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Case Report

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Small cell prostate cancer: A very rare entity

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ABSTRACT

Small cell prostate cancer which is associated with a high disease specific mortality is a rare disorder accounting for less than 1% of all prostate cancers. We present here a case of 64 years old male patient presented with lower urinary tract symptoms. The prostate needle biopsy result was reported as prostate adenocarcinoma (predominant component small cell carcinoma) Gleason 5 + 3=8 (eight). Chemotherapy and radiotherapy were planned. The patient was asymptomatic 8 months after treatment. He died 13 months after initial diagnosis because of the metastatic lesions.

1. Introduction

Extrapulmonary small cell carcinoma which may originate from different parts of the body is very rare. Neuroendocrine tumors are almost the same as small cell carcinomas. Immunohistochemical staining tests such as synaptophysin, chromogranin, neuron-specific enolase and CD-56 are used for identification (Walenkamp et al., 2009; Demirtaş et al., 2013). Primary small cell prostate cancer is a rare pathologic entity accounting for less than 1% of all prostate cancers (Weprin and Yonover, 2017). Small cell prostate cancer has a poor prognosis and main age of presentation is 65 years. It was first described in 1977 (Wenk et al., 1977). It clinically behaves like small cell carcinoma of the lung and It commonly presents with lymph node, bone, or organ metastases. Survival expectancy is less than 1 year in diffuse disease (Spiess et al., 2007; Weprin and Yonover, 2017). Morphologically, small cell prostate cancer is similar to small cell carcinoma of the lung and small cell prostate cancer treatment is different from classical prostate cancer treatment. But patients often present with lower urinary tract symptoms

(Karaköse et al., 2013; Weprin and Yonover, 2017). The symptoms of presentation may be related to metastases and rarely to paraneoplastic syndromes. A relative decrease in prostate specific antigen production and androgen receptor expression was observed compared to adenocarcinoma (Petraki et al., 2005; Spiess et al., 2007).

Herein, we describe a 64-year-old man with small cell prostate cancer who was operated for benign prostate enlargement 1 year ago. His transurethral resection of prostate pathology was benign.

2. Case report

A 64 years old man initially presented to another clinic with lower urinary tract symptoms. His complaints were aggravated gradually. He applied to our clinic with symptoms of urinary retention. He was operated for benign prostate enlargement 1 year ago and his transurethral resection of prostate pathology was benign. The prostate gland was homogeneously enlarged and firmer than normal on digital rectal examination. Total prostate specific antigen (PSA) value was 4.50 ng/mL. Transrectal ultrasonography showed a prostate size of 85 mm. His serum creatinine value is normal. Pelvic MRI revealed a mass extending from the bladder posterior to the submucosal area (Fig. 1). A twelve-quadrant transrectal ultrasound guided prostate needle biopsy was taken. The pathology of the sample was reported as prostate adenocarcinoma Gleason 5 + 3=8 (eight). The predominant component in the tumor is small cell carcinoma of the prostate. The lesion was stained positive for CD56, chromogranin, synaptophysin. Histopathological examination was showed at figures (Fig. 2 - 6).

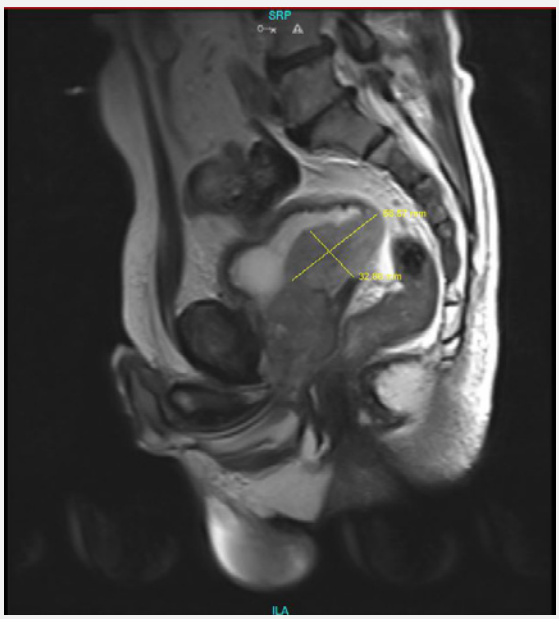

Fig. 1. Pelvic MRI image of the patient.

