CASE REPORT

Metastatic tumor to the orbital cavity from a primary carcinoma of the uterine cervix : a case report

Hiroshi Kagusa[1)], Yoshifumi Mizobuchi[1)], Kohei Nakajima[1)], Toshitaka Fujihara[1)], Yoshimi Bando[2)], and Yasushi Takagi[1)]

[1)]Department of Neurosurgery, Institute of Health Biosciences, the University of Tokushima, Japan, [2)]Department of Pathology, Tokushima University hospital, Japan

Abstract : Metastatic tumors to the orbit of the eye, especially from primary carcinomas of the uterine cervix are very rare. A 64-year-old woman with a history of carcinoma of the uterine cervix presented with right eye pain and blepharoptosis for 2 weeks. Magnetic resonance imaging revealed a mass at the right orbital apex. Surgical extirpation was performed due to severe pain. Postoperative pathology demonstrated a poorly differentiated squamous cell carcinoma. The origin was ultimately considered to be the carcinoma of the uterine cervix. In conclusion, this report describes a rare case of a metastatic tumor at the orbital apex derived from the cervix of the uterus. J. Med. Invest. 66 : 355-357, August, 2019

Keywords **:** *orbital metastasis, carcinoma of the uterine cervix, ophthalmalgia*

INTRODUCTION

Metastasis to the orbital cavity is a rare manifestation of systemic cancer (1). Intraorbital tumors account for approximately 1% of ophthalmic diseases, and intraorbital metastatic tumors have been reported to account for only 3-5% of all intraorbital tumors (2). On the other hand, there are seven case reports of uterine malignant tumors as primary lesion (3, 4).

We here report the characteristic symptoms and findings of orbital metastasis from a primary carcinoma of the uterine cervix.

CASE REPORT

A 64-year-old woman with a history of carcinoma of the uterine cervix (Figure 1), which had been treated by radiotherapy and chemotherapy 7 months earlier, presented with a two-week history of ophthalmalgia, blepharoptosis, and proptosis of the right eye. Ocular and neurological examination showed limitation of movement of the right eye and right mydriasis. Cranial MRI revealed an intraconal mass at the right orbital apex (Figure 2A). Eight days after the first examination, follow-up MRI showed that the orbital mass had doubled in size, with a well-circumscribed enhancing mass observed upon contrast-enhanced imaging (Figure 2B, C).

To remove the severe ophthalmalgia and diagnose the mass, surgical extirpation was performed. The postoperative pathology demonstrated a poorly differentiated squamous cell carcinoma (Figure 3) that was same as pathological information of uterine cervical carcinoma (Figure 4). So, it was considered to be derived from the primary carcinoma at the uterine cervix.

After the operation, the ophthalmalgia was ameliorated. MRI performed five days postoperatively showed that the mass had been totally removed (Figure 5).

Received for publication March 7, 2018 ; accepted July 21, 2019.

Address correspondence and reprint requests to Hiroshi Kagusa, Department of Neurosurgery, Institute of Health Biosciences, The University of Tokushima Graduate School, Tokushima, 3-18-15, Kuramoto-cho, Tokushima 770-8503, Japan and Fax : +81-88-632-9464.

In addition to the operation, radiation therapy (60 Gy/30 fractions) was performed at the right orbital cavity. However, whole-body computed tomography revealed metastases to the left hypochondrial area and hypodermis of the back, and chemotherapy was hence initiated. Two months postoperatively, the patient experienced peritonitis by perforation and died.

DISCUSSION

Intraorbital tumors are rare, accounting for only about 1% of ophthalmic diseases, with intraorbital metastatic tumors being highly rare, accounting for only 3-5% of intraorbital tumors. The peak age for these tumors has been reported as 44 years, with lung cancer being the most common primary tumor, accounting for 17% of cases, followed by breast cancer at 14% (2). On the other hand, there are very few reports of uterine malignant tumors as the primary lesion ; to the best of our knowledge, only seven such cases have been previously reported (3, 4). In these cases, the histology was variable, including 4 squamous cell carcinomas, one adenocarcinoma, one sarcoma, and one undifferentiated carcinoma.

The blood flow in the eye area accounts for 2-5% of the total circulation (5). Thus, compared to other organs, the blood flow is very low. In addition, the intraorbital space is a site with a lot of motion, including due to the extraocular muscles ; thus, tumor cells cannot easily survive in this space. For these reasons, metastasis to the orbit is rare.

The symptoms include ophthalmalgia, bulging eyes, eye movement disorders, and vision disorders, among others. The most common symptom of intraorbital tumors is exophthalmos, and ophthalmalgia emerges from an early stage in intraorbital metastatic tumors (6).

