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Tooth Pain and Numb Chin as the Initial Presentation of Systemic Malignancy

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Chin numbness, characterized by numbness of the area innervated by mental nerve is referred to as "numb chin syndrome" (1). This syndrome occurs in association with the presence of tumors, cysts, inflammatory disorders and trauma. The significance of this syndrome is its possible relation with neoplastic processes, particularly with breast cancer and malignant lymphomas (1- 2- 3).

Acute lymphoblastic leukemia with Burkitt-type cells (L3 ALL) was described in 1975. This disease accounts for 1-3 % of all cases of acute lymphoblastic leukemia (ALL) (4).

The initial general features consist of anemia, fever, bleeding tendency, pain, splenomegaly and lymphadenopathy accompanied with fatigue. In some rare cases, the initial diagnosis can be made from oral and intraoral findings like chin numbness and tooth pain, although they are not pathognomic for this disease.

An eleven year-old boy was referred to the Department of Oral and Maxillofacial Surgery, Gazi University, Faculty of Dentistry, in October 1995. His chief complaint was generalized tooth pain and numbness of the lower lip.

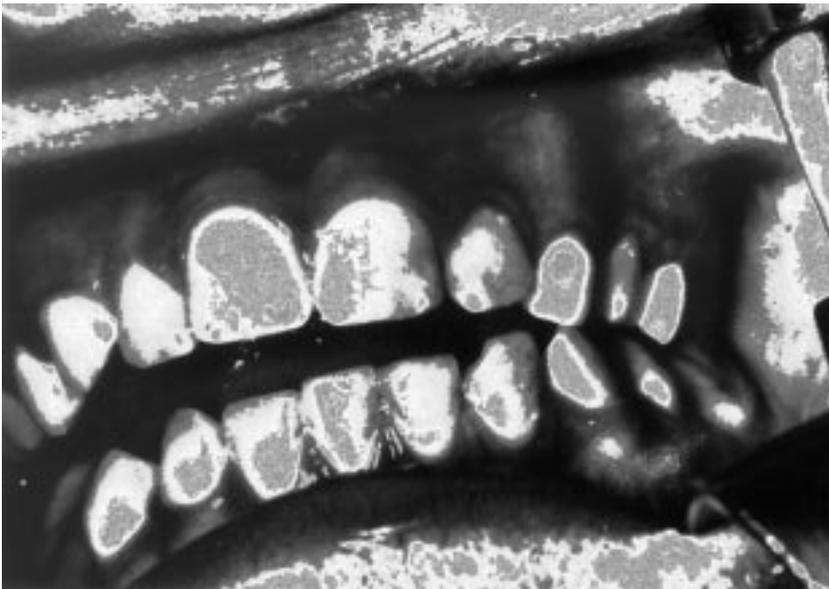


Figure 1. Intraoral examination of the patient revealing swollen gingiva and plaque accumulation.

