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CASE REPORT

A Remarkable Response to Abiraterone Acetate in Castration-Resistant Prostate Cancer Patient with Aggressive Liver Metastasis

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ABSTRACT

In recent years novel treatment options for metastatic castration-resistant prostate cancer (mCRPC) are expanding. Among them, abiraterone acetate, which selectively inhibits CYP17 in androgen synthesis pathway, is widely used. However, liver metastasis is one of the worst prognostic factors in mCRPC. There are few cases reports that abiraterone is successfully used for liver metastasis of mCRPC. We report a case of mCRPC patient with extensive liver metastasis, who showed a remarkable response to abiraterone acetate. Although docetaxel is the recommended treatment for visceral metastasis of CRPC according to the EAU guidelines, abiraterone acetate is considered to be a possible treatment option.

Introduction

Although prostate cancer has a good clinical course in general, the patient with visceral metastasis still shows poor prognosis. The one recommended treatment for mCRPC with visceral metastasis is chemotherapy with docetaxel. There are few cases reporting abiraterone acetate is effective for liver metastasis of mCRPC. We report a case of mCRPC patient with aggressive liver metastasis, who showed dramatic responses to abiraterone acetate.

Case Report

A 62-year-old man with a PSA of 16.69 ng/ml was diagnosed as a prostate cancer in former hospital in March 2011. The pathology of biopsy specimen shows Gleason 8 (3+5) poorly differentiated prostate adenocarcinoma. A whole-body examination showed multiple bone metastasis including the 12th thoracic vertebra, sacral, left sacroiliac joint, and left shoulder blade, as well as left obturator lymph node metastasis. Androgen deprivation therapy (ADT) with gosereline acetate (10.8mg every 3 months) and bicalutamide (80 mg/day) was introduced. His PSA reached nadir at 0.75ng/ml in April 2012, and elevated thereafter. The anti-androgen replacement had no effect. He was recommended to receive chemotherapy with docetaxel, but he refused. In January 2013, he received radiation therapy for bone metastases and discontinued ADT. After radiation, PSA decreased temporally, but increased to 59.70 ng/ml in February 2014, when multiple liver metastases were found. In March 2014, he came to our hospital and ADT with flutamide (375mg/day) and degarelix acetate (first 120mg and 80mg every 1 month) restarted.

PSA decreased to 10.59 ng/ml after one month, but thereafter increased. In July 2014, PSA increased to 54.07ng/ml, he abandoned all medical treatment against the physician's recommendation. In October 2014, he came back to our hospital for the fatigue and loss of appetite. Blood test showed elevated PSA 626.43 ng/ml and severe liver dysfunction (AST/ALT 249/106). CT examination showed markedly enlarged liver with aggressive metastasis, pleural effusion, mediastinal lymph node metastasis, ascites and multiple bone metastases. (Figure 1). He accepted treatment of the abiraterone acetate (1000mg/day) and prednisone (10mg/day) combined with LH-RH agonist.

After 2 months of treatment, his blood test remarkably improved with PSA 2.92 ng/ml, AST/ALT was 26/15 IU/l. After that, PSA turned to elevate, but liver function remained normal. In May 2015, CT showed liver metastases remarkably decreased in size (Figure 2). Although he had progression in bone metastasis, liver metastases still kept diminishing in September 2015. Although we changed to enzalutamide, PSA continued elevating, so he was introduced to other hospital in December 2015 (Figure 3). After that, 8 courses of docetaxel and 3 courses of cabazitaxel were administered, and he died in March 2017.