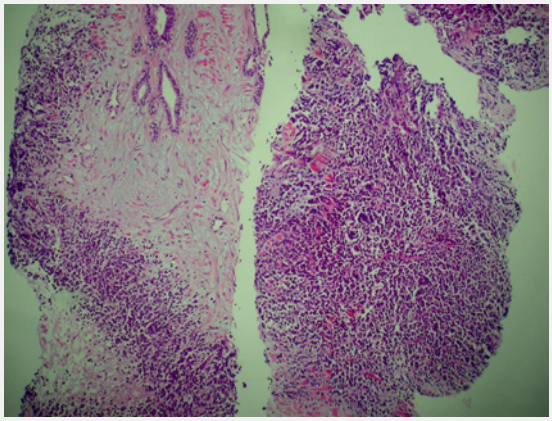

Fig. 2. Small cell carcinoma area with benign prostatic glands (HE; x100).

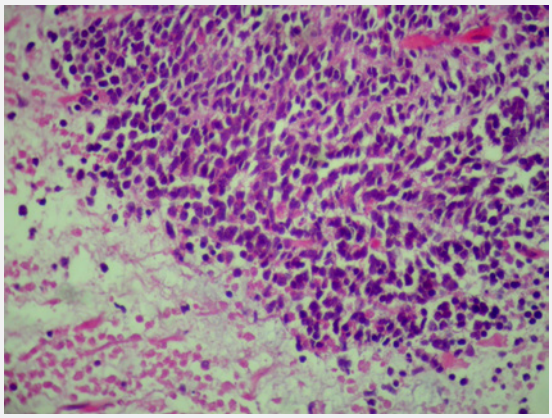

Fig. 3. Oval, round nucleus, without nucleoli specificity, narrow cytoplasm, Carcinoma field consisting of cells and necrosis(HE; x200).

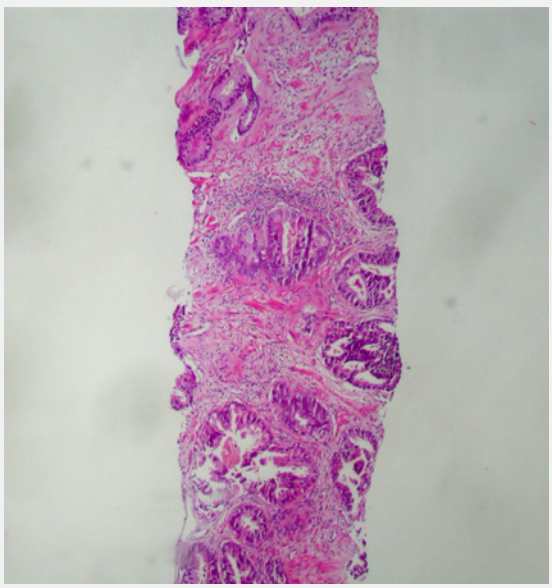

Fig. 4. Acinar carcinoma area in conventional Gleason 3 pattern (HE, x100).

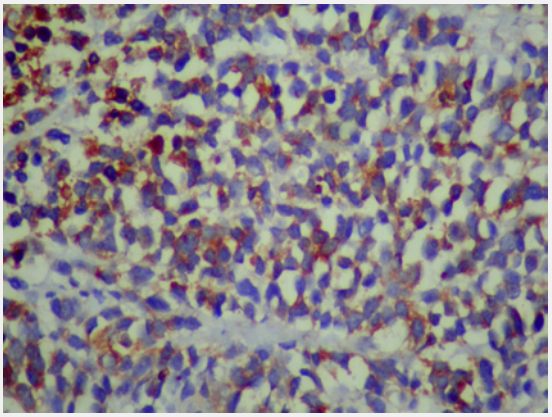

Fig. 5. Focal synaptophysin positivity in small cell carcinoma (DAB; x400).

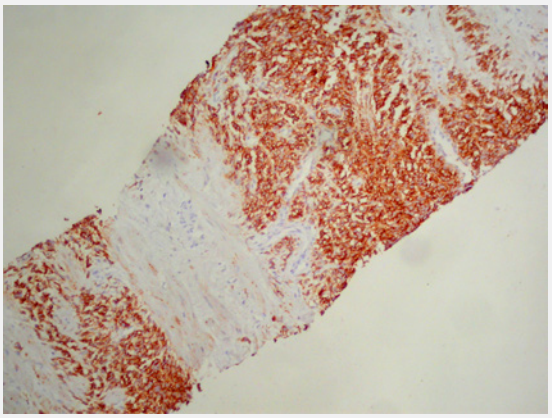

Fig. 6. Diffuse CD56 positivity in the area of small cell carcinoma (DAB; x100).

Computer tomography (CT) of the pelvis showed an enlarged prostate with protrusion bladder posterior to the submucosal area. The chest CT showed diffuse lung emphysematous micro bullae. There was no bone metastasis in whole body bone scintigraphy. Other biochemical parameters were normal.

