Case Report

Epithelioid Haemengioendothelioma: A Report of Two Cases

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Abstract

Epithelioid hemangioendothelioma (EHE), is a rare vascular tumor, described for the first time in 1975 by Dail and Liebow as an aggressive bronchoalveolar-cell carcinoma. The aetiology is still a dilemma to this day. Studies about suggestive hypothesis are ongoing. Most of the times, it affects lung, liver, and bones, but can arise from any part of the body. It has a very low prevalence of one in one million. Because of its heterogeneous presentation and rarity - represents <1% of all the vascular tumours, it is often misdiagnosed and not suitably treated, leading to a poor prognosis in some cases. Over 50%–76% of the patients are asymptomatic in the early stage of the disease. A small number of them complain of respiratory symptoms. Bone metastases might cause pathological fractures or cord compression if they arise in vertebrae. Imaging is necessary to determine extend of spread, the involvement of surrounding tissues, and potentially the cleavage plan. It is important to recognize the expression of vascular markers (Fli-1 and CD31 are endothelial-specific markers), and the microscopic evidence of vascular differentiation to make a correct diagnosis, as many pulmonary diseases show multiple nodular lesions. Because of its rarity, there is no standard treatment for EHE.

Keywords: Epithelioid hemangioendothelioma, histological diagnosis, no standard treatment, poor prognosis, rare vascular tumor

Introduction

Epithelioid haemangioendothelioma (EHE) is a rare vascular tumor with an epithelioid and histiocytoid appearance originating from vascular endothelial or preendothelial cells. It represents <1% of all vascular tumours and was described for the first time in 1975 by Dail and Liebow as pulmonary epithelioid haemangioendothelioma. It has a prevalence of one in one million. It is often misdiagnosed and not suitably treated leading to a poor prognosis in many cases.[1-4]

This malignant vascular tumour usually affects middle-aged patients although cases in children and elderly people have been described. The age of the patients ranges from 7 to 83 years.[5,6] The median onset is 36 years while the age range at diagnosis is from 20 to 60 years.[7] The tumour can affect any part of the body, but the most common sites are liver alone 21%, liver plus lungs 18%, lungs alone 12%, and bone alone 14%.[8] Distant hematogenous metastases have been reported mainly not only in the liver but also in the skin, serosa, spleen, tonsils, retroperitoneum, and kidneys. Colonic metastasis, though rare, have been described.[9] This a report of two cases seen at the University of Maiduguri Teaching Hospital between 2016 and 2018.

Access this article online

Quick Response Code:

Website: www.atpjournal.org

DOI: 10.4103/atp.atp_52_18

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Mr. SAB, a 43-year-old computer software engineer, presented with a 2-year-old history of a dry cough and left-sided chest pain. This was associated with marked weight loss and poor appetite. He was investigated for pulmonary tuberculosis but was negative. A chest X-ray, however, revealed a mass in the upper lobe of the left lung, [Figure 1]. He was placed on empirical treatment for pulmonary tuberculosis, but there was no improvement after 3 months. A computed tomogram (CT) revealed a solid mass in the same area of the left lung, [Figure 2a and b]. The CT scan did not show any liver masses. From August 2017, he started having repeated episodes of massive haemoptysis almost every month, [Figure 2c], and in April 2018, this was so severe that it led to transfusion of six pints of blood. An ultrasound-guided biopsy using Bard Magnum needle was done. The histology came back as pulmonary epithelioid haemangioendothelioma, [Figure 2d].

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How to cite this article: Nyaku FT, Dabkana TM, Nggada HA, Njem JM, Bwala ST, Gana YM. Epithelioid haemengioendothelioma: A report of two cases. Ann Trop Pathol 2019;10:77-80.

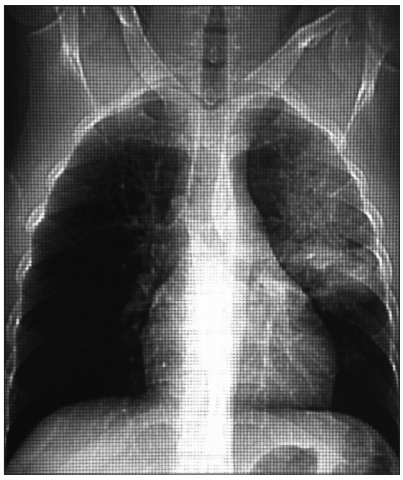

Figure 1: Chest X-ray of Mr. SAB

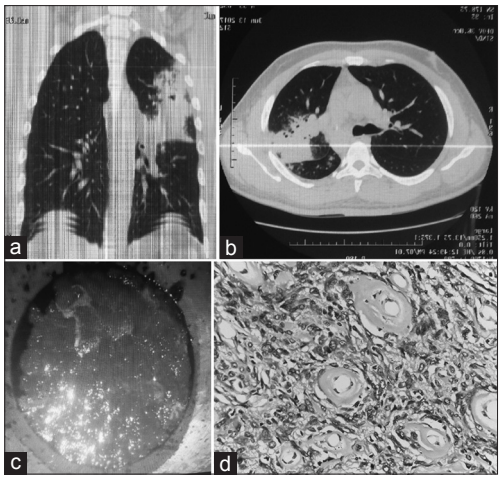

Figure 2: (a) Coronal computed tomogram chest of Mr. SAB. (b) Transverse computed tomogram of Mr. SAB. (c) Vomited blood in a bowl by SAB. (d) Histology micrograph of pulmonary epithelioid haemangioendothelioma

He was referred to a cardiothoracic surgeon who advised lobectomy and possible hilar clearance. He however developed cardiac arrest on induction of anaesthesia and died on table.