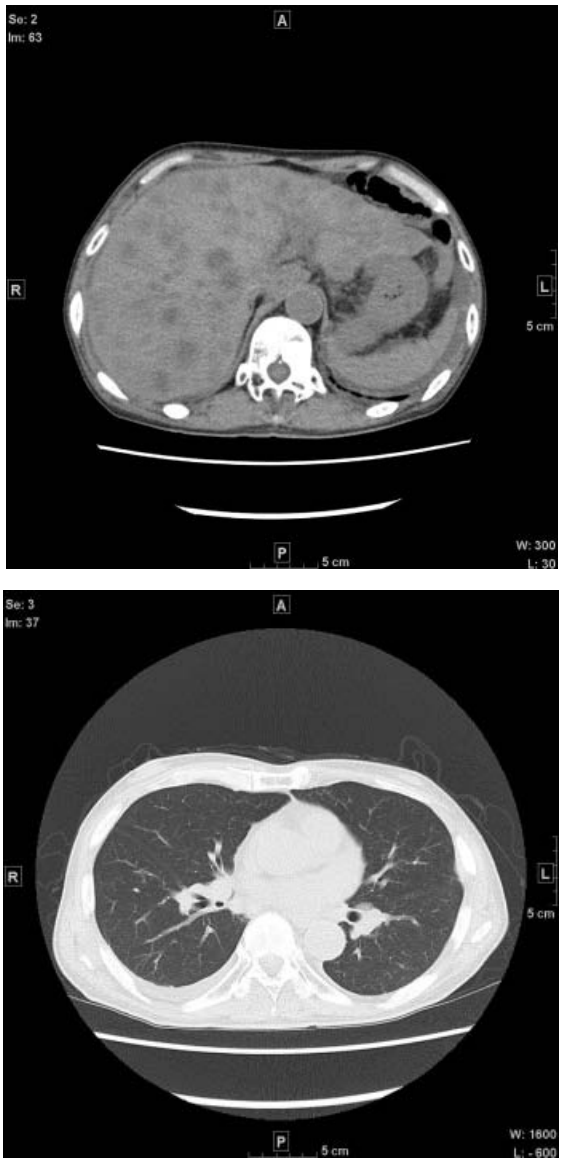

Figure 1: CT before abiraterone acetate initiation.

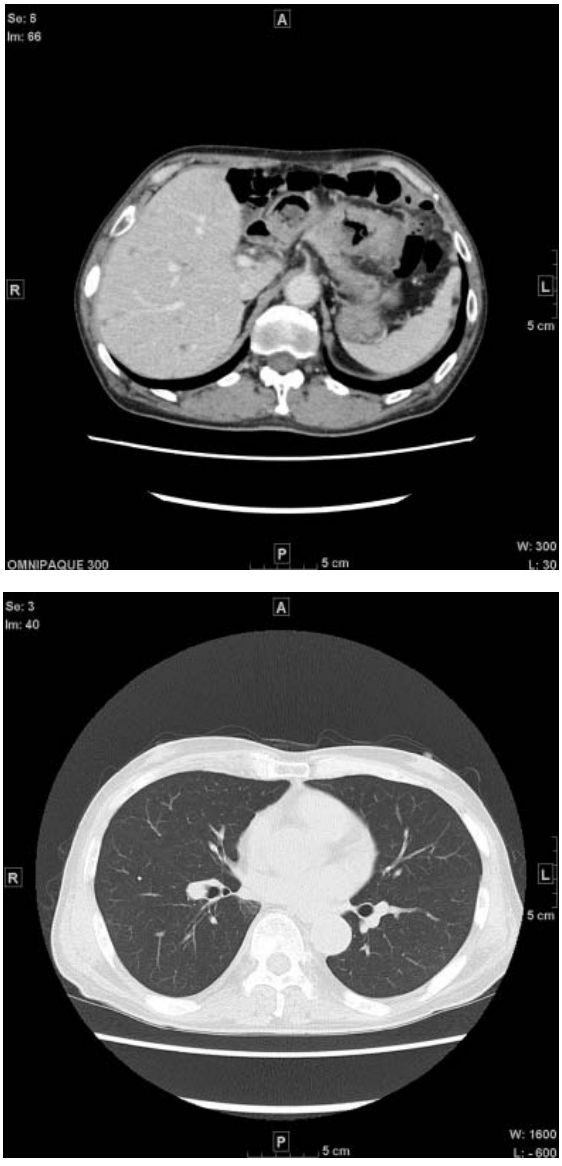

Figure 2: CT after 7 months treatment of abiraterone acetate.

