Skull tumor

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- Recurrent parietal lobe supratentorial ependymoma, ZFTA fusion-positive, CNS WHO grade 3, with new dural and calvarial reactive changes in a child: illustrative case

Epidemiology

Tumors of the skull are uncommon lesions that are not reported systematically in the medical literature. Therefore, assessing their true incidence and consequences to the health of the general population is difficult.

Skull tumors are estimated to account for approximately 1% of bone tumors.

Diagnosis

Skull tumor diagnosis

Differential diagnosis

Osteoblastoma

Chondroma

Chondroblastoma

Chondromyxoid fibroma

Desmoplastic fibroma

Giant cell granuloma

Eosinophilic granuloma

Hemangioma

Lymphangioma

Aneurysmal bone cyst

Epidermoid and dermoid

Intraosseous meningioma

Fibrous dysplasia

Osteoma

Paget's disease.

New lesions arising from within an area of previous irradiation often present a diagnostic dilemma, with new malignancy or metastasis of particular concern. Perera et al., report a case of reactive fibroblast proliferation emerging from a previous radiation field and presenting as a growing lesion of the frontal and parietal skull. Following complete gross resection of the skull lesion and histopathological analysis, it was discovered that this lesion consisted of dense fibroblast proliferation with areas of osteonecrosis. This unusual reactive phenomenon offers a novel differential diagnosis for a new contrast-enhancing lesion in a region of previous radiation [1].

Treatment

Treatment for most tumors is not controversial. However, the differentiation and identification of the tumor type is the greatest clinical challenge. The usual presentation is an enlarging skull mass, with or without pain, or cranial nerve deficits if the tumor involves the base of the skull.

Case series

Skadorwa et al present a series of 100 children (55 male, 45 female) with scalp and cranial vault masses (average age: 3.6 years; range: 1 month to 17 years). Eighty-three (83%) patients underwent surgical excision. Demographic data, clinical presentation, diagnostic studies, choice of therapy, and the results of treatment were evaluated.

All removed tumors were benign pathologies: pilar cysts (30%), epidermoid/dermoid cysts (21%), vascular malformations (11%), inflammatory tumors (5%), and dysraphic remnants (2%). However, underlying bone destruction was observed in 61% of cases. Cranial extension occurred in 34%. Recurrence was noted in 1 case.

Cranial vault tumors are characterized by constant growth and may penetrate the cranial cavity. Delayed surgery increases the risk of intracranial complications. Surgical problems include inappropriate planning, higher risk of intraoperative bleeding, and the need for subsequent cranioplasty [2].

1)
Perera AP, Mehta GU, Pratt D, Quezado MM, Gilbert MR, Heiss JD. Diagnosis of a growing radiation-induced skull lesion in a patient: an unusual scar. J Neurosurg. 2016 Sep;125(3):561-4. doi: 10.3171/2015.7.JNS15989. Epub 2015 Dec 18. PubMed PMID: 26684773.
2)

Skadorwa T, Ciszek B. Clinical Characteristics of Benign Pediatric Cranial Vault Tumors: Surgical Considerations Based on 100 Cases. Pediatr Neurosurg. 2017;52(1):13-19. PubMed PMID: 27668432.