CASE REPORT

Epithelioid haemangioendothelioma of the anterior skull base: what is the optimal treatment?

David SY Wong 黃守仁
TW Chiu 趙多和
George KC Wong 黃國柱
XL Zhu 朱獻倫
Micky WT Kwok 郭慧婷
CM Ho 何昭明
Andrew DR Burd 博昂志

We report an unusual malignant tumour affecting an unusual site. Epithelioid haemangioendothelioma was formerly considered a tumour of intermediate malignancy but has been reclassified as fully malignant. It is important to be aware of this clinical entity as the best hope of cure is timely radical resection. There is a paucity of evidence concerning the efficacy of alternative treatments because the tumour is very rare.

Introduction

Epithelioid haemangioendothelioma (EHE) is a vascular tumour of endothelial origin that was considered a tumour of intermediate malignant potential until recently. It is rare but can affect any age-group. It has been reported arising from almost any part of the body. It is important to be aware of this clinical condition so that optimal treatment may be initiated.

Case report

In September 2008, a 50-year-old Chinese male presented with a 12-month history of a red-coloured nodular skin lesion on the left side of his forehead. During the preceding 3 months, more than 10 other similar nodules had appeared on the surrounding skin (Fig 1). The symptom prompting the patient's presentation was a visual disturbance in his left eye. On examination, it was noted that his visual acuity had dropped to 20/800 and the ophthalmologist's diagnosis was a cilioretinal occlusion. An incisional biopsy of one of the nodules yielded tissue diagnosed as endothelioid haemangioendothelioma on pathological examination. A computed tomographic (CT) scan showed a hypervascular soft tissue mass involving the subcutaneous fat of the forehead and the preseptal region of the left orbit with extension into the left frontal sinus (Fig 2). A carotid angiogram demonstrated multiple hypervascular lesions with feeding vessels from the left ophthalmic and superficial temporal arteries. Positron emission tomography/CT revealed that the lesion was expansile and osteolytic and involved the frontal bone. There was no evidence of tumour in the rest of the body. Preoperative embolisation was not attempted due to the lesion's multiplicity and the predominance of internal carotid artery–ophthalmic artery feeders.

A wide local excision was performed. The close involvement of the upper eyelid, loss of eye function, potential eye complications and the necessary resection margin, meant the left eye had to be sacrificed. Skin, subcutaneous tissue, frontal skull, most of the orbit apart from the floor, and the left eye, were removed en-bloc using a craniofacial approach. The anterior skull base was included and the left frontal sinus was cranialised. A 1.5-cm margin was obtained except for the medial canthus where it was limited to 1 cm to avoid disturbing the right eye. A free anterolateral thigh flap was raised for coverage of the resulting wound (Fig 1). Postoperative recovery was smooth and uneventful and the patient was discharged on the 10th postoperative day. Due to the risk of recurrence, additional aesthetic reconstructive measures are planned. These will be performed in a delayed elective setting after a period of postoperative observation.

Discussion

Epithelioid haemangioendothelioma was first described in 1982. It is a vascular soft tissue tumour formerly regarded as having intermediate malignancy, which may range in behaviour from a totally benign vascular malformation to that of an angiosarcoma.[1] It is rare and said to represent less than 1% of all vascular tumours[2] and is now accepted as being of endothelial origin.[3]

Deyrup et al[4] reported a series in which metastasis occurred in approximately 25% of cases and had a mortality rate of 15%. Mitosis and tumour size were found to be associated

Key words
Hemangioendothelioma, epithelioid; Retinal artery occlusion; Skin neoplasms; Surgical flaps

Hong Kong Med J 2009;15:308-10

Department of Surgery, Prince of Wales Hospital, The Chinese University of Hong Kong, Shatin, Hong Kong:
Division of Plastic, Reconstructive and Aesthetic Surgery
DSY Wong, FRCS (Edin), FHKAM (Surgery)
TW Chiu, FHKAM (Surgery)
MWT Kwok, MBBCh
ADR Burd, MD, FHKAM (Surgery)
Division of Neurosurgery
GKC Wong, FRCS(SN)(Edin), FHKAM (Surgery)
XL Zhu, FRCS(SN)(Edin), FHKAM (Surgery)
Private practice
CM Ho, MS, FHKAM (Surgery)

Correspondence to: Dr DSY Wong
E-mail: sywong@surgery.cuhk.edu.hk

with a worse prognosis with a 5-year disease-specific survival of 59%. The World Health Organization has recently re-classified EHE as a fully malignant tumour.[5]

It has also been reported that EHE may be due to deletions and gains of 11q and 12q amplifications.[2] Young adults are most often affected and there may be a slight female preponderance.[4] Primary tumours have been reported in the skin and subcutaneous tissue of the limbs as well as internal viscera such as the liver and the lungs. Only a few reports have so far appeared describing EHE in the head and neck.[6]

The skin lesions are red and nodular and may be soft to firm; other presentations reported include ulcers and plaques.[6,7] Clarke et al[7] noted that many patients with cutaneous EHE had involvement of the underlying bone. These features were seen in our patients also. Clinically, the tumour may be solitary or a multifocal conglomeration of separate nodules in a localised area.