Chemotherapy and radiotherapy were planned. The daily radiotherapy dose was 1.8 Gy and the total dose was 63 Gy. In total, 35 fractions were given. Six chemotherapy cycles (carboplatin, 450 mg/AUC 5) were also administered every 21 days concomitantly and consequently to radiotherapy. The patient was asymptomatic 8 months after treatment. He died 13 months after initial diagnosis because of the metastatic lesions.

3. Discussion

The prostate is one of the more common sites of extrapulmonary small cell carcinomas. Small cell prostate cancer is rare, accounting for 0.5–2% of all prostatic malignancies (Papandreou et al., 2002; Palmgren et al., 2007). Men with lower urinary tract symptoms are an important part of patients who apply to the urology outpatient clinic. But small cell prostate cancer is different from classic prostate cancer. Small cell prostate cancer is a tumor that tends to systematically metastasize. Even at the time of diagnosis, approximately 75% of patients are at an advanced stage. Small cell prostate cancer has similar characteristics with small cell lung cancer. Small cell prostate cancer has a poor prognosis with an average survival of less than 12 months (Erasmus et al., 2002; Deorah et al., 2012; Ateşçi et al., 2014; Karakose et al., 2014).

Small cell prostate cancer metastasizes early in its course and therefore the clinical presentation is often in an advanced stage. It most commonly metastasizes to the lungs, lymph nodes, brain, liver, bone, pericardium, rectum, and urinary bladder. Small cell prostate cancer cases have normal levels of prostatic acid phosphatase and PSA (Capizzello et al., 2011).

The transrectal ultrasound guided needle biopsy is used for the diagnosis of the small cell prostate cancer initially. However, morphology and immunohistochemical staining for neuroendocrine markers remain the reference point to confirm the diagnosis of small cell carcinoma. Neuroendocrine markers CD56, Chromogranin A, and Synaptophysin are highly specific for small cell carcinomas. Neuroendocrine cells are commonly found in isolated patches along prostate adenocarcinomas. However, immunohistochemical staining against PSA, androgen receptor, prostatic acid phosphatase and p504s (AMACR) are used to demonstrate high sensitivity to eliminate the presence of adenocarcinoma and mixed small cell/adenocarcinoma tumors. Differentiating the different forms of prostate cancer (adenocarcinoma, pure small cell carcinoma, mixed) is necessary to choosing the most effective form of treatment (Capizzello et al., 2011; Weprin and Yonover, 2017). The optimal treatment for small cell prostate cancer is not still defined because of the limited cases. Extra pulmonary small cell cancers are less susceptible to chemotherapy than pulmonary small cell carcinomas. Chemotherapy and radiotherapy can provide a cure for local disease. Survival after a diagnosis of small cell prostate cancer is less than 1.5 years (Palmgren et al., 2007; Weprin and Yonover, 2017).

We diagnosed combined prostate adenocarcinoma and small cell prostate carcinoma in our case. It took about eight months from initial diagnosis to development of diffuse disease. We have limited knowledge of the average survival time at combined prostate adenocarcinoma and pure small cell prostate carcinoma due to limited number of case reports on these cancers in the literature. In one study, the total survival time was 9.5 months for combined prostate adenocarcinoma and small cell prostate carcinoma (Asmis et al., 2006). In another study, the average

survival time found for metastatic small cell prostate cancer was 12.5 months (Spiess et al., 2007).

The majority of men with small cell prostate cancer are associated with both locally advanced lesions and distant metastatic spread. For this reason, the treatment modality should include both local control using radiation therapy to the primary tumor and systemic treatments with chemotherapy. As a result, optimal treatment specific to small cell prostate cancer has not been established with clinical experience or scientific research (Weprin and Yonover, 2017). In a study, they found that, the chemotherapy protocol consisting of cyclophosphamide, doxorubicin, and vincristine in a case with diffuse bone and solid organ metastases could provide a remission period of only 4 months (Hindson et al., 1985). In another study, the author reported a period of full remission of 36 months in a case with metastatic combined adenocarcinoma and small cell prostate carcinoma with radiotherapy, systemic chemotherapy and antiandrogen therapy (Brammer et al., 2011).

We planned chemotherapy and radiotherapy in our case. The daily radiotherapy dose was 1.8 Gy and the total dose was 63 Gy. In total, 35 fractions were given. Six chemotherapy cycles (carboplatin, 450 mg/AUC 5) were also administered every 21 days concomitantly and consequently to radiotherapy. The patient was asymptomatic 8 months after treatment. He died 13 months after initial diagnosis because of the metastatic lesions.

Conclusion

Small cell prostate cancer presents an aggressive tumor histology associated with a high disease-specific mortality rate. It seems that intense systemic chemotherapy, antiandrogen therapy, and radiotherapy extended the remission period and increase survival time for patients with localized disease.

Competing interests

None declared.

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