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Review Article

Novel presentation of cranial fasciitis of the mandible: Case report and literature review

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ABSTRACT

Cranial fasciitis (CF) is a rare benign fibroblastic lesion of the scalp, most commonly affecting the pediatric population. The authors conducted a literature review and include a summary of reported cases of CF. CF is most commonly located in the parietal and temporal regions of the skull. The majority of cases are found in males and in children under a few years of ago. We describe the clinical, pathological and radiological findings of the first reported case of CF of the mandible. In this case, the patient was a 12 month-old male who presented with a one-month history of a rapidly enlarging mass along his left mandibular ramus. Treatment of CF involves surgical resection and has a low rate of recurrence. The patient in question was managed surgically with no complications and has not had any evidence of disease recurrence.

1. Introduction

Cranial fasciitis (CF) is a benign fibroblastic lesion that almost exclusively affects the pediatric population. It was first described as a subtype of nodular fasciitis by Lauer and Enzinger in 1980 [1]. It continues to be exceedingly rare, with less than 80 cases reported in English literature. CF typically presents as a rapidly enlarging firm, painless, solitary mass of the scalp [1–4]. The median age at presentation is 21 months. While it can present anywhere along the cranium, the most common locations are in the parietal and temporal regions, arising from the deep fascia, periosteum or fibromembranous layer. The exact cause of CF remains unknown, however there is speculation that trauma is a contributing factor.

The differential diagnosis of a pediatric scalp mass is broad, although radiological and histopathology findings may be useful in distinguishing CF from other enlarging masses. Imaging often reveals the presence of a soft tissue lytic lesion. T1 magnetic resonance imaging (MRI) frequently demonstrates an isointense mass surrounding a hyperintense core [5]. However, findings on imaging are not always definitive and can often be mistaken for an infectious or neoplastic cause. Surgical resection followed by pathological analysis provides definitive diagnosis [1,6,7].

Pathological findings of cranial fasciitis have been described in literature [1,8–10]. On gross examination, they are generally well-circumscribed masses with a rubbery or firm consistency. Central cystic degeneration, hemorrhage, and/or gelatinous areas may be present. Microscopic examination shows a loose, often fascicular or storiform arrangement of bland spindle-shaped fibroblasts within a myxoid to focally collagenous matrix. Osteoclast-like giant cells and extravasated erythrocytes can be focally prominent. The lesional cells demonstrate myofibroblastic lineage with staining for smooth muscle actin, and aberrant Wnt pathway activation with nuclear staining for beta-catenin [10]. Cellularity is high in actively growing lesions, and diminishes over time.

To date, there are no documented cases in the literature of cranial fasciitis occurring within the mandible. Here we review the literature concerning CF and present the first reported case of CF of the mandible.

2. Literature review

A review of the literature documenting cases of CF was conducted using PubMed and MEDLINE. Fifty-eight articles in the English literature were found with 79 cases reported [1,2,4,6–20] [21-40], [41–60]. The majority of these publications were individual case reports with details outlined in Table 1 below. In these cases, CF most commonly occurred within the parietal (33%) and temporal regions of the skull (30%), followed by the occipital (19%) region. Of those within the parietal region, some extended into other parts of the skull, notably the

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Table 1
Summary of Literature on presentations of Cranial Fasciitis [1,2,4,6–20] [21-40] [41–60].

Year	Author	Study Type	# patients	Age (yr) at initial presentation[a]	Sex	Site
1980	Lauer	CS	9	6	F	occipital
				5	F	right temporal
				1.75	M	right temporal
				1.5	F	temporo-parietal
				1.5	M	left fronto-parietal
				0.6	M	occipito-parietal
				0.3	M	right temporal
				0.2	M	right parietal
				0.1	M	frontal
1980	Barohn	CR	1	0.1	M	fronto-parietal
1984	Pasquier	CR	1	0.1	M	parietal
1986	Adler	CR	1	1.7	M	right fronto-parietal and left temporal
1986	Ringsted	CR	1	6	M	posterior parietal
1989	Patterson	CS	2	3	F	DNR
				7	M	right tempo-parietal
1990	Coates	CR	1	3.4	M	frontal
1990	Mollejo	CR	1	11	F	occipital
1991	Inamura	CR	1	2	M	right occiptal
1992	Kumon	CR	1	5	M	left frontal
1993	Hoeffel	CR	1	6	F	temporal
1993	Hunter	CR	1	0.8	M	right posterior auricular
1993	Sato	CR	1	7	M	temporal
1995	Iqbal	CR	1	5	F	occipital
1995	Pagenstecher	CR	1	7	F	right fronto-parietal
1995	Sayama	CR	1	0.8	M	fronto-temporal
1996	Hoya	CR	1	1.2	M	right temporal
1996	Lang	CR	1	0.25	M	fronto-oribtal
1997	Boddie	CR	1	2.5	F	posterior left parietal
1997	Clapp	CR	1	0.1	M	temporal
1997	Martinez-Lage	CR	1	6	M	bregma - fronto-parietal
1999	Marciano	CR	1	34	M	temporal
1999	Noguchi	CR	1	0.1	M	left fronto-parietal
1999	Sajben	CR	1	1.5	M	right frontal
1999	Sarangarajan	RS	4	1.5	M	frontal
				2.1	M	left parietal
				1	M	temporal/neck
				14	F	left occipital
1999	Skoog	CS	1	2	F	temporal
2001	Pollack	CS	1	0.1	F	right petrous temporal bone
2001	Govender	CR	1	2	M	fronto-parietal
2002	Rapana	CR	1	47	M	left frontal
2003	Keyserling	CR	1	0.6	M	temporo-parietal
2003	Larralde	CR	1	0.25	M	left temporal
2004	Delfini	CR	1	11	M	parietal
2004	Lee	CR	1	3	F	left occipital
2006	Agozzino	CR	1	8	F	right temporal
2007	Oh	CR	1	0.3	M	right temporal
2007	Summers	CR	2	14	F	left occipital
				61	M	occipital
2007	Santacruz	CR	1	27	F	temporal
2007	Yebenes	CR	1	8	M	occipital
2008	Hussein	CR	1	2	M	occipital
2008	Johnson	CS	4	0.3	M	right fronto-parietal
				11	F	right parietal
				0.3	M	midline occipital
				0.3	M	occipital
2008	Takeda	CR	1	3	F	temporo-occipital
2008	Rakheja	GS	6	1	M	DNR
				1	F	DNR
				0.3	F	DNR
				5.3	F	DNR
				2.2	M	DNR
				3.3	M	DNR
2009	duToit	CR	1	0.1	M	frontonasal
2009	Marshall	CR	1	0.2	M	temporal
2011	Imafuku	CR	1	5	M	frontal
2011	Liu	CR	1	0.6	F	right fronto-parietal
2012	Garza	CR	1	2	F	posterior temporal
2012	Halder	CR	1	10	F	temporo-parietal
2013	Wu	CR	1	13	F	occipital
2013	Yiu	CR	1	1.5	F	nasofacial junction/maxillary sinus
2014	Curtin	CR	1	2	F	left temporal
2014	Fissenden	CR	1	1.1	M	right petrous temporal bone
2014	Lecavalier	CR	1	4	M	temporal

(*continued on next page*)