In the present case, intolerable eye pain was the main symptom ; the tumor diameter doubled in 8 days, and the pain was improved by tumor removal. We consider that the primary tumor was highly malignant and that the progress of the metastatic lesions was also fast, as evidenced by not only the growth of the orbital tumor but also by the fact that trunk metastasis also occurred after the surgery. Especially, in the orbit space, the space is narrow, and symptoms accompanying tumor growth (ocular pain and protrusion of the eyes) are likely to appear. If

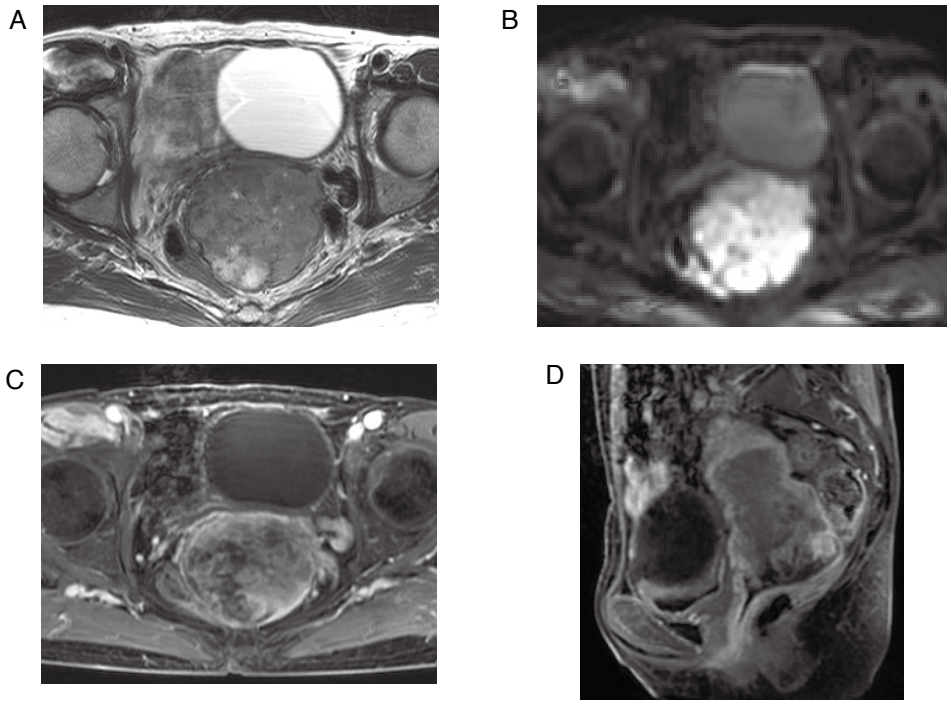

Figure 1.
A : Axial T2-weighted magnetic resonance image showing a mass at the pelvic cavity.
B : Axial diffuse-weighted magnetic resonance image showing a mass at the pelvic cavity. The mass shows high intensity.
C : Contrast-enhanced T1-weighted image (Axial).
D : Contrast-enhanced T1-weighted image (Sagittal).

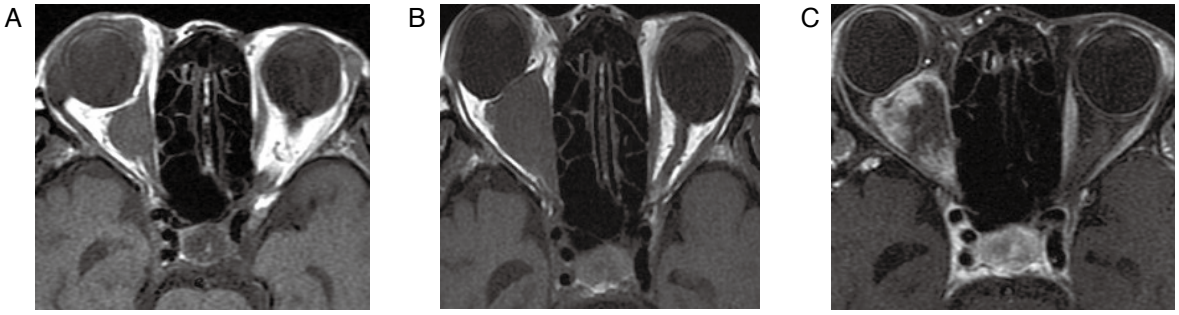

Figure 2.
A : Axial T1-weighted magnetic resonance image showing a right orbital apex mass at the first examination.
B : Repeat magnetic resonance image taken eight days after the first examination.
C : Contrast-enhanced T1-weighted image taken eight days after the first examination.