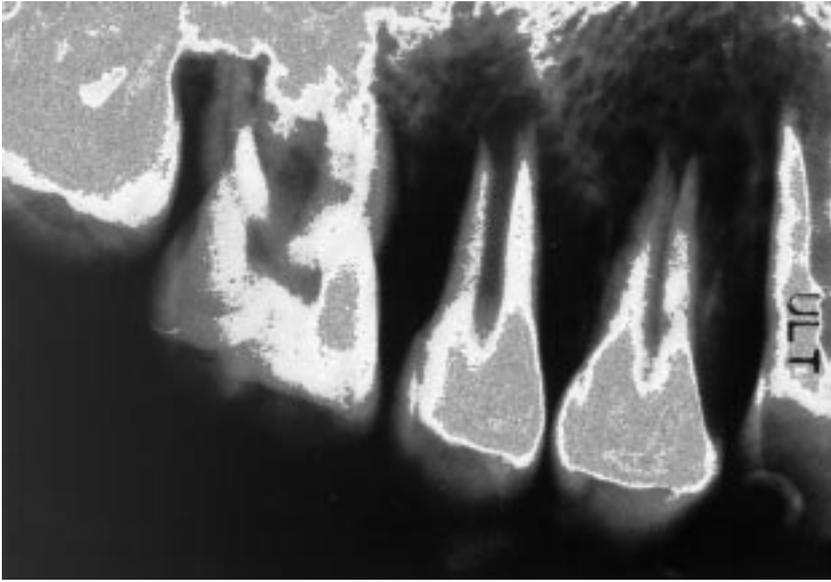


Figure 2. Periapical radiograph showing the loss of trabecular pattern of bone and loss of lamina dura.

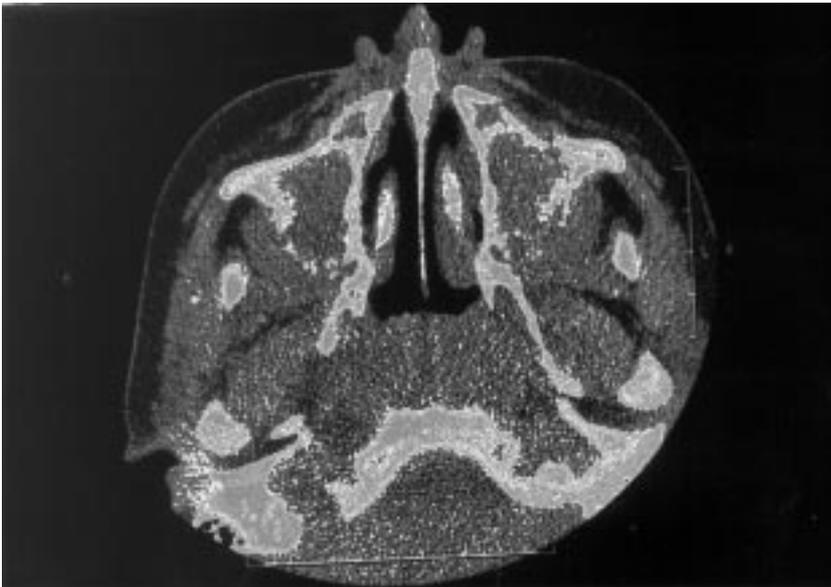


Figure 3. Axial CT scan demonstrating the extensive destruction of maxillary sinus walls.

The toothache, localized to the lower anterior centrals, had been present for one month. Before admission to our department, he received root canal extirpation and fillings in his lower right central tooth, as this was a possible cause of the pain, in a provincial hospital. However, the toothache persisted and several days later he noticed numbness of the chin and lower lip. A clinical examination revealed mobility of all teeth and a swollen gingiva (Figure 1). In some areas, the bone could not be palpated under the gingiva, suggesting that there was some destruction. There was submandibular and cervical lymphadenopathy. On periapical and panoramic radiographs, the normal trabecular pattern of the bone

could not be identified with the loss of lamina dura (Figure 2). There was extensive destruction of the facial bones, maxilla and mandible on CT (Figure 3).

Symptoms like loss of appetite, fatigue, weight loss, sweating, nose bleeds, headache, difficulty in swallowing, bone ache and abdominal pain that had been present for one month were also reported by his parents.

An incisional gingival biopsy was performed under local anesthesia and leukemic infiltration was discovered. The patient was referred to the department of pediatric haematology and a bone marrow examination was decided upon. The bone marrow aspiration showed

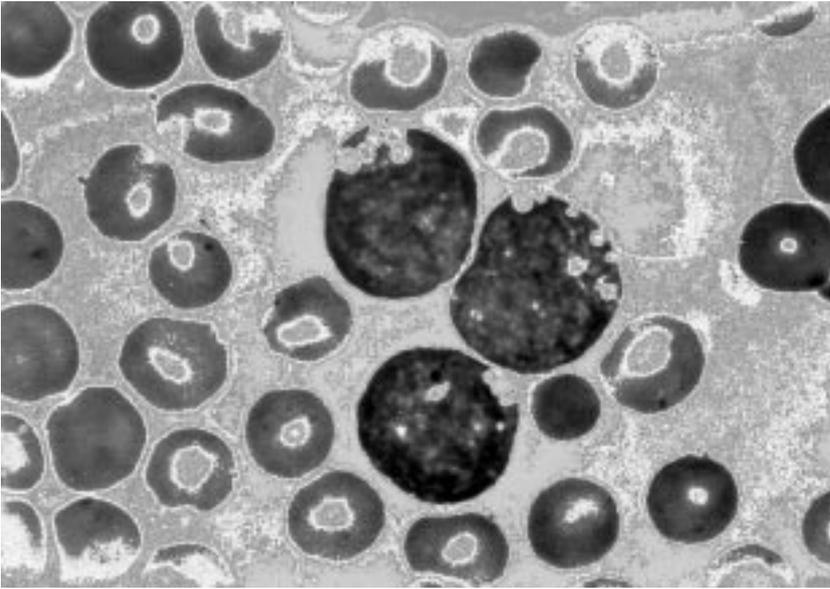


Figure 4. Bone marrow aspiration showing cells with coarse and stranded nuclear chromatin. The vacuolization is characteristic for the tumor cells of this disease. (Bone marrow aspiration smear, Wright stain)

abundant L_3 type blast cells (Figure 4). The blood count was: haemoglobin 12.2 g/dl; white blood cell count, $18400/\text{mm}^3$, platelet count, $49000/\text{mm}^3$, 49 % blast, 18% lymphocyte, 25 % neutrophyl and 2 % eosinophyl. The spleen and liver were palpable.

The final diagnosis was made as Burkitt's cell acute lymphoblastic leukemia (L_3 ALL). The patient was hospitalized immediately and chemotherapy was initiated according to the LMB 89 protocol (vincristine, cyclophosphamide, prednisone, adriamycine, high dose methotrexate). Not during diagnosis, but two months after the beginning of chemotherapy, abundant blast cells were detected in the cerebrospinal fluid and craniospinal radiotherapy was performed. The patient died in August 1996.

Discussion

Of the neoplastic processes, numb chin syndrome is reported to occur with breast cancer (64%), lymphoproliferative neoplasms (14 %) and bone sarcomas; but is very rarely seen in acute leukemia except for L_3 ALL (3-5). ALL is characterized by rapidly progressive overproduction of blast cells (5). A few cases of acute lymphoblastic leukemia presented with mental neuropathy have been reported (5-7).

In neoplastic processes, compression of mental nerve or inferior alveolar nerve by metastasis to the jaw or isolated leptomeningeal relapse is cited as a cause of this

syndrome. One postmortem study of the trigeminal nerve showed heavy infiltrations of leukemic cells and destruction of axon and myeline by leukemic cells in the mandibular nerve in a case of L_3 ALL presented with bilateral numb chin syndrome as the initial symptom of the disease (6).

Hiraki et al.(7) reported 3 cases of numb chin syndrome as an initial symptom of ALL. Their intraoral findings included percussion pain of teeth, loosening of the teeth, decreased sensation of the teeth in 2 cases, extrusion of the teeth and motor paralysis of the tongue in 1 case on first examination. However, they neglected to perform a gingival biopsy in the first examination, and instead they administered antibiotics and vitamin B12. The diagnosis of ALL was made several days after admission by peripheral blood and bone marrow examination. Similar intraoral findings were also observed in our case. In addition, gingival hypertrophy was observed.

Although systemic symptoms like fatigue, fever and bleeding tendency are commonly the initial symptoms of acute lymphoblastic leukemia, like any other systemic malignancies, attention should be paid to cases of chin numbness associated with tooth pain without a demonstrable cause. These oral symptoms may be the initial manifestation of a malignant disease that requires rapid treatment. Furthermore, a gingival biopsy alone is not reliable, but does lead to early diagnosis.

References

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