

## Case Reports &amp; Case Series (CRP)

## Brain abscess associated with ethmoidal sinus osteoma: A case report



Hiroaki Nagashima <sup>a,\*</sup>, Hideo Aihara <sup>a</sup>, Takashi Tashiro <sup>b</sup>, Eiji Kohmura <sup>c</sup>

<sup>a</sup> Department of Neurosurgery, Hyogo Prefectural Kakogawa Medical Center, 203 Kanno, Kanno-cho, Kakogawa, Hyogo, 675-8555, Japan

<sup>b</sup> Department of Pathology, Hyogo Prefectural Kakogawa Medical Center, 203 Kanno, Kanno-cho, Kakogawa, Hyogo, 675-8555, Japan

<sup>c</sup> Department of Neurosurgery, Kobe University Graduate School of Medicine

## ARTICLE INFO

## Article history:

Received 26 August 2014

Revised 22 September 2014

Accepted 24 September 2014

## Keywords:

Brain abscess

Osteoma

Ethmoidal sinus

Frontal sinus

Paranasal sinus

## ABSTRACT

Osteoma of the paranasal sinus is uncommon, and the occurrence of brain abscess associated with ethmoidal osteoma is particularly rare. We report here a case of a brain abscess complicating an ethmoidal osteoma in a 68-year-old man who presented with high-grade fever and disturbance in the level of consciousness. Computed tomography scanning and magnetic resonance imaging revealed a ring-enhancing mass in the left frontal lobe with surrounding edema and a bony mass in the ethmoidal sinus. We scheduled a two-stage operation. First, emergency aspiration and drainage of the abscess via the forehead were performed to reduce the abscess volume. These were followed by a left frontal craniotomy to totally remove both the brain abscess and the bony mass. The bony mass had breached the dura mater. After removing the bony mass, we repaired the anterior skull base using a pericranial flap. Pathological findings of the bony tumor were consistent with osteoma. The postoperative course was uneventful. In the case of a huge brain abscess associated with an ethmoidal osteoma, volume reduction by drainage followed by surgical removal of both lesions may help to control infection and achieve a cure. Use of a vascularized pericranial flap is important to prevent direct communication between the paranasal sinuses and the cranial cavity.

© 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

## Introduction

Osteoma of the paranasal sinus is uncommon, and the occurrence of a brain abscess associated with ethmoidal osteoma is rare. Although paranasal sinus osteoma is often detected incidentally, there are several neurosurgical reports of intracranial complications such as intracranial mucocele, [1,2] pneumocephalus, and brain abscess [1,3–5]. We herein report a favorable outcome for a patient with an ethmoidal sinus osteoma complicated by a brain abscess.

## Case report

## History and examination

A 68-year-old man was admitted to our department with a high-grade fever and altered level of consciousness following a 1-week history of headache and loss of appetite. The patient was confused (Glasgow Coma Scale 13: E3V4M6). He had no past medical history and remained independent in his activities of daily living. No other neurological deficit was noted. Blood analysis revealed leukocytosis ( $127.9 \times 10^2/\mu\text{l}$ ) and elevated C-reactive protein (2.69 mg/dl). Blood, sputum, and urine cultures were negative.

\* Corresponding author at: Department of Neurosurgery, Kobe University Graduate School of Medicine, 7-5-2 Kusunoki-cho, Chuo-ku, Kobe, Hyogo 650-0017, Japan. Tel.: +81 78 382 5966; fax: +81 78 382 5979.

E-mail address: [hn0628hn@med.kobe-u.ac.jp](mailto:hn0628hn@med.kobe-u.ac.jp) (H. Nagashima).

<http://dx.doi.org/10.1016/j.inat.2014.09.004>

2214-7519/© 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

## Imaging findings

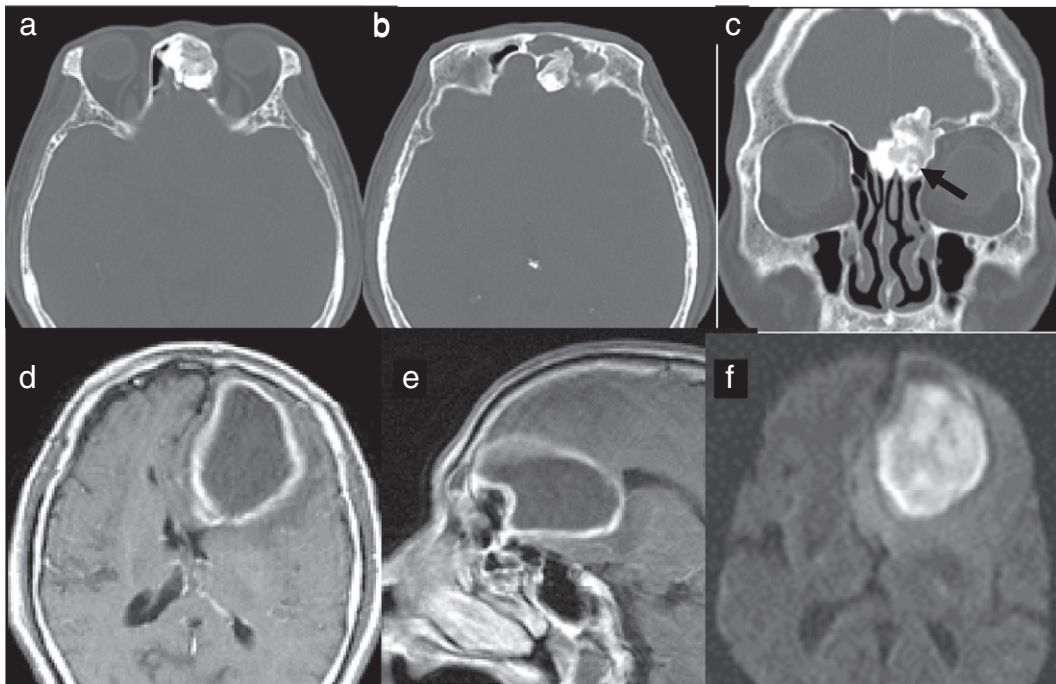
Head CT scanning showed a bony mass (2.8 cm × 1.9 cm × 3.0 cm) arising from the left ethmoidal sinus and extending to the frontal sinus and left anterior cranial fossa (Fig. 1a, b, c). The left nasofrontal duct was occluded by the bony mass, but the right duct was not occluded (Fig. 1c arrow). T1-weighted gadolinium-enhanced magnetic resonance imaging (MRI) showed a ring-enhanced cystic mass surrounded by brain edema in the left frontal lobe (Fig. 1d, e). The mass had a hyperintense signal on Diffusion Weighted (DW) images suggesting a brain abscess (Fig. 1f).

