

## PROSTATE CANCER ASSOCIATED WITH LONG-TERM INTAKE OF PATENT MEDICINE CONTAINING METHYLTESTOSTERONE: A CASE REPORT

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An 81-year-old man, admitted with lumbago and pollakisuria, was diagnosed to have stage D2 prostate cancer (T3N2M1). Although the serum level of prostate specific antigen (PSA) was 3,560 ng/ml, serum testosterone (55.6 ng/dl) and luteinizing hormone (LH, 0.8 mIU/ml) levels were very low. Detailed inquiry of the patient revealed a daily intake of patent medicine containing 6–9 mg methyltestosterone for the past 30 years. He was treated by surgical castration and oral chlormadinone acetate. We advised him not to take such androgenic drugs. The disease has been well controlled for 7 months.

We stress the importance of checking medication habits of patients with prostate cancer, especially androgen-containing drugs which can be purchased without a physician's prescription. A low serum LH level may be an important finding indicating the intake of androgenic drugs.

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**Key words :** Prostate cancer, Methyltestosterone

### INTRODUCTION

Prostate cancer is a representative hormone-dependent cancer. Surgical or medical castration has been one of the important treatment options since the report by Huggins and Hodges in 1941<sup>1)</sup> Withdrawal of androgen clearly suppresses the cancer growth and relieves the patient's symptoms. We encountered a patient with prostate cancer with multiple bone metastases who had been taking tablets containing methyltestosterone.

### CASE REPORT

On April 12, 1996, an 81-year-old man was admitted to our hospital with the complaints of lumbago and pollakisuria. The past medical history was unremarkable. On digital rectal examination (DRE), a hen's egg-sized hard prostate with irregular surface was palpated. Blood chemistry examination disclosed elevated alkaline phosphatase (ALP). The serum level of prostate specific antigen (PSA, Delfia) was 3,560 ng/ml, but the total testosterone (55.6 ng/dl, normal range 250–1,100) and the luteinizing hormone (LH, 0.8 mIU/ml, normal range 1.8–5.2) levels were very low. Transrectal ultrasound guided transrectal prostate needle biopsy revealed well-differentiated adenocarcinoma. Radiographs of the chest, lumbar vertebrae, and pelvis revealed multiple bone metastases. Pelvic computed tomography scan (CT) revealed an asymmetrically swollen prostate

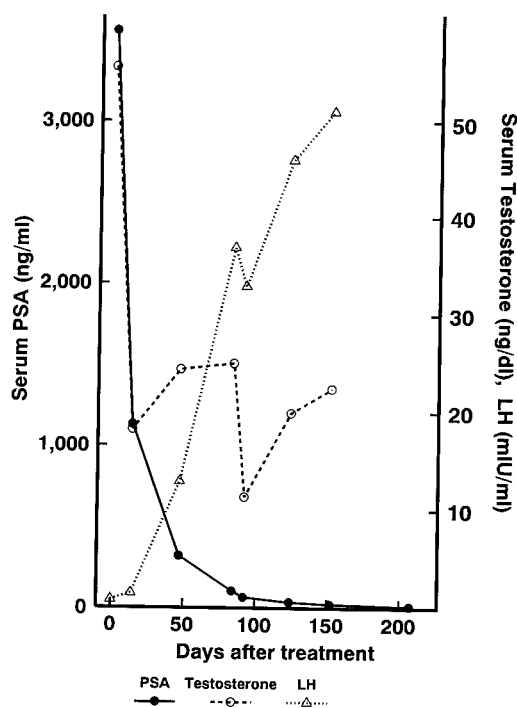


Fig. 1. Change of serum PSA, testosterone and luteinizing hormone (LH) levels after the treatment. The PSA level was lowered and the LH level rose markedly.

which suggested extracapsular and seminal vesicle invasion. There was a swollen lymph node in the right pelvis measuring 3 cm in diameter. The

clinical stage was determined to be T3N2M1, stage D2. Administration of 100 mg of chlormadinone acetate was started on April 17, and a bilateral orchiectomy was performed on April 26. On April 30, we became aware that the patient had been taking tablets of patent medicine which contained methyltestosterone, amino acids, several vitamins and some Chinese medicines for about 30 years. Each tablet contained 1 mg of methyltestosterone, and he had been taking 3 tablets 2 or 3 times daily. He followed our advise to stop taking them. His serum PSA level was lowered and LH level rose (Fig. 1); DRE disclosed that his prostate had diminished in size.

### DISCUSSION

Prostate cancer is a representative hormone-dependent cancer. Testosterone, 95% of which is synthesized in the testes, is the major serum androgen stimulating prostatic growth<sup>2)</sup> Autopsy studies have revealed that patients with cirrhosis of the liver, who had an estrogen level higher than normal, have lower rates of prostate cancer than age-matched controls<sup>3)</sup>

Methyltestosterone, (17  $\beta$ -hydroxy-17  $\alpha$ -methyl-androst-4-en-3-one), is an orally effective synthetic androgen, which has been shown to have considerably higher activity than testosterone<sup>4)</sup>. Shinohara et al.<sup>5)</sup> reported that after administration of 10 mg methyltestosterone orally in eight healthy male subjects, the average highest serum level of methyltestosterone was 23.6 ng/ml and the mean half life value was 2.29 hours. Since this patient had been taking 6 to 9 mg-of methyltestosterone every day for 30 years, his serum methyltestosterone level is speculated to have been maintained at a high level during this period. It is not certain whether the prostate cancer in this patient was induced by this drug or not. Actually, there are many reports that the plasma level of testosterone was not significantly different between prostate cancer patients and controls<sup>6-8)</sup>. In this patient, the cancer cells were proliferating rapidly even though the serum testosterone level was very low. However, androgen withdrawal (including tablets containing methyltestosterone) markedly reduced the serum PSA level and prostate size, which indicated that the cancer cells were not hormone-independent. His serum LH level was low despite the low serum testosterone before the treatment, indicating the presence of a substance which had strong androgenic action. Therefore, his cancer cells may have been activated mainly by the oral methyltestosterone.

Had we not become aware that he was taking these tablets and had he continued to take them after the bilateral orchiectomy, his prostate cancer would have progressed further.

Such preparations can be easily purchased without a physician's prescription. Also, elderly persons tend to have many medications prescribed by other physicians. We stress the importance of checking all the patient's medication habits, and to measure the serum testosterone level before beginning the treatment in patients with prostate cancer. The possibility of intake of androgenic medicine should also be considered when the cancer shows regrowth in spite of hormonal therapy.

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## 和文抄録

## メチルテストステロン内服中に発生した前立腺癌の1例

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症例は81歳男性。腰痛と頻尿を主訴に当院に入院し、前立腺癌 stage D2 (T3N2M1) と診断された。血清 PSA は 3,560 ng/ml と著しく高値であったが、血清テストステロンは 55.6 ng/dl, LH は 0.8 mIU/ml と著しく低値であった。患者の詳細な問診により、6~9 mg のメチルテストステロンを含む内服薬を毎日30年間にわたり服用していたことが判明した。その内服を厳禁し、酢酸クロルマジノンの内服と

両側精巣摘除術を施行した。その後7カ月間、前立腺癌のコントロールは良好である。

この症例により、前立腺癌患者の内服薬、特に医師の処方がなくとも手に入るアンドロゲンを含む薬の確認の重要性を再認識させられた。血清 LH が低いのが重要なポイントである。

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