Case report

Primary intraosseous osteolytic meningioma of the skull: a case report

Abdolreza Sheikhrezaie, Ali Tayebi Meybodi*, Mohammad Hashemi and Sajad Shafiee

Address: Department of Neurosurgery, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran 14197, Iran
Email: AS - dr_sheikhrezaie@yahoo.com; ATM* - tayebi_a77@yahoo.com; MH - mhashemi@yahoo.com; SS - sajad.shafiee@gmail.com
* Corresponding author

Published: 18 May 2009 Received: 17 December 2008 Accepted: 17 March 2009

Cases Journal 2009, 2:7413 doi: 10.1186/1757-1626-2-7413
This article is available from: http://casesjournal.com/casesjournal/article/view/7413
© 2009 Sheikhrezaie et al; licensee Cases Network Ltd.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Primary intraosseous meningiomas are uncommon. The osteolytic variants of these tumors are even rarer. When one reviews a bony skull lesion, the differential diagnosis is very wide and includes both malignant and benign diseases. In case of primary skull meningioma, correct diagnosis and total resection of the lesion ensures curative therapy. Presented is a case of osteolytic skull lesion not invading the dura that was proved to be a fibrillary meningioma with regions of syncitial pattern.

Introduction

Primary meningiomas of the skull without involvement of the dura and intracranial cavity comprise an uncommon entity. These lesions often appear as hard osteoblastic tumors which appear as hyperdense areas of the calvarial bones in x-ray studies [1]. They are also different from the so-called en plaque or “carpet” meningiomas in that the latter involve the dura and intracranial cavity. Of a rarer prevalence are lytic skull meningiomas that are not readily suspected because of their radiological appearance; rather they are investigated first for a primary source of malignancy elsewhere in the body or are thought to be other lytic lesions of the skull. Yet, osteolytic meningiomas, although rare, should be considered when approaching to a lytic skull lesion since their natural history and treatment outcome are much different from other more common diagnoses in the skull such as metastatic cancer.

Case presentation

A 62-year-old right-handed male Iranian farmer presented with a soft enlarging mass in the left fronto-parietal region. The mass had come to the patient’s attention over last 8 months but was ignored until it was of a considerable size. Its largest diameter was about 9 centimeters and it was a fluctuating mass. The patient had undergone scalp radiotherapy for treatment of ringworm about 45 years ago. He had no remarkable medical history. Drug history was negative and he did not smoke. Skull x-rays and head computed tomogram (CT) showed a lytic lesion of the skull in the left fronto-parietal region.

An extensive physical examination and laboratory/radiologic work-up including a whole body radionuclide scan of bone showed no other lesion elsewhere in the body. Levels of tumor markers such as prostatic specific antigen (PSA) and evaluation of chest and abdomen were normal.
Magnetic resonance imaging of head showed an extradural
intradiploic enhancing mass lesion without intracranial
extension (Figure 1).

The patient underwent surgery for resection of the mass
lesion. Skin was easily reflected and the mass was not
adhered to it. The lesion appeared as a soft lobulated gray
mass that had destroyed the calvarial bone. It was easily
suctioned and had extension to the peripheral diploe. The
infiltrated bone around the lesion was resected so that a
rim of healthy bone with normal strength was reached.
The dura was intact and the lesion was easily peeled off.

Pathologic examination of the lesion revealed fibrillary
meningioma with areas of syncitial differentiation
(Figure 2). Regarding the calvarial defect after tumor
resection, a cranioplasty procedure was planned to be
performed in a later session.

Discussion
Extradural meningiomas constitute 1-2% of all meningio-
mas [2]. The term “primary extradural meningiomas”
differentiates tumors that arise separately from the dura
from those that originate in the dura but have an
extracranial extension [1]. Lang et al have proposed a
classification system for these tumors [3]: tumors that are
purely extra-calvarial are type I, purely calvarial tumors
are type II, and calvarial tumors with extracranial extension
are type III.

Primary intraosseous meningiomas are usually of osteo-
blastic subtype. More rarely, these lesions may present as
an osteolytic skull lesion [1]. The differential diagnosis of
an osteolytic lesion of the skull includes chondroma,
epidermoid cyst, osteogenic sarcoma, myeloma, meta-
static cancer, or fibrous dysplasia [4]. Due to benignity of
meningiomas, and hence their different natural history,
the intraosseous meningiomas should be considered in
evaluation of a lytic skull lesion since definite treatment (i.
c., complete surgical resection) is available. If there is
doubt about complete resection, the lesion should be
followed with appropriate imaging studies [5].

List of abbreviations
CT, Computed tomography; PSA, Prostatic specific antigen.

Consent
Written informed consent was obtained from the patient
for publication of this case report and accompanying
images. A copy of the written consent is available for
review by the Editor-in-Chief of this journal.

Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
The authors contributed to surgery and preparation of the
manuscript. The primary draft and its final revision was
done by ATM. AS was the attendant surgeon and revised
the manuscript. SS prepared the pathology figures and
contributed to the manuscript preparation.

Acknowledgements
The authors thank Dr Naser Tayyebi helping with the
pathological diagnosis.

References
1. Elder JB, Atkinson R, Zee C, Chen TC: Primary intraosseous
meningiomas. Neurorsurg Focus 2007, 23:1-9.
2. Muzumdar DP, Vengsarkar US, Bhatjiwale MG, Goel A: Diffuse
calvarial meningiomas: a case report. J Postgrad Med 2001,
47:116-118.
3. Lang FF, Macdonald OK, Fuller GN, DeMonte F: Primary
extradural meningiomas: a report on nine cases and review
of the literature from the era of computerized tomography
scanning. J Neurosurg 2000, 93:940-950.
4. Marwah N, Gupta S, Marwah S, Singh S, Kalra B, Arora B: Primary
intraosseous meningiomas. Indian J Pathol Microbiol 2008,
51:51-52.
5. Al-Khawaja D, Murali R, Sindler P: Primary calvarial meningio-
mas. J Clin Neuroradiol 2007, 14:1235-1239.