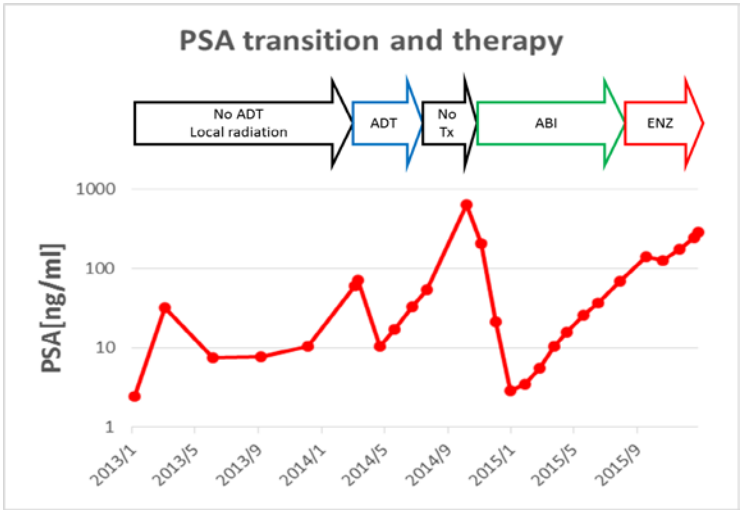

Figure 3: PSA transition and therapy.

Discussion

Visceral metastasis in mCRPC causes a decrease in patient activity due to organ failure and threatens their lives. In the literature, visceral disease in the lung or liver occurs in about 20-30% of mCRPC patients and it is associated with poor prognosis [1]. In the EAU guideline, docetaxel therapy is recommended for first treatment of mCRPC patients with visceral metastasis if their performance status is favorable. However, in this case, the patient was reluctant to receive docetaxel chemotherapy because of severe liver dysfunction. There is no clear description about alterable treatment of mCRPC with visceral metastasis.

In COU-AA-302, which is a large-scale phase trial of abiraterone acetate prior to docetaxel chemotherapy, mCRPC patients with visceral metastasis were excluded. So, there is no evidence administering abiraterone acetate to mCRPC patients with visceral metastasis before docetaxel [2].

COU-AA-301 is phase trial of abiraterone acetate after docetaxel chemotherapy. In the published trial, 29% of the patients presented with visceral metastases at baseline, and an objective response rate of 14% was obtained. The study also showed that abiraterone acetate plus prednisone produced similar absolute improvement in median overall survival in patients with (4.6 months) and without (4.8 months) visceral metastasis; hazard ratios were 0.79 and 0.69, respectively [3].

Halabi reported a meta-analysis comparing overall survival for each metastatic site of CRPC [4]. Median overall survival periods of men with liver metastases, lung metastases, non-visceral bone metastases, lymph node only disease are 13.5, 19.4, 21.3, 31.6 months, respectively. Thus liver metastasis was the worst prognostic factor in mCRPC patient. Dupuy reported two cases with visceral metastasis successfully treated by administering abiraterone acetate to mCRPC. In one case, abiraterone acetate was started at a dose of 1000 mg/day together with prednisone 10 mg/day for chemo-resistant CRPC with multiple visceral metastases including liver lesion. Three-month treatment achieved radiological improvement and PSA fall [5]. However, the improvement of liver metastasis is only limited, not a drastic improvement like our case.

Ilaria reported abiraterone acetate caused partial response of liver metastasis after chemo therapy with docetaxel in 65-year-old man [6]. After the treatment with abiraterone acetate (1000 mg/day), liver metastasis decreased its diameter from 3 cm to 1.8 cm.

In our case, abiraterone acetate produced sustained CR in mCRPC with aggressive liver metastasis before chemotherapy. A recent study reported that the number of prior regimens is a predictive factor of low response to abiraterone acetate [7]. Our case suggested that abiraterone acetate could be an initial treatment option of CRPC with liver metastasis.

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