A huge brain cyst in left temporal fossa

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Introduction

Epidermoid cyst of brain was first described by Cuveilhier in 1829 [1]. Bailey gave detailed histological description in 1920 [2]. Epidermoid cyst of brain accounts for < 1% of all intracranial tumors [2–3]. Epidermoid cyst of brain is a relatively uncommon benign, slow-growing congenital or reactive tumors of brain arising from stratified squamous epithelium over the surface of brain [2,4–5]. They are commonly located at cerebellopontine angle and parasellar regions. Epidermoid cysts are filled with soft white flaky material containing high concentration of cholesterol crystals. Cases of malignant transformation have been reported [6–10]. Clinical features depend on the site of location and are indistinguishable from other space occupying lesions. In the following report, we present a case of epidermoid cyst in a young male presented with headache, nausea and vomiting.

Case report

A 27-year-old male presented to the emergency department (ED) with complaints of headache, nausea, vomiting and left-sided facial pain for about one week but more from the day before. He had blurring of vision and weakness on the left side of his face. Physical examination showed left temporal swelling of about 7.00 cm in diameter. He had left upper motor neuron facial weakness and right homonymous hemianopia. No neck stiffness was observed. Computer tomography (CT) scan of brain was ordered after initial symptomatic management, which showed large extra-axial mass lesion in the left middle cranial fossa measuring 7.00 cm × 7.00 cm × 8.00 cm in left temporal fossa. The diagnosis of epidermoid cyst of brain was made and surgical resection of the tumor was done. Epidermoid cysts of brain grow slowly and are composed of epidermoid cells debris rich in cholesterol. The prophylactic removal of these tumors with goal of preventing recurrence is recommended.

Later magnetic resonance imaging (MRI) of brain showed fluid-filled mass measuring 6.00 cm × 7.00 cm × 8.00 cm in left temporal fossa with signs of splaying of lateral orbital wall. The lesion was extending into the left parietal region and compressing left sphenoid sinus. The probable impression of epidermoid cyst was made (Figure 1).

Abstract

A 27-year-old male with left temporal protrusion from childhood presented with complaints of headache, nausea and vomiting. Cranial magnetic resonance imaging (MRI) showed fluid collection measuring 6.00 cm × 7.00 cm × 8.00 cm in left temporal fossa. The diagnosis of epidermoid cyst of brain was made and surgical resection of the tumor was done. Epidermoid cysts of brain grow slowly and are composed of epidermoid cells debris rich in cholesterol. The prophylactic removal of these tumors with goal of preventing recurrence is recommended.

Keywords
Epidermal cyst; Tomography, X-ray computed; Magnetic resonance imaging; Central nervous system cysts; Case reports.

【关键词】表皮囊肿; 体层摄影术、X线计算机; 磁共振成像; 中枢神经系统囊肿; 病例报告

References

1. Cuveilhier, Ch. (1829). 
3. Epidermoid cyst of brain accounts for < 1% of all intracranial tumors [2–3].
4. They are commonly located at cerebellopontine angle and parasellar regions.
5. Epidermoid cysts are filled with soft white flaky material containing high concentration of cholesterol crystals.
6. Cases of malignant transformation have been reported [6–10].
7. Clinical features depend on the site of location and are indistinguishable from other space occupying lesions.
8. A 27-year-old male presented to the emergency department (ED) with complaints of headache, nausea, vomiting and left-sided facial pain for about one week but more from the day before. He had blurring of vision and weakness on the left side of his face.
9. Physical examination showed left temporal swelling of about 7.00 cm in diameter. He had left upper motor neuron facial weakness and right homonymous hemianopia. No neck stiffness was observed.
10. Computer tomography (CT) scan of brain was ordered after initial symptomatic management, which showed large extra-axial mass lesion in the left middle cranial fossa measuring 7.00 cm × 6.20 cm. The lesion was of fluid density containing fat content and bone remodeling. The mass was extending into the left parietal region and compressing left sphenoid sinus. Probable impression of epidermoid cyst was made (Figure 1).
11. Later magnetic resonance imaging (MRI) of brain showed fluid-filled mass measuring 6.00 cm × 7.00 cm × 8.00 cm in left temporal fossa with signs of splaying of lateral orbital wall. The lesion was extending superiorly and anteriorly to the left frontal lobe compressing the remainder of the left temporal lobe and resting on the peripheral side of the left parietal lobe with signs of significant atrophy of left cerebral hemisphere. The above mentioned fluid-filled mass was hypo-intense on T1 weighted images (Figure 2) and appeared hyper-intense on T2 weighted images, showing high lipid content of the tumor (Figure 3). The diagnosis of epidermoid cyst of brain was made. Through left frontotemporal craniotomy the cyst was exposed after gaining access through dura mater.
Cystic wall removed from edges, avoiding any spillage of cystic contents. The cavity was then filled with normal saline and wound was closed. The patient recovered uneventfully. Histopathological examination showed epidermoid cyst of brain. It is the largest brain cyst ever reported in Oman, confirmed by literature search.

