Carcinoma of the Frontal Sinus
—Report of 2 Cases—

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Summary: Two cases of carcinoma of the frontal sinus, which were treated in Kurume University Hospital during the period of 10 years from 1971 to 1980, were reported. The incidence of primary carcinoma of the frontal sinus in all carcinomas of the paranasal sinuses was 1.5% (2/130) during this period at our department. In case 1, surgical removal of the tumor followed by radiation therapy in combination with local administration of Bleomycin was indicated. The patient did not continue to have treatments and died 11 months after the initiation of treatment. In case 2, surgical removal of the tumor followed by radiation in combination with intravenous administration of Bleomycin failed to control the primary lesion. Ophthalmectomy was added later, but the patient died with an intracranial invasion 1 year and 6 months after the onset of treatment.

Key words: carcinoma—frontal sinus—carcinoma of frontal sinus

Introduction

Primary squamous cell carcinoma of the frontal sinus is rare and its prognosis is extremely poor. This paper presents a report of 2 cases of primary squamous cell carcinoma arising from the frontal sinus treated in Kurume University Hospital during the 10 years from 1971 to 1980.

Case Report

Case 1: S. F.

The patient, a 63-year-old male, was first seen on August 26, 1971, complaining of tenderness and swelling in the right supra-orbital region for the last two weeks. Examination showed polypous ethmoidal bulla in the bilateral middle meatuses. There was a marked swelling and tenderness in the right supra-orbital region. The eyes were entirely normal. X-ray revealed a dense opacity of the right frontal sinus and bilateral antra. Leukocytosis (10000/mm³) was confirmed by laboratory examination. The diagnosis were frontal pyocele and acute exacerbation of chronic sinusitis.

The patient was admitted to our hospital on September 3, 1971. On September 6, 1971, maxillo-ethmoido-frontotomy was performed on the right side. The mucosa of the antrum and ethmoid was slightly edematous and polypous. Pus was observed in the antrum and also from the orifice of the nasofrontal duct. The frontal sinus was exposed with an external approach, the anterior wall of the frontal sinus had been destroyed. The frontal sinus was filled with necrotic tissue and pus. A neoplastic lesion was observed in the inferior and lateral part of the sinus. The frontal process of the maxilla and a part of nasal bone were also destroyed by tumor. The superior and
medial walls of the frontal sinus were intact. The neoplastic lesion was removed as completely as possible and Bleomycin (15 mg) was administrated into the frontal sinus. Histological examination revealed squamous cell carcinoma.

After the operation, radiotherapy in combination with chemotherapy was given. The total radiation dosage was 4200 rad. Bleomycin, 15 mg at one time, was administered into frontal sinus twice a week with total dose of 150 mg. In addition to radiation and local chemotherapy, necrotic tissue, ill granulation and remaining tumor cells were removed chiefly with necrotomy procedure every day. On October 8, 1971, the patient refused to continue the treatments for an economical reason and was discharged before the completion of treatments. On July 31, 1972, 11 months after the initial treatment, he died from primary lesion.

Case 2: T. S.

A 68-year-old male noticed left visual disturbance and nasal obstruction in June, 1976. He visited our clinic on July 10 and underwent maxillo-ethmoidotomy on the left side for diagnosis of chronic polysinusitis on August 17. Two weeks after the surgery, the patient complained of left visual disturbance again and visited our clinic on September 6. On physical examination, a small round tumor was palpated on the superior-medial wall of the left orbit. The tumor was broad, bean-size and its surface was smooth. Tomograms revealed bone destruction of the superior-medial wall of the orbit and a dense opacity of the left ethmoid and sphenoid sinuses. Biopsy from the palpated tumor revealed squamous cell carcinoma.

On October 7, 1976, we attempted to surgically eradicate the tumor via external approach. The anterior and inferior walls of the left frontal sinus was destroyed by the tumor, resulting in an invasion of the tumor into the orbit. The tumor was removed as completely as possible. Radiation therapy (3200 rad in total) in combination with chemotherapy (Bleomycin, 150 mg in total) was given postoperatively. On November 17, 1976, there was an evidence of tumor invading the eye ball, and the patient underwent ophthalmectomy and removal of the eye lids. The orbit was covered with a forehead flap. In September 1977, the patient developed recurrence at the fundus of the eye with an intracranial involvement. Radiation therapy, 4000 rad in total, was carried out.

On January 4, 1978, 1 year and 6 months after the initial treatment, the patient died with the primary lesion uncontrolled. Autopsy revealed that the tumor invaded the left frontal lobe and the ala parva of the sphenoid sinus. There was no distant metastasis.

Discussion

Primary carcinoma of the frontal sinus is rare and its prognosis is extremely poor. Nagakura et al. (1971) stated that only 45 cases of primary carcinoma of the frontal sinus were reported in Japanese literature for the period of 47 years from 1924 to 1970. The incidence of primary carcinoma of the frontal sinus in all carcinoma of the paranasal sinuses was 1.5% (2/130) for the period of 10 years from 1971 to 1980 at Kurume University Hospital.

As for the prognosis of this disease, Ashikawa et al. (1976) reported that only 4 cases out of the 53 cases reported in Japanese literature were alive. The reason for the poor prognosis is due to not only difficulty of early diagnosis but also to the anatomical location of the frontal sinus adjacent to the base of the skull. Effective treatments for carcinoma of the frontal sinus have not been established in any literature. Surgical removal of the tumor followed by radiation therapy seems to have been the commonest modality in many cli-
Iwai et al. (1971) reported a successful case of more than 2 years survival which was treated with surgical removal of the tumor followed by local and general chemotherapy. Chemotherapy was performed in two ways: Bleomycin was infused continuously into the frontal sinus and also administered intravenously.

Both cases in the present paper were treated with surgery followed by irradiation and chemotherapy. The results were not satisfactory. It should be noted that, in both cases, sinusitis was first suspected and the final diagnosis was made after the frontal sinus was surgically exposed.

**References**


