Histiocytosis X, described by Lichtenstein in 1953,1 is an uncommon disorder that is characterized by an abnormal proliferation of Langerhans' cells. The Langerhans' cell normally occurs in the epidermis and T-cell-dependent areas of lymph nodes and functions as a macrophage.2 Histiocytosis X is predominantly a disease of childhood but can occasionally be seen in adults. Eosinophilic granuloma of the skull is the most common presentation of the disease, and the associated symptoms depend on the location of the lesion. It has been reported to occur in the temporal bone, including the petrous apex.3, 4 We present the first reported case, to our knowledge, of eosinophilic granuloma, or unifocal Langerhans' cell histiocytosis, in the clivus of a child.

CASE REPORT

A 3-year-old boy came to us with a 4-day history of a face turn to the right and constant diplopia. He had complained of intermittent diplopia for the preceding month, but his parents did not observe a face turn or strabismus. He also complained of pain behind his right ear, and the right side of his neck. Two weeks before referral he had been treated for a right otitis media with oral antibiotics. He had no other systemic symptoms.

An ophthalmologic examination at age 15 months by one of us (M.E.L.) was negative for strabismus or limitation of motion.

On this presentation, visual acuity was 20/40 OU. There was a 30-degree face turn to the right, with an incomitant right esotropia measuring 20 prism diopters in primary position. He was unable to abducted his right eye beyond midline. There was no afferent pupillary defect. Fundus examination was normal. No other neurologic deficits were present.

Magnetic resonance imaging revealed a clival mass, more extensive on the right, with slightly heterogeneous enhancement with gadolinium (Figure 1). A computed tomographic scan demonstrated focal bony erosion of the inferior portion of the clivus.

The patient was admitted to the hospital. Complete blood count, blood chemistries, VDRL/FTA, PPD, chest x-ray film, bone scan, lumbar puncture, and bone marrow biopsy were nondiagnostic. Oral steroids were begun to treat the presumed inflammatory component. After 1 week of treatment, with no improvement of the abducens palsy, a transoral, computed tomography-guided, stereotactic biopsy of the clival mass was performed.

Histopathologic analysis revealed an admixture of large histiocytic cells, eosinophils, and lymphocytes (Figure 2). Immunohistochemical analysis showed histiocytes to have a positive result for S-100 protein. The characteristic microscopic appearance of the lesion, in conjunction with the immunohistochemical staining pattern, led to a diagnosis of unifocal Langerhans' cell histiocytosis.

The oral steroids were gradually tapered and discontinued. The sixth nerve palsy improved after the biopsy and resolved completely after 5 weeks with low-dose radiation (600 rad).

DISCUSSION

Classically, histiocytosis X was considered a spectrum of diseases and was divided into three distinct entities: eosinophilic granuloma, Hand-Schiüler-Christian disease, and Letterer-Siwe disease. Eosinophilic granuloma was classified as a unifocal bony lesion, usually found in the calvaria, vascular bodies, ribs, and long bones, and rarely in the skull base.5 Hand-Schiüler-Christian disease involves multiple skeletal and extraskeletal sites. Ten percent2 to 30%6 of patients have the originally described triad of exophthalmos, diabetes insipidus, and skull lesions. Letterer-Siwe disease is marked by widespread visceral involvement and may have marked constitutional symptoms. It usually occurs in infancy and often proves fatal as a result of multisystem failure.

In 1987, the Histiocyte Society changed the classification of histiocytosis X and based it on specific organs and the number of sites involved by lesions. The spectrum of diseases is known as Langerhans' cell histiocytosis.7
Eosinophilic granuloma is termed unifocal osseous Langerhans' cell histiocytosis, whereas Hand-Schüller-Christian and Letterer-Siwe disease are known as the disseminated form of Langerhans' cell histiocytosis and are further classified by specific organ involvement.

Treatment of Langerhans' cell histiocytosis depends on the extent of the disease. Individual bony lesions may be curedtted. Grossly, the tumor consists of a soft yellow-brown material but can range from pinkish-gray to purple depending on the amount of necrosis and hemorrhage present. Systemic or intralesional steroids, as well as radiation (600 to 2500 rad), may also be effective treatment. The prognosis for bony lesions is a greater than 90% rate of survival. Widespread disease and lesions that are resistant to radiation can be treated with systemic chemotherapy.

Lesions of the clivus are rare causes of abducens palsies. The most common lesion of the clivus in children and adults is a chordoma. Differential diagnosis includes chordosarcoma, meningioma, metastatic carcinoma, local extension from pituitary adenoma or nasopharyngeal carcinoma, fibrous dysplasia, lymphoma, cavernous hemangioma, osteomyelitis, tuberculous or fungal granuloma, and epidural hematoma. Sampson et al reported one case of a unifocal histiocytosis X lesion in a 41-year-old man who had facial pain and diplopia.

Although this appears to be a rare case in a child, Langerhans' cell histiocytosis at the clivus should be considered in the differential diagnosis of sixth nerve palsies, and a diagnostic biopsy to confirm the diagnosis may be considered.

References