## Surgical and antibiotic therapy

The preoperative diagnosis was brain abscess associated with ethmoidal sinus osteoma. We scheduled a two-stage operation. First, emergency aspiration and drainage of the abscess via the forehead were performed to reduce the elevated intracranial pressure. These were followed by a left frontal craniotomy to totally remove both the brain abscess and the osteoma in the next stage after proper antibiotic therapy.

## Drainage of abscess

Aspiration and drainage of the abscess were urgently performed on admission. To puncture the abscess at the shortest distance without using a navigation system, the frontal burr hole was placed in the forehead. The linear skin incision was made along a wrinkle of the forehead. The landmark of the burr hole was the supraorbital roof. The

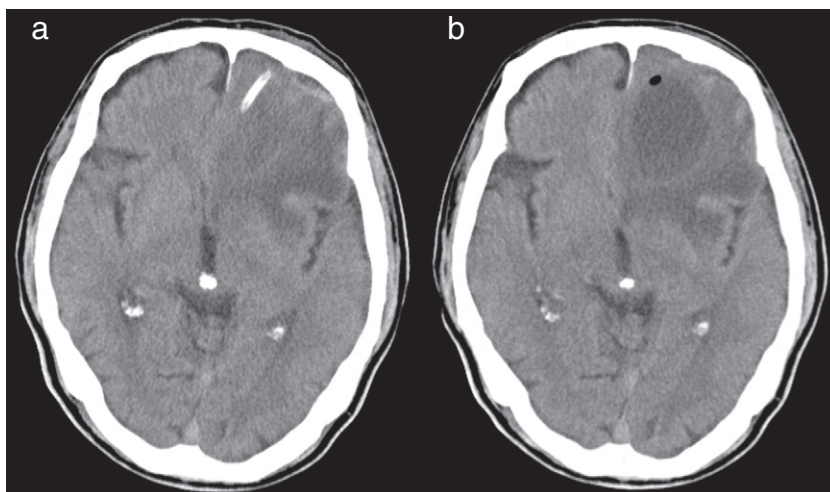


**Fig. 1.** Computed tomography (CT) scans with bone windows on admission showing a bony mass lesion arising from the left ethmoidal sinus and extending into the intracranial space. The left nasofrontal duct was obstructed by the bony mass (Fig. 1c arrow). a, b: Axial image bone window, c: coronal image bone window. d: Axial gadolinium (Gd) T1-weighted magnetic resonance image showing the ring-enhancing mass lesion in the left frontal lobe. e: Sagittal Gd T1-weighted magnetic resonance image showing the ring-enhancing mass lesion in the frontal lobe. f: The mass had a hyperintense signal on diffusion-weighted imaging.

extradural drain (SILASCON®, KANEKA MEDICAL) was placed in the abscess. The drain was removed 6 days after the drainage procedure because the outflow of purulent material had stopped. The patient was initially treated with a 14-day course of carbapenem. *Streptococcus pneumoniae* was cultured from the aspirated materials. The antibiotic regimen was then changed from carbapenem to penicillin because liver dysfunction developed as a side effect of carbapenem. Penicillin was continued for 12 days. The abscess size was reduced (Fig. 2a) after drainage and his level of consciousness improved (Glasgow Coma Scale 14: E4V4M6). However, the abscess gradually enlarged (Fig. 2b) thereafter and his consciousness level decreased again 10 days after removal of the drain.

#### Craniotomy

We decided to make a left frontal craniotomy via a bicoronal skin incision 26 days after drainage. Left frontal craniotomy to the level of the orbital roof was placed across the center. The bony mass was approached from the frontal sinus. There was no direct communication between the frontal sinus and the intracranial abscess. The left nasofrontal duct in the bony mass was found to be occluded as suggested by imaging. We followed the bony mass over the ethmoidal sinus, and found that the osteoma breached the dura mater and abutted the frontal lobe. Careful dissection along the arachnoidal plane was performed. The bony mass was resected and then the brain abscess was



**Fig. 2.** a: The axial plane CT after the first operation (drainage procedure). The abscess was drained. b: The axial plane CT before the second operation (craniotomy). The abscess had enlarged.

Download English Version:

<https://daneshyari.com/en/article/3057863>

Download Persian Version:

<https://daneshyari.com/article/3057863>

[Daneshyari.com](https://daneshyari.com)