Definitive diagnosis depends upon a biopsy together with the typical immunohistochemical staining of factor VIII–related antigen, and, commonly the presence of CD31 and CD34.[8] Histologically, these tumours are composed of an admixture of slightly pleomorphic spindle and epithelioid cells with abundant, sharply defined eosinophilic cytoplasm and vesicular nuclei containing single nucleoli.[9] Mitoses are usually sparse. Intracytoplasmic lumina in which intraluminal erythrocytes are occasionally apparent, so-called 'blister cells', are characteristically present. The tumour cells are embedded in a myxoid or hyaline matrix.

There have been attempts to distinguish between sub-groups with different prognoses based on various clinical and pathological criteria.[4,10] Results have been either contradictory or have remained unconfirmed by further studies. The few cases and the variable nature of the condition have made it difficult to dictate treatment protocols and evaluate adjunctive therapy. Due to the lack of reliable prognostic indicators and the potential for recurrence and metastasis, the logical primary treatment has been wide surgical resection with or without regional node dissection.[8] The role of different adjuvant therapies remains to be determined.

Parajón and Vaquero[11] recently summarised the experience from reported intracranial cases and came to the conclusion that if complete surgical removal is achieved, no adjuvant therapy is needed. Radiation therapy is usually recommended or reserved for cases in which total resection has not been possible. The limited experience with chemotherapy has been in patients with visceral involvement, with either primary or metastatic lesions. Alpha-interferon has also been reported to be an effective adjuvant therapeutic agent due to its anti-angiogenic effect.[12]

前顱底上皮樣血管內皮瘤：怎樣才是較佳的治療方法？

本文報告一個生長在不常見位置的罕見惡性腫瘤。上皮樣血管內皮瘤曾經被視作屬於中等程度的惡性腫瘤，但現已重新被分類為完全惡性腫瘤。熟悉這類腫瘤的臨床診斷非常重要，因為在沒有證據證明其他治療方法對於這種稀有腫瘤的功效的情況下，較佳的治療方法就是及時的根治性手術。

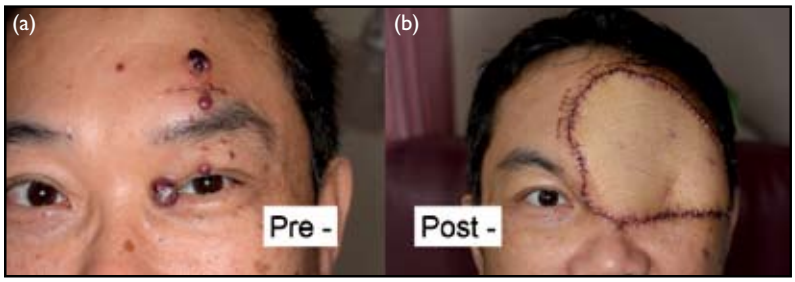

FIG 1. (a) Clinical presentation and (b) postoperative appearance of the patient

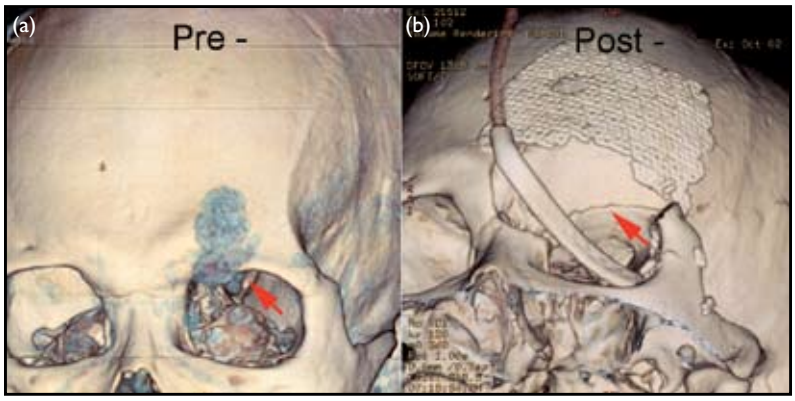

FIG 2. 3-Dimensional computed tomographic reconstructions showing (a) the tumour location (red arrow pointing to the skull base extension), and (b) the extent of resection (red arrow pointing to the skull base resection margin)

Conclusion

This case illustrates an unusual tumour presenting in an unusual site, which was, fortunately, still amenable to curative resection. Identification of the clinical entity is important for successful treatment, as timely radical surgical extirpation is currently the most certain hope of cure. The management of this patient involved many meetings and joint discussions between neurosurgeons, plastic surgeons, pathologists, ophthalmologists, radiologists, and oncologists. This is a vivid example of how an optimal outcome can be achieved in this modern age of collaborative medicine using a multidisciplinary team.

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