**Discussion**

Epidermoid cyst of brain commonly presents in the third or fifth decade of life, usually as a longstanding painless subcutaneous scalp swelling covered with normal skin. It is usually diagnosed in adults\(^1\). Males are affected more than females. Epidermoid cysts develop from the entrapment of ectodermal cells (which normally from skin) at the time of closure of neural groove during the third to fifth week of embryogenesis, producing a cyst lined inside with ectodermal cells\(^1\). This ectodermal lining of cyst behaves like skin cells, growing and sloughing but as it is towards the inside of the cyst, sloughed cells stay inside the cyst and expand the cyst gradually filling it with keratin, cellular debris and cholesterol. It has a thin capsule of stratified squamous epithelium. Lack of hair and other dermal elements differentiate it from dermoid tumors\(^2, 12\). These benign tumors rarely undergo malignant transformation\(^4-10\). CT scan and MRI are both helpful in making diagnosis of epidermoid cyst but differentiation between arachnoid cyst and epidermoid cyst is difficult with CT scans. MRI with fluid-attenuated inversion recovery (FLAIR) and echo-planar diffusion-weighted imaging (DWI) is almost diagnostic\(^14-15\). T1 weighted images are generally hypointense depending upon the lipid content of the tumor. T2 weighted images are usually isointense but may be slightly hyperintense. In a study by Liu et al\(^5\), magnetic resonance DWI sequences were found to facilitate diagnosis of intracranial cystic diseases.

**Conclusion**

Epidermoid cyst of brain is a slow growing benign tumor composed of epidermoid cell debris rich in cholesterol. Cystic lesions of brain, including epidermoid cyst, are typically diagnosed by MRI or CT scans of the brain. Prophylactic surgical removal of these tumors is recommended.

**Disclosure**

No authors report any conflict of interest.

**References**

The 43rd Annual Meeting of the Society for Neuroscience

Time: November 9–13, 2013
City: San Diego, California, USA
Tel: (202) 962-4000
Website: http://www.sfn.org/annual-meeting/neuroscience-2013

 Neuroscience 2013 is the premier venue for neuroscientists to present emerging science, learn from experts, forge collaborations with peers, explore new tools and technologies, and advance careers. Join more than 30,000 colleagues from more than 80 countries at the world’s largest marketplace of ideas and tools for global neuroscience. This year’s meeting will be held on November 9–13 in the beautiful city of San Diego, California, one of the top convention and meetings destinations in the United States.

Society for Neuroscience is an unmatched venue for sharing great science. Attendees can take advantage of countless opportunities to share and learn about emerging and unpublished findings, explore career paths and professional development opportunities, and discuss hot topics in scientific publishing, academia, advocacy, public education, and more. 2013 events include: major featured and special lectures by world-renowned scientists from around the globe, more than 16,000 abstracts sharing new findings, more than 50 symposia and minisymposia with comprehensive coverage of vital neuroscience research topics, more than 600 exhibitors showcasing new tools, technologies, and publishing opportunities, dozens of professional development, advocacy, and networking events and selection of more than 100 satellite events being held in conjunction with the annual meeting.

European Stroke Conference

Time: May 6–9, 2014
Venue: Nice, France
Email: hennerici@eurostroke.eu
Website: www.eurostroke.eu, www.eurostroke.org
Deadline for abstract submission: January 12, 2014

The European Stroke Conference (ESC) was founded in 1990 by J. Bogousslavsky (Switzerland) and M.G. Hennerici (Germany). The first meeting was held in Düsseldorf and was attended by about 500 people and proved to be a great success. At that time only the North American conference existed for clinical researchers and basic scientists to present data from stroke research. The prospect to establish another European stroke meeting was highly challenging. After biannual meetings, 1992 in Lausanne and 1994 in Stockholm and increasing attendance, however, the European Stroke Conference became an annual, international, well-received and continuously growing stroke conference. In the meantime this meeting became a highly successful conference with more than 4200 attendees 2013 in London, UK.