21 yr old man with decreased concentration and math skills

Valentin Lance
3/18/16
2 years earlier
Fibrous Dysplasia with Secondary Aneurysmal Bone Cyst

• Extremely rare to have both lesions present as a solitary calvarial lesion
• 9 case reports in the literature

Table 1. Summary of published cases of fibrous dysplasia in combination with aneurysmal bone cyst presenting with solitary lesion of calvarium

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Sex/age</th>
<th>Symptom</th>
<th>Duration of symptom</th>
<th>Location</th>
<th>CT findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch CL, 1986</td>
<td>F/9</td>
<td>Expanding painful mass / Painless mass</td>
<td>1 month / 2 years</td>
<td>Parietal / Frontotemporal</td>
<td>Large area of bone lysis with erosion of the inner and outer tables and expansion of the diploic space</td>
</tr>
<tr>
<td>Branch CL, 1986</td>
<td>M/19</td>
<td>Painless mass</td>
<td>4 weeks</td>
<td>Parietal</td>
<td>Cystic expansion of the skull and soft tissue mass with an abnormal rim of contrast enhancement</td>
</tr>
<tr>
<td>Rappaport ZH, 1989</td>
<td>M/25</td>
<td>Painless mass</td>
<td>Unknown</td>
<td>Occipital</td>
<td>Intradiploic hypodense lesion</td>
</tr>
<tr>
<td>Wojno KJ, 1994</td>
<td>F/14</td>
<td>Painless mass</td>
<td>Unknown</td>
<td>Temporal</td>
<td>Heterogeneous cystic lesion</td>
</tr>
<tr>
<td>Wojno KJ, 1994</td>
<td>M/40</td>
<td>Expanding mass</td>
<td>Unknown</td>
<td>Frontal</td>
<td>Diffuse thickening of the calvarium and cystic lesion with seepation</td>
</tr>
<tr>
<td>Itshayek E, 2002</td>
<td>M/19</td>
<td>Expanding painless mass</td>
<td>Unknown</td>
<td>Occipital</td>
<td>Expanded diploic space with ground glass appearance</td>
</tr>
<tr>
<td>Lin WC, 2004</td>
<td>M/18</td>
<td>Expanding painful mass</td>
<td>2 weeks</td>
<td>Frontal</td>
<td>Cystic degeneration and multiple cavities with internal fluid-fluid level</td>
</tr>
<tr>
<td>Mattei TA, 2005</td>
<td>F/19</td>
<td>Headache, nuchal rigidity, Painless mass</td>
<td>Unknown</td>
<td>Occipital</td>
<td>Subarachnoid hemorrhage and diploic cyst with fluid-fluid level</td>
</tr>
<tr>
<td>Lee JW, 2010</td>
<td>F/18</td>
<td>Expanding painful mass</td>
<td>10 days</td>
<td>Frontoparietal</td>
<td>Osteolytic lesion and expansion of the diploic space</td>
</tr>
</tbody>
</table>
• 18 year old F presented with painful scalp mass
• Also rare in the extremities
• Less common in association with polyostotic FD than monostotic FD
Pathophysiology

• Unknown
• Formation of ABC may arise from disruption of the osseous circulation from the primary lesion
• *Fluid levels in fibrous dysplasia may also form due to cystic degeneration, in the absence of secondary ABC formation

Differential of solitary osteolytic calvarial lesions

- Hemangioma
- Epidermoid cyst
- Eosinophilic granuloma
- Metastases
- Myeloma
- Lymphoma

Colas L et al. AJR. 2015;205:840-847
CT and MRI of Pediatric Skull Lesions with Fluid-Fluid Levels

S.A. Nabavizadeh, L.T. Bilaniuk, T. Feygin, K.V. Shekdar, R.A. Zimmerman, and A. Vossough

• Retrospective examination of 11 pediatric patients with fluid fluid levels in calvarial lesions

• Diagnoses (in decreasing order of frequency):
  – Langerhans cell histiocytosis
  – Aneursymal Bone cyst
  – Cephalohematoma
  – Metastatic neuroblastoma

Summary

• Secondary aneurysmal bone cyst formation from fibrous dysplasia is rare in the skull.

• There are several differential diagnoses of calvarial fluid-fluid levels, which differ between the pediatric and adult population.
References