

BRAIN AND INTRAMEDULLARY SPINAL CORD METASTASIS FROM SQUAMOUS CELL CERVICAL CARCINOMA

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Cervical cancer is the most common gynecologic malignancy among women in Taiwan. The annual incidence is approximately 1,000 cases. The metastasis route of carcinoma of the cervix usually extends locally, through the lymphatic drainage pathway from pelvic to para-aortic lymph nodes, or by the hematogenous pathway to distant sites [1]. Metastases to the central nervous system from cervical cancer are very rare. They are usually seen late in the course of the disease, and indicate a poor prognosis. Owing to the rarity of this event, there are very few reports in the literature regarding the optimal management of these patients. We report the case of a woman with a cervical squamous cell carcinoma (SCC), stage IB2 postradical hysterectomy with left temporal lobe and intramedullary spinal cord metastasis.

A 39-year-old Vietnamese woman, gravid 1, para 1, presented at our clinic with a 6-month history of irregular menses with vaginal bleeding. A diagnosis of SCC of cervix FIGO stage IB2 was made (Figure 1). The value of SCC antigen was 0.7 ng/mL (normal range, 0–1.5 ng/mL). She was then treated with a radical hysterectomy and bilateral pelvic lymph node dissection. Pathology revealed moderate differentiated SCC, non-keratinized with lymphovascular space invasion (LVSI) and no pelvic lymph node metastasis (Figure 2). Because of the LVSI, she was treated with pelvic radiotherapy (200 cGy fractions, total dose of 5,600 cGy in Box technique), followed by brachytherapy. The value of SCC antigen after radiotherapy was 1.1 ng/mL.

Six months after the completion of treatment, she presented with severe headache. Computed tomography

revealed a solitary brain tumor measuring 50 × 43 × 57 mm, with surrounding hypodensity at the right temporal lobe with midline shift (Figure 3). She received a craniotomy with removal of brain tumor. Pathology revealed metastatic SCC (Figure 4). After the operation, she received whole-brain radiotherapy with a total dose of 5,040 cGy. The value of SCC antigen was <0.3 ng/mL then. Unfortunately, three months after

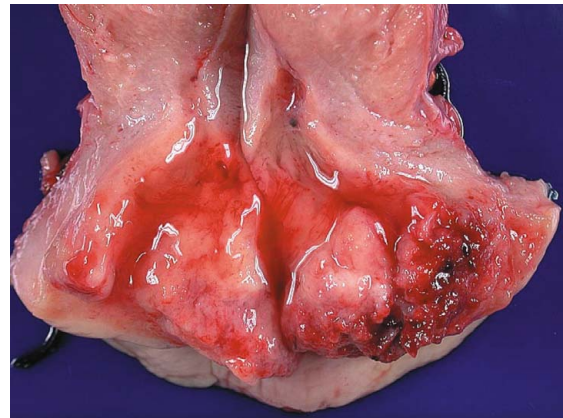


Figure 1. Gross lesion of the cervix.

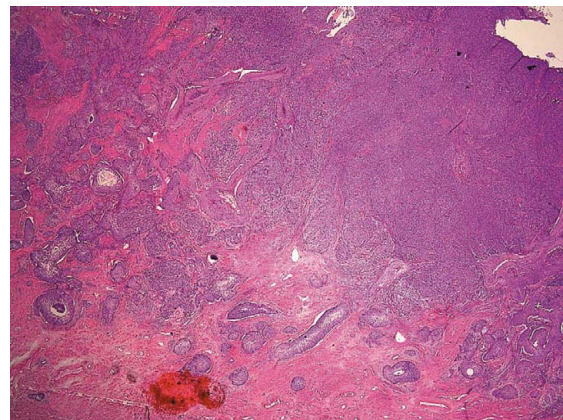


Figure 2. Pathology showing squamous cell carcinoma with lymphovascular space invasion and no pelvic lymph node metastasis.



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Figure 3. Computed tomography revealing a solitary brain tumor measuring $50 \times 43 \times 57$ mm, with surrounding hypodensity at right temporal lobe with midline shift.

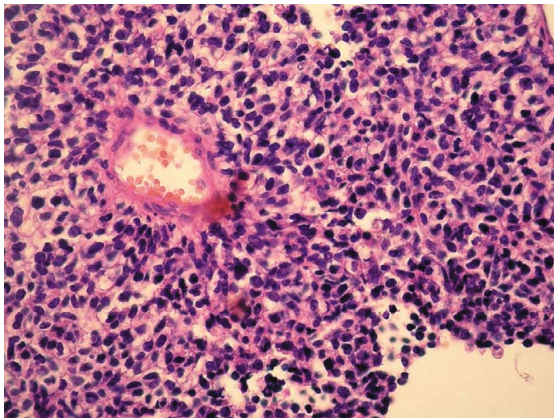


Figure 4. Pathology revealing metastatic squamous cell carcinoma.

completion of radiotherapy, she felt weakness in her right leg, followed by difficulty in urination. The SCC antigen value was still <0.3 ng/mL. Neurologic examination showed impairment of touch and temperature sensation below the T3 dermatome on the left side and muscle weakness of right leg. Magnetic resonance imaging (MRI) of the spine showed multiple intramedullary metastatic lesions at the T2 level and below (Figure 5). She received hospice care and expired 2 months after this episode.

The overall incidence of brain metastasis from various malignant tumors is rare. The incidence is 0.5–1.2% with brain metastasis, 5% with meningeal metastasis and 2% with spinal cord metastasis [2–5]. These patients usually present in the sixth decade of life [2]. The interval between the initial diagnosis of cervical cancer and brain metastasis varies from several months to 8 years. The possible route of metastasis to brain is hematogenous. Host immune response, tissue



Figure 5. Magnetic resonance imaging of the spine showing multiple intramedullary metastatic lesions at the T2 level and below (arrows).

neovascularization and the number of tumors all correlate with chance of distant metastasis.

Poorly differentiated cervical cancers are more frequently seen with brain metastasis [6]. The supratentorial region of the brain is the most common site of brain metastasis [7]. The vascularity and spatial characteristics of this region contribute to most metastases. Temporal lobe metastasis was noted in our patient. Headache and hemiparesis are the most common signs and symptoms reported in these settings [7].

MRI is very sensitive for the diagnosis of meningeal tumor [8], and it can reveal dura-arachnoid enhancement, pia-subarachnoid space enhancement, subependymal enhancement, or hydrocephalus with associated meningeal enhancement [4,8]. Cerebrospinal fluid cytology can also help diagnose neoplastic meningitis.

Prognosis of cervical cancer patients with brain metastasis is poor; median survival ranges from 6 weeks to 1 month without treatment [4]. Palliative treatment is the usual management for such patients. Intrathecal chemotherapy and brain radiotherapy are standard therapies for spinal cord metastasis [4]. Surgery is performed in cases with solitary lesions or adjacent multiple metastases, cases with diagnostic uncertainty, or those with life-threatening and critically located metastases. Surgical resection followed by adjuvant postoperative radiotherapy promises a better survival rate [3,9]. Despite treatments mentioned above, overall survival is poor. Our patient was treated with a solid brain tumor resection, followed by brain radiotherapy. However, the condition of the patient still declined.

In conclusion, brain and intramedullary spinal cord are rare sites for cervical cancer metastases. Nevertheless, new or rapidly evolving neurological deficits should alert the physician of the involvement of the central

nervous system. Spinal MRI is indicated for the accurate diagnosis of spinal involvement. Although prognosis is poor, treatment with radiotherapy or intrathecal chemotherapy may offer palliation.

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