



# Numb chin syndrome as a presenting central nervous system metastasis of prostate cancer: A case report

Sendag Yaslikaya<sup>a,\*</sup>, Mehmet Turker<sup>a</sup>, Semra Paydas<sup>a</sup>

<sup>a</sup>Çukurova University, Faculty of Medicine, Department of Medical Oncology, Adana, Türkiye

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## Abstract

A 71-year-old male who has prostate adenocarcinoma, was admitted to the medical oncology clinic with fatigue and intermittent epistaxis. He had anemia, thrombocytopenia, and increased lactate dehydrogenase levels in his blood. He had numbness in the chin and lower lip. Brain MRI revealed findings supportive of leptomeningeal disease. Numb Chin Syndrome (NCS) is also known as mental nerve neuropathy and is a rare sensory neuropathy. There are many benign and malign etiologic factors for this rare syndrome. This syndrome may be the first sign of systemic cancer or advanced manifestation of known cancer, both have poor prognosis. We present a case with NCS associated with prostate cancer with leptomeningeal metastasis.

NCS is a rare syndrome, that can develop due to benign or malignant diseases. NCS may be the first sign of the underlying malignancy, and sometimes it can be a sign of progression or recurrence of underlying malignancy. Leptomeningeal metastases of prostate cancer are extremely rare. All patients with NCS with or without malignancy should keep in mind the possibility of both jaw and cranial malignancies and investigated accordingly.



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## Introduction

Numb chin syndrome (NCS) has been described in the 1830s by Charles Bell. NCS is also known as mental nerve neuropathy and a rare sensory neuropathy. There is an association between malignancy and NCS. It is generally unilateral and 10-15 % bilateral. This entity is characterized by paresthesia or dysesthesia, localized to the chin and lower lip. The incidence is not clear. NCS may be peripheral, central, or paraneoplastic. It has been suggested that autoantibodies such as anti-Hu antibodies may be involved in the pathogenesis by autoimmune mechanisms [1]. Malignancy-associated NCS is often seen as "dead-type" numbness, but there is pain in 10% of patients [2]. There are many etiologic factors for this rare syndrome: dental causes, traumatic or iatrogenic injury of nerves [3], drugs and toxins including mefloquine or allopurinol [4], infections including syphilis, Lyme disease and HSV [5], connective tissue diseases including SLE, sjögrens [6] and sick cell disease [7]. Malignancies associated with NCS may be hematologic cancers and solid tumors. The most frequent primary tumor is breast cancer (40%), followed by lymphoma (21%), and prostate cancer (7%) [2]. This syn-

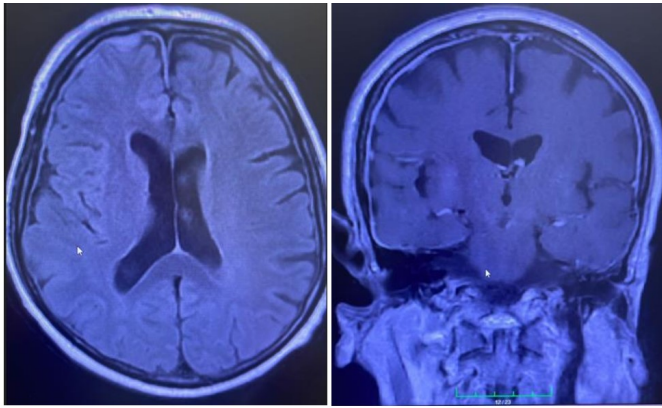
drome may be the first sign of systemic cancer or advanced manifestation of known cancer, both have poor prognosis [8]. We present a case with NCS associated with prostate cancer with leptomeningeal metastasis.

## Case Report

A 71-year-old male with hypertension, coronary artery disease and biopsy-confirmed prostate adenocarcinoma was admitted to the medical oncology clinic with fatigue and intermittent epistaxis. There was no history of fever, headache, lymph node enlargement, organomegaly recent infection, or new medication. At the first clinical evaluation, he took isosorbiddinitrat, and amlodipine 10 mg per day for 2 years. He had anemia and thrombocytopenia. Lactate dehydrogenase level was high in the blood, blood smear showed moderate anisopoikilocytosis and low platelet counts. Bone marrow aspiration and biopsy showed prostate cancer metastasis. Additionally, the patient stated that he experienced numbness in his chin, and lower lip during these procedures. In the detail of his history, he was admitted that he had numbness in the jaw for the last 2-3 weeks. The numbness was continuous. There was no pain or other neurological symptoms. No history of recent trauma or dental procedures. There was no new treatment started on the patient since her

\*Corresponding author:

Email address: [drysendag@gmail.com](mailto:drysendag@gmail.com) (Sendag Yaslikaya)



**Figure 1.** Leptomeningeal metastasis with cranial MRI.

admission. Oral examination was unremarkable. Weekly carboplatin (AUC 2, 220 mg) was started. A few days later he had persistent clear, watery nasal serous discharge. A brain MRI was performed to check for possible central pathologies due to the patient's numbness in the jaw and additional serous discharge. Brain MRI revealed findings supportive of leptomeningeal disease. (Figure 1). Palliative cranial radiotherapy (RT- 300 cGy/10 fraction) was performed. With the systemic treatments, the patient's serous nasal discharge resolved, but the numbness continued. The patient completed cranial palliative RT. Weekly carboplatin treatment lasted only 5 weeks. He passed away three months after the start of treatment due to disease progression.

## Discussion

Numb Chin Syndrome is a rare syndrome, that can develop due to benign or malignant diseases and involves the mental or inferior alveolar nerve, which is the branch of the mandibular part of the trigeminal nerve. Sensory neuropathy is characterized by sensory disturbances such as hypoesthesia, paresthesia, dysesthesia, or anesthesia. It may develop due to peripheral causes such as mandibular metastasis or invasion causing compression on the nerve, and central causes such as skull base lesions, leptomeningeal seeding, or perineural or neural invasion. NCS may be the first sign of the underlying malignancy, and sometimes it can be a sign of progression or recurrence of underlying malignancy [9,10]. Among 136 malignancy-associated cases, NCS was the first symptom at presentation in 27.7% of cases and the first symptom of recurrent disease in 37.7% [2]. NCS was the presenting symptom in 47 % of patients with malignancy-associated NCS [11]. In another case series of leptomeningeal seeding (22%, in total 86%) were associated with malignancy [12]. Prostate cancer can cause NCS with both mandible metastases and leptomeningeal seeding. Only 1% of all metastases that cause NCS occur in the jaw, and 10% of jaw metastases are due to prostate cancer [13]. Leptomeningeal metastases (LM) are a rare complication of advanced cancer as low as 5 % of patients with metastatic cancer. The most common solid tumors causing LM are breast, lung, and malignant melanoma [14,15]. The most common signs and symptoms were headache (39%), nausea and vomiting (25%), leg weakness (21%), cerebellar dysfunction (17%), altered

mental status (16%), diplopia (14%), and facial weakness (13%) [16,17]. LM of prostate cancer are extremely rare. LM was found in approximately 5% of autopsy series of patients with systemic prostate cancer, Yu et al. reported a pre-death prevalence of less than 0.03% in the study of leptomeningeal genitourinary cancers [18].

## Conclusion

NCS may be an important neurological finding of metastatic malignancy. In many studies, in the absence of an odontogenic cause, the most common cause is metastatic malignancy. After excluding dental pathologies and traumas, all patients with NCS with or without malignancy should keep in mind the possibility of both jaw and cranial malignancies and investigated accordingly. In our case, NCS was associated with metastatic prostate cancer which is a rare presentation.

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