Master UAB, a 3-year-old male child from Pulka in Gwoza LGA of Borno State was referred to University of Maiduguri Teaching Hospital by a non-governmental organization (NGO) running a clinic at an internally displaced persons camp in Gwoza with an 18 months history of swelling on his left wrist that initially was slow growing on an itchy bluish patch that the child had from birth, but progressed rapidly in 6 months prior to presentation. The rapid increase in size led to ulceration with discharge of serosanguinous fluid. There was no associated weight loss or failure to thrive. The child was found to be healthy looking, slightly pale, anicteric, with a good appetite.

Examination of the mass revealed a fungating nodular mass over the ulna side of distal 1/3 of the left forearm measuring 10 cm × 8 cm, more on the ventral side. The edges were raised and everted. The floor was necrotic and hemorrhagic. The mass was firm and slightly tender and mobile over the bone. The ipsilateral nodes were enlarged, soft and nontender, [Figure 3a and b]. There was a good movement of all fingers, radial pulse was present, but that of the ulna could not be palpated at the wrist because of the overlying mass. Allen's test was negative, and wrist movement was good.

X-ray of left forearm and wrist revealed soft-tissue swelling and with no bony involvement, [Figure 4]. Chest X-ray was grossly normal. A tentative diagnosis of soft tissue sarcoma was made. Cytology of fine-needle aspirate came back as "suspicious of malignancy."

Other tests done are: -PCV – 24%, WBC – 7.4 x 109/L, FBC; Neutrophils – 24%, Lymphocytes – 72%, Basophils - 4%. Haemoglobin electrophoresis revealed an AA genotype.

The patient was prepared for excision biopsy. Under general anaesthesia with above elbow tourniquet, the entire ulna mass was excised, along with the segment of the ulna artery and nerve that were embedded in it. The tendons of palmaris longus, flexor and extensor carpi ulnaris were also resected. Tourniquet was removed; hemostasis achieved the skin flaps tagged. The ipsilateral axillary lymph nodes were sampled. The histology of the mass on the left wrist revealed EHE while that of the sampled lymph nodes was "reactive hyperplasia" [Figure 5a and b]. This is shown from the Pathologist report, [Figure 5c]. Excision margin was devoid of tumor cells. Within two weeks of dressing, wound contracted and healed well, [Figure 6]. We then advised the NGO to take the patient for local Radiotherapy in ABU Zaria since we do not have the facility in our center.

Discussion

The term epithelioid haemangioendothelioma was introduced in 1982 by Weiss and Enzinger to describe a vascular tumor of bone and soft-tissue showing features between hemangioma and angiosarcoma.[10,11]

Corin *et al*, demonstrated that these tumor cells were derived from a cell lineage that can differentiate along the line of endothelial cells by histochemical technique.[12]

Later, Weldon – Linne *et al* confirmed these findings using electron microscope and revealed a diffuse cytoplasmic staining of the malignant by antibody to the factor VIII-related antigen.[13]

The World Health Organization (WHO) classification of 2012 describes EHE as lesions that fall into the category of locally aggressive tumors with metastatic potentials.[14-16]

According to World Health Organization (WHO), classification of tumors of bone and soft tissues (2002), one half to twothirds of EHE originates from a small vein. Exceptionally, it may originate from a large vein oran artery suchas in the case we have reported.[17,18]

Few groups have published large series; Amin 93 patients, Bagan80 patients, Kitachi 21 patients, Dail 20 patients.[4,19-21]

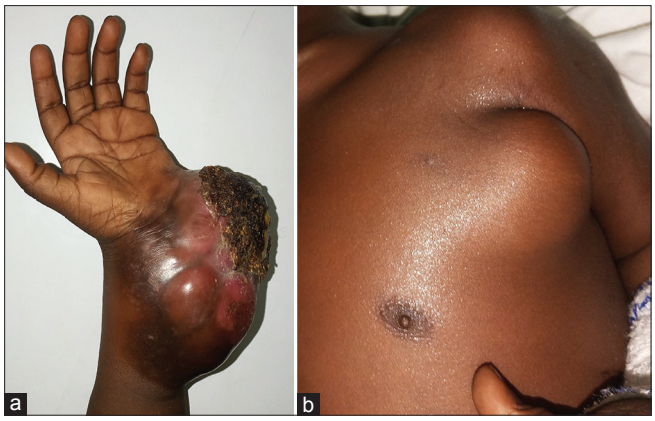

Figure 3: (a) Fungating on the wrist of boy. (b) Enlarged axillary nodes

