Pediatric Skull Lesions

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Introduction

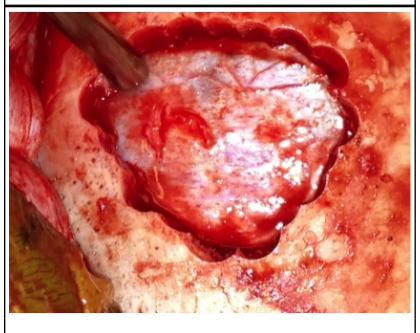
Palpable skull lesions encompass a diverse group of histological entities. A review of these masses at one institution was undertaken for further insights.

Methods

An IRB approved retrospective review was undertaken to identify all patients who underwent surgical excision of a skull mass between 1997 & 2012.

Recurrent Langerhan Cell Histiocytosis (LCH)

Intraoperative picture of a case of LCH



After resection, the underlying dura seen intact below

Results

A total of 279 patients were identified, with no sex predilection (Male:140, Female:139). Non-malignant lesions totaled 264/279 (95%) with dermoid cysts 142 (52%) and Langerhan Cell Histiocytosis (LCH) 31 (11%) being the most common. Malignant lesions accounted for 15/279 (5%) and consisted of 4 primary malignancies and 11 metastatic lesions and included a diverse histology.

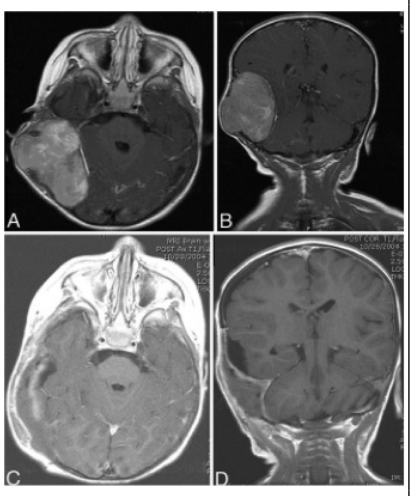
Pain to palpation was noted in 38/279 (14%), 35 of which were benign with LCH accounting for 17.

Mean age at diagnosis for malignant lesions was not significantly different from those non-malignant (59 and 69 months, respectively; p=0.1). No significant complication form the surgery was recorded in any patient.

At a mean follow-up interval of 17 months, recurrence was encountered in 8/15 malignant lesions and 5/264 benign masses, usually at the original site.

Only 42/279 (15%) had some form of preoperative imaging.

Giant Cell Tumor of the skull



Pre- (upper row) and post- (lower row) operative MR images of a case of Giant cell tumor of the skull

Ectopic Neuroglial tissue

Retroauricular mass that was diagnosed as ectopic neuroglial tissue. Note proximity to an existing shunt valve.

Conclusions

The overwhelming majority of skull masses can be completely and safely excised without preoperative imaging in the presence of obvious lesions such as dermoid cysts.

Pathological ditribution

Pathological distribution of Skull Lesions

Primary Neoplastic				Secondary Neoplastic (Metastatic)	n	Non-Neoplastic	n
Benign	n	*Malignant*	n				
Dermoid cyst	142	Myofibroblastic tumor	1	Metastatic retinoblastoma	1	LCH/Eosinophilic granuloma	31
Epidermoid cyst	10	Hemangiopericytoma	1	Metastatic (alveolar) rhabdomyosarcoma	2	Aneurysmal Bone cysts	4
Benign Osteoma	8	Osteosarcoma	1	Metastatic ependymoma	1	Sinus pericranii	8
Hemangioma (including pyogenic granuloma)	11	Fibrosarcoma	1	Metastatic ATRT	1	Fibrous dysplasia	7
Neurofibroma	3			Metastatic Neuroblastoma	2	Juvenile Xanthogranuloma (Non-X histiocytosis)	3
Nerve sheath tumor	1			Metastatic Melanoma	1	Myositis ossificans	1
Calcifying Epithelioma (pilomatricoma)	2			Ewing's Sarcoma	1	Pseudorheumatoid nodules	1
Complex nevus	2			Burkitt's Lymphoma	1	Granuloma Annulare	2
Congenital dermal sinus	6			AML nest	1	Focal dermal fibrosis	5
Trchilemmal cyst	1			ALL nest	1	Nodular fasciitis	1
Lymphangioma	1					Cephalhematoma	5
Exostotic lesion of skull	1					Atretic Encephalocele	2
Meningioma	1					Desmoplastic Fibroma	1
						Foreign body	1
						Scar tissue /Normal histology	2
Totals	189		4		12		74

The classification of skull lesions were done on broad categories (Primary neoplastic, Secondary neoplastic and Non-neoplastic) followed by subtype categorization based on histopathological diagnosis

References
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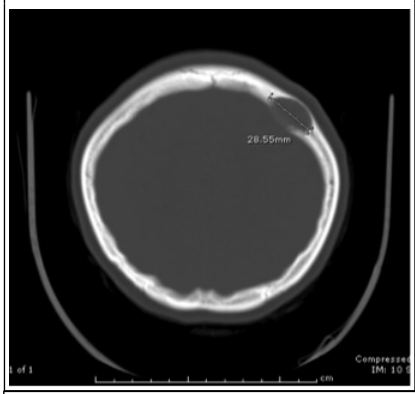
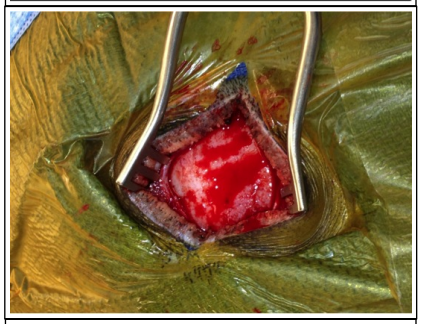
4. Ruge JR, Tomita T, Naidich TP, Hahn YS, McLone DG. Scalp and calvarial masses of infants and children. Neurosurgery 1988;22:1037-42.

Meningioma located in the skull





This mass was unusually confined between the inner and outer table of the skull. it turned out to be a Grade I meningioma. The tumor was delivered en bloc by opening the upper table of the skull