasis to the inguinal lymph nodes occurred. There are three possible explanations for this. First, the prostate adenocarcinoma might have spread via aberrant lymphatic drainage of the prostate before the surgery. Second, a tiny focus of local residual prostate adenocarcinoma spread through uncommon routes of lymphatic drainage because of postoperative distortion of the lymphatic drainage. Many uncommon routes of lymphatic drainage have been reported, such as the periprostatic and seminal vesicle nodes, gonadal vessels, mesenteric and mesocolic nodes, posterior iliac crest nodes, and inferior phrenic nodes [4, 5, 6]. And finally, neoadjuvant hormonal therapy caused degeneration of cancer cells and metastasis to the obturator lymph node couldn't be detected.

For an early diagnosis, repeated CT scans, careful interpretation of radiographs, and a complete physical examination including palpation of the inguinal region are important. Inguinal lymphadenopathy is a manifestation of adenocarcinoma,

lymphoma, leukemia, infection, cat scratch disease, sexually transmitted disease, and metastatic disease from anal, penile, urethral, and skin cancers [4, 7]. Open or needle inguinal lymph node biopsy or inguinal lymphadenectomy are essential diagnostic tools [8]. In general, open biopsy may be more invasive than needle biopsy. However, open biopsy of only one swollen lymph node might be less invasive and more ideal because the larger sample will allow for better chances of actually detecting cancer cells if they are present. In this case, we had to investigate the cause of the lymphadenopathy because prostate adenocarcinomas rarely metastasize only to the inguinal lymph nodes. Postoperative complications such as lower extremity edema did not occur. In such cases, open biopsy of the lymphadenopathy can be an effective diagnostic tool.

Secondary hormonal therapy is thought to be the only choice for castration-resistant prostate cancer that metastasizes only to the inguinal lymph nodes. However, a combination of hormonal and radiation therapy or additional inguinal lymphadenectomy might have some advantages if prostate adenocarcinoma was limited in the inguinal lymph nodes. Early diagnosis and combination therapy might then be worth considering. In this case, the patient refused radiation therapy and additional lymphadenectomy, so we performed secondary hormonal therapy alone.

## REFERENCES

- Greenlee RT, Hill-Harmon MB, Murray T, Thun M: *Cancer statistics, 2001*. CA Cancer J Clin 2001; 51: 15-36.
- Jackson AS, Sohaib SA, Staffurth JN, et al: *Distribution of lymph nodes in men with prostatic adenocarcinoma and lymphadenopathy at presentation: a retrospective radiological review and implications for prostate and pelvis radiotherapy*. Clin Oncol (R Coll Radiol) 2006; 18: 109-116.
- Slavis SA, Golji H, Miller JB: *Adenocarcinoma of the prostate presenting as inguinal adenopathy*. Cleve Clin J Med 1990; 57: 97.
- Huang E, Teh BS, Mody DR, et al: *Prostate adenocarcinoma presenting with inguinal lymphadenopathy*. Urology 2003; 61: 463.
- Park JM, Charnsangavej C, Yoshimitsu K, et al: *Pathways of nodal metastasis from pelvic tumors: CT demonstration*. Radiographics 1994; 14: 1309-1321.
- Kothari PS, Scardino PT, Ohori M: *Incidence, location, and significance of periprostatic and periseminal vesicle lymph nodes in prostate cancer*. Am J Surg Pathol 2001; 25: 1429-1432.
- Oyan B, Engin H, Yalcin S: *Generalized lymphadenopathy: a rare presentation of disseminated prostate cancer*. Med Oncol 2002; 19: 177-179.
- Rosa M, Chopra HK, Sahoo S: *Fine needle aspiration biopsy diagnosis of metastatic prostate adenocarcinoma to inguinal lymph node*. Diagn Cytopathol 2007; 35: 565-567.

## Correspondence

Mitsuru Komeya  
Department of Urology  
Fujisawa City Hospital  
2-6-1 Fujisawa  
Kanagawa 251-8550, Japan  
phone: +81 466 25 3111  
urology\_ycu@yahoo.co.jp