



## **Cervical Spinal Intramedullary Metastasis of Ovarian Adenocarcinoma: A Case Report**

**B. Soylemez<sup>1\*</sup>, U. Ozum<sup>1</sup> and R. Egilmez<sup>2</sup>**

<sup>1</sup>Department of Neurosurgery, Cumhuriyet University, Sivas, Turkey.

<sup>2</sup>Department of Pathology, Cumhuriyet University, Sivas, Turkey.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

### **Article Information**

#### Editor(s):

(1) Dr. Luis Ricardo Martinhao Souto, Assistant Professor, Surgery Division, School of Medical Sciences, Universidade de Marília (UNIMAR), Sao Paulo State, Brazil.

#### Reviewers:

(1) Irappa Madabhavi, Civil Hospital Campus, India.

(2) Awodutire Phillip Oluwatobi, University of Africa, Toru Orua, Nigeria.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/54116>

**Received 20 November 2019**

**Accepted 26 January 2020**

**Published 05 February 2020**

**Case Report**

### **ABSTRACT**

**Aim:** Ovarian cancer metastasis to the spinal cord is extremely rare. To our knowledge, our case is one of only seventh such cases in the literature.

**Case:** We present the case of cervical spinal intramedullary metastasis of ovarian adenocarcinoma in a 56-year-old woman who presented with neck pain.

The cervical spinal intramedullary lesion was eradicated with C5-C6-C7 total laminectomy gross under monitorization somatosensorial evoked potential (SEP) and motor evoked potential (MEP).

The follow-up of the patient, who was operated on in 2017, continues, and there have been no recurrences.

**Conclusion:** To our knowledge, our case is one of the seventh cases of spinal special cervical intramedullary metastasis of ovarian carcinoma and only the fourth cases with no CNS and external CNS metastasis in the literature.

*Keywords: Ovarian adenocarcinoma; metastasis to the spinal cord; diagnosis; and treatment.*

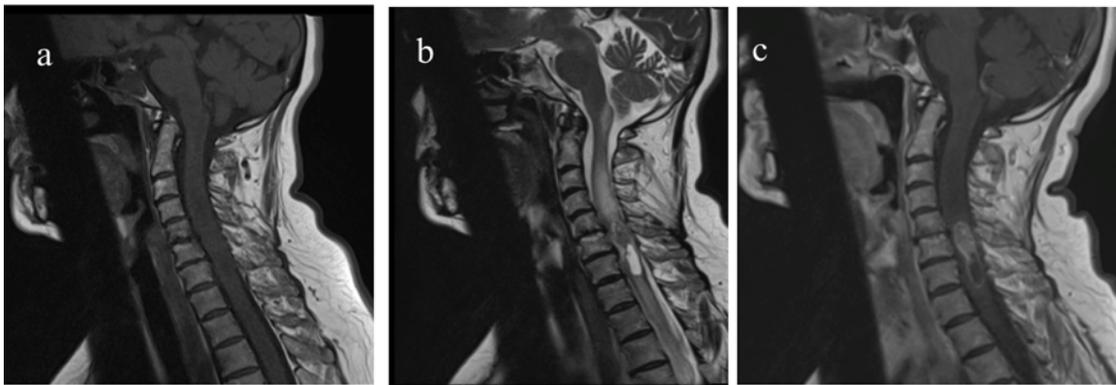
\*Corresponding author: E-mail: [burci1986@gmail.com](mailto:burci1986@gmail.com);

## 1. INTRODUCTION

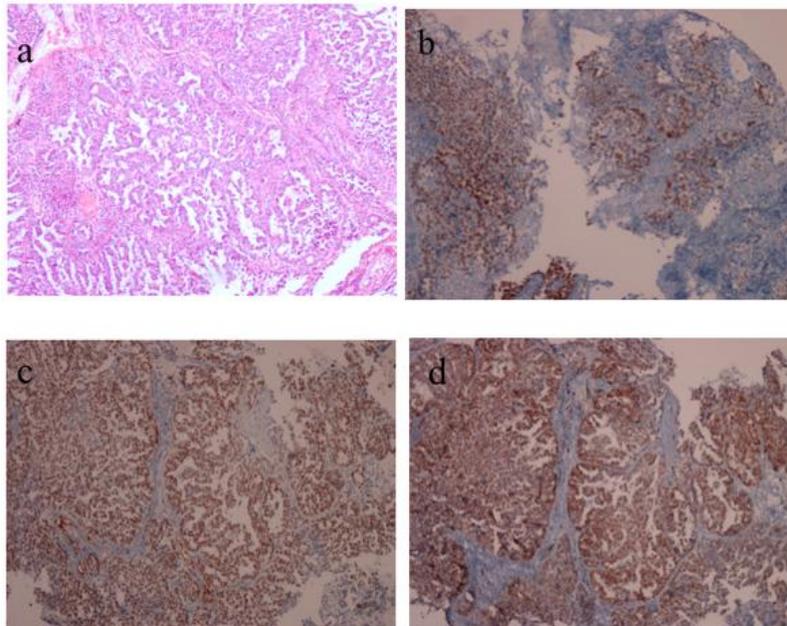
Ovarian cancer is the fourth leading cause of cancer death in women. Most die as a result of massive intraabdominal disease. Nowadays, surgical treatment and chemotherapy for ovarian carcinomas have extended life expectancy [1]. Frequency of ovarian carcinoma metastasis to the central nervous system (CNS) lying between 0.29 and 11.6 %, however indifferent autopsies series, spinal special cervical intramedullary metastasis of ovarian carcinoma extremely rare [1,2].

## 2. CASE PRESENTATION

A 56-year-old woman presented with a one-month history of neck pain. Total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed. Pathological examination revealed stage IIIc ovarian adenocarcinoma. She received six cycles of chemotherapy postoperatively. The patient underwent oncologic treatment and clinical follow-up at an external centre. During the cervical surgery, the patient's CA-125 level was 18.51 and the postoperative CA-125 level had decreased to 9.42.



**Fig. 1. Sagittal MRI of the cervical spine on a) T1- weighted b) T2- weighted c) T1- weighted with contrast shows an intramedullary spinal cord tumour at C6-C7 levels**



**Fig. 2. Micropapillar Adenocarcinoma a) H&E x100 b) ER nuclear positivity (IHC x100) c) WT-1 nuclear positivity (IHC x 100) d) Pax8 nuclear positivity (IHC x100)**

Neurologic examination revealed impaired light touch at C6 and C7 dermatomes bilaterally. Magnetic resonance imaging (MRI) demonstrated intramedullary mass lesion at C6, C7 levels (Fig. 1a-b-c). We explained to the patient other forms of treatment, and the patient wanted to have surgery. The cervical spinal intramedullary lesion was eradicated with C5-C6-C7 gross total laminectomy under monitorization of somatosensorial evoked potential (SEP) and motor evoked potential (MEP). An exuberant and delicate micropapillary proliferation covered by neutrophil. The microscopic features included a filigree pattern of highly complex micropapillary growing fibrous stalks and composed of stratified cuboidal cells with a high nuclear-cytoplasmic ratio. Nuclear atypia was mild. Mitotic figures were rare. There was no necrosis. On immunohistochemistry, the tumour cells reacted strongly for ER, PR, WT-1 and Pax 8 and were negative for CK 7, CK 20, and CDX 2. Histologic diagnosis was made of metastatic serous micropapillary carcinoma of the ovary (Fig. 2 a-b-c-d). The follow-up of the patient, who was operated on in 2017, continues, and there are no recurrences.

### 3. DISCUSSION

Edelson et al. reported that intramedullary spinal cord metastases accounted for only 1.3% of all

spinal metastases and the most common lung and breast tumours are metastasis [1-3]. Intramedullary spinal cord metastasis of ovarian cancer is extremely rare, with a reported prevalence of up to 2.1% in an autopsy series of patients with cancer. The intramedullary spinal cord is an important site of metastatic disease from solid tumours. With the availability of more sensitive imaging techniques, these tumours are being diagnosed with increasing frequency. The clinical presentation of intramedullary spinal cord metastasis is sometimes subtle and nonspecific the majority of patients present with radicular pain, weakness, and paresthesia. If untreated, the neurologic deficit deteriorates rapidly, and progression to a cord hemisection syndrome or cord transection occurs in approximately half of the patients [1]. According to the literature study, spinal cord metastasis from ovarian cancer portends a poor prognosis with a survival of 10 months to 3 years [4]. Treatment of intramedullary spinal tumours is controversial. The method of treatment of the patient depends on the functional state of the patient, a definitive diagnosis to guide additional treatments, and the degree of systemic disease that affects survival time and quality [3]. In literature, there is six cervical intramedullary metastasis of ovarian carcinoma (Table 1).

**Table 1. Cervical intramedullary metastasis of ovarian carcinoma in the literature [1,3-7]**

Author	Histology	Region	Other CNS metastases	Outside CNS metastases	Treatment
Thomas AW <sup>5</sup> (1992)	Poorly defferentiated serous cystadenocarcinoma	C3-Th1	Brain	Liver Lung	Radiothrapy Steroid
Cormio G <sup>1</sup> (2001)	Poorly defferentiated serous cystadenocarcinoma Grade IV	C4-C5	-	-	Radiotherapy Chemotherapy Steroid
Bakshi A <sup>6</sup> (2006)	Serous papillary adenocarcinoma Grade III	C4	-	-	Radiotherapy Chemotherapy Steroid
Kodama M <sup>4</sup> (2010)	Poorly defferentiated serous cystadenocarcinoma Grade IIIc	C3	Brain Choroid	Rectum	Radiotherapy Chemotherapy
Miranpuri AS <sup>3</sup> (2011)	Serous papillary adenocarcinoma Grade IIIc	C2-C5	-	-	Surgery
Huang J <sup>7</sup> (2017)	Adenocarcinoma Grade III	C7-Th1	?	?	Surgery Steroid
Soylemez B (2017)	Poorly defferentiated serous cystadenocarcinoma Grade IIIc	C6-C7	-	-	Surgery

#### 4. CONCLUSION

To our knowledge, our case is one of the seventh cases of spinal special cervical intramedullary metastasis of ovarian carcinoma, and the fourth case in which no CNS and outside CNS metastasis is reported in the literature.

#### CONSENT

Written consent was obtained from the patient to share the medical information and treatments with the literature as a rare case.

#### ETHICAL APPROVAL

As per international standard written ethical permission has been collected and preserved by the author(s).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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*The peer review history for this paper can be accessed here:  
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