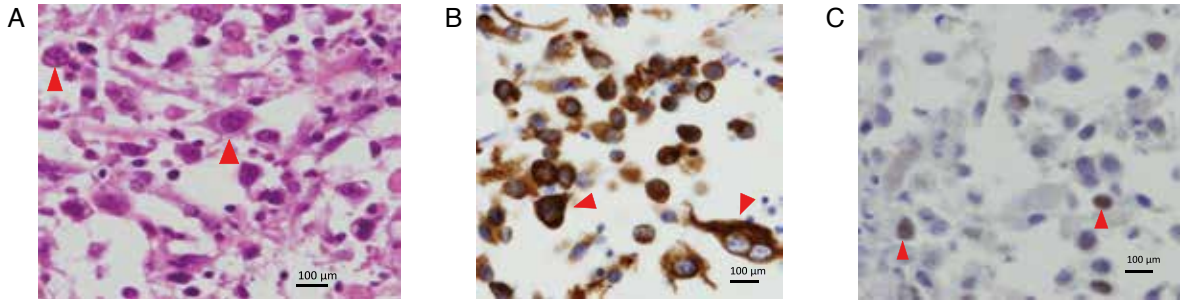

Figure 3.
A : Hematoxylin and eosin stain. Dyskaryosis and nuclear fission are observed. Arrowheads indicate atypical cells.
B : AE1/AE3 stain. This marker stains epithelial cells. Arrowheads indicate stained cells.
C : p63 stain. This marker stains squamous cell carcinoma cells. Arrowheads indicate stained cells.

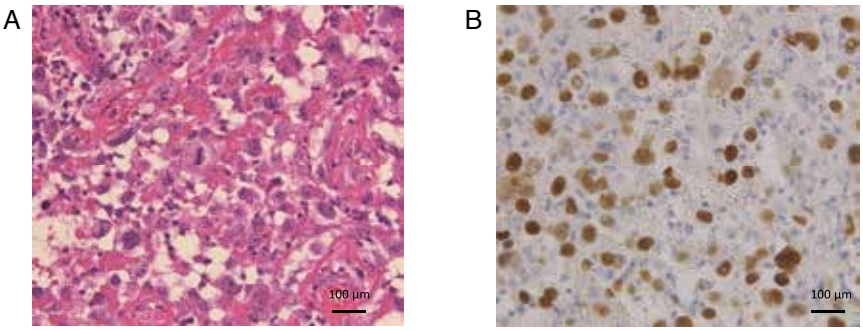

Figure 4.
A : Hematoxylin and eosin stain. Dyskaryosis and nuclear fission are observed.
B : p63 stain.

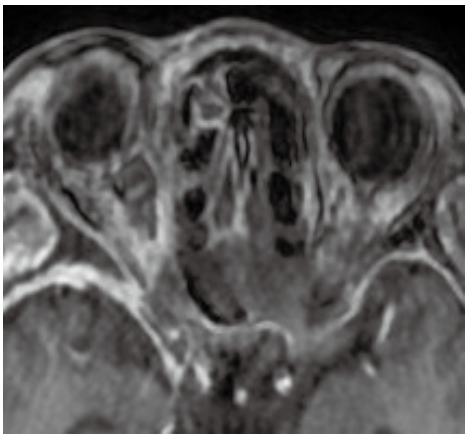

Figure 5. Contrast-enhanced T1-weighted magnetic resonance image after the operation.

the primary tumor is solid, the metastatic tumor may strongly push against the trigeminal nerve, resulting in symptoms such as ocular pain manifesting earlier.

Although intraorbital metastatic tumors are very rare, especially when symptoms such as ocular pain are examined in advance, rapidly progressing intraorbital tumors are occasionally found ; in 19% of such cases, the tumor is a metastatic lesion (7).

When ocular symptoms such as eyeball protrusion and ocular pain appear and exacerbate rapidly, metastatic tumors should be suspected, both in cases with and without a cancer history. In these cases, whole-body imaging studies may be necessary.

REFERENCES

1. Mieke R, Wiebke A, Maximilian D, Henriette C, Diana S, Florian L, Ulrich L, Hans K, and Matthias C : High frequency of lobular breast cancer in distant metastases to the orbit. Cancer Medicine 4(1) : 104-111, 2015
2. Amemiya T, Hayashida H, Dake Y : Metastatic orbital tumors in Japan : a review of the literature. Ophthalmic Epidemiol : Feb ; 9(1) : 35-47, 2002
3. Pratibha S, Roberta B, Hicholas B, Darryl W : Metastasis of squamous cell cervical carcinoma to the orbit of the eye. Gynecologic Oncology Reports 83-86, 2012
4. Mehmet S, Ali U, Hatice O, Ayse S, Turgut K, Nalan B, Handan A, and Sahande E : Orbital metastasis of endocervical stromal sarcoma : a rare tumor and an uncommon metastasis. Prz Menopauzalny 13(6), 356-358, 2014
5. Tom W, Alon H : British Journal of Ophthalmology 78, 939-945, 1994
6. Gonzalez F, Lopez-Couto C : Orbital metastases. A report of four cases and a review of the literature. Arch Soc Esp Oftalmol 81 : 451-462, 2006
7. Jerry S, Carol S, Heather B, Cynthia C, Noel P, Ralph E : Ophthalmic Plastic and Reconstructive Surgery Vol.17, No.5 p346-354