

# INTRACRANIAL LESIONS RESULTING FROM DENTAL INFECTION

## REPORT OF TWO CASES

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THERE are few reported cases of death due to intracranial lesions resulting from primary dental infection. The following is a report of two cases seen recently at University Hospital; in one death was due to direct extension of the infection, and the other apparently spread by way of the blood stream.

Direct extension would seem rare indeed because of natural barriers, that is, the skull and dura; however, this was demonstrated in one case following masticator space abscess. It would be reasonable to expect sepsis and hematogenous spread to be a more common sequela rather than direct extension for anatomical reasons alone. This again would depend upon the fascial planes involved and the original site of infection.

CASE 1.—V. B., a 26-year-old white woman, was brought to the hospital in a semicomatose condition complaining of a swollen jaw and headache. She was apparently well until four weeks previously when the maxillary left third molar was removed under local anesthesia. Four days following this procedure, trismus, swelling, and pain developed over the left ramus of the mandible. Several days later she was hospitalized, and intraoral incision liberated frank pus from the left pterygopalatine fossa. There was gradual improvement for one week and then pain, swelling, and trismus recurred in the same area. The patient again underwent operation, consisting of incision and drainage extra-orally at the angle of the mandible. For two weeks prior to admission to this hospital she was slightly disoriented, with some dysphagia, occasional nausea and vomiting, projectile in type. There had also been some complaint of frontal headache; however, there was no evidence of motor or sensory impairment.

On admission the patient appeared acutely ill, semicomatose, and responded only to rather vigorous stimuli. There was slight swelling over the left ramus of the mandible extending into the temporal area. Through the incision at the angle of the mandible there was a slight amount of seropurulent drainage. Intraorally there was no evidence of pathology. The site of the recent extraction had healed completely. Except for slight mental confusion the remainder of the physical examination was negative.

The patient was operated on the day of admission. Frank pus was found under the temporal muscle. It was also found that this communicated directly with the incision at the angle of the mandible through a sinus tract beneath the zygoma. Culture later showed the organism present to be *Streptococcus viridans*.

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The patient was then transferred to the Department of Neurosurgery. The skull was trephined and thorotrast injected beneath the dura. X-rays revealed a brain abscess in the left temporal lobe directly beneath the site of the subtemporal abscess.

The patient was again operated on and the brain abscess evacuated of 20 c.c. of free pus. The postoperative course was not satisfactory and the patient's condition grew steadily worse in spite of the administration of penicillin, and transfusions of whole blood. Forty-eight hours following the operation, the patient expired.

Autopsy confirmed the clinical findings of direct extension of the infection from the subtemporal abscess through the temporal bone to the brain. Culture of the brain abscess again showed *Streptococcus viridans*, the same organism demonstrated in the masticator space abscess.

CASE 2.—C. D., a 55-year-old white man, was admitted to University Hospital complaining of an "infected jaw" and severe pain radiating down the back of the neck. History revealed an abscess of the mandibular left second molar, which had been incised and drained by his local dentist with immediate relief of symptoms. After an interval of two weeks there was sudden onset of pain and swelling over the left ramus. He was hospitalized, and intra- and extraoral incisions were made without liberating any pus. Somewhat improved, he was discharged two weeks previous to his admission to this hospital. After several days he noted pain in the occiput that radiated down the neck. This increased in severity up to the time he was first examined here.

Examination revealed a well-developed, well-nourished man of 55 years in acute distress and somewhat slightly confused.

There was a slight diffuse, firm, painless swelling over the left ramus of the mandible. The pupil of the left eye appeared fixed and there was bilateral palsy of the sixth cranial nerve. There were no other neurological signs. The temperature on admission was 104° F., the white blood count 10,000, and the urine showed a 2 plus albumin; however, the sediment was negative.

Examination of the oral cavity revealed a moderate amount of trismus. The remaining teeth were in a very poor state of repair with far-advanced caries and gross oral sepsis. There was no evidence of any acute process in the oral cavity. X-rays of the mandible revealed several apical abscesses including the mandibular left second molar but no evidence of any other bony pathology.

The patient was placed on 15,000 units of penicillin every four hours and the temperature dropped somewhat but fluctuated between normal and 102° F. for several days. Meanwhile he developed increasing signs of meningeal irritation, and he was transferred to the Department of Neurosurgery for treatment. In addition to the bilateral sixth nerve palsy the patient developed a positive Kernig's sign and stiff neck. All deep reflexes were exaggerated but equal. X-rays of the skull revealed slight cloudings of the basilar bone which possibly indicated some inflammatory process. Lumbar puncture revealed 315 cells, 88 per cent of which were lymphocytes and 12 per cent leukocytes. Pandy's test was positive and the initial fluid pressure 180 mm. Blood and spinal fluid cultures were negative.

In view of the spinal fluid and neurological findings the skull was trephined and ventriculograms made. The brain appeared normal and no pathology was found. The ventricles appeared in normal position.

Temporarily the patient appeared improved. However, the day following surgery he developed a left-sided hemiplegia, and in spite of all supportive measures respiration ceased.

Unfortunately, autopsy was not permitted and the clinical diagnosis of basilar meningitis and questionable basilar osteomyelitis was not substantiated. However, the clinical picture was quite definite.

#### COMMENT

Even though the above sequelae are fortunately rare, early and adequate treatment is indicated no matter how insignificant the primary dental infection may seem. It is well known that organisms commonly found in the mouth are extremely pathogenic should they invade the cranial cavity. Occasionally, serious sequelae may result even with early diagnosis and proper therapeutic treatment. This may be influenced by uncontrollable factors, such as individual resistance and the type and virulence of the invading organisms.

The purpose of reporting these two cases is to stress the possible dangers of primary dental infection and the importance of early and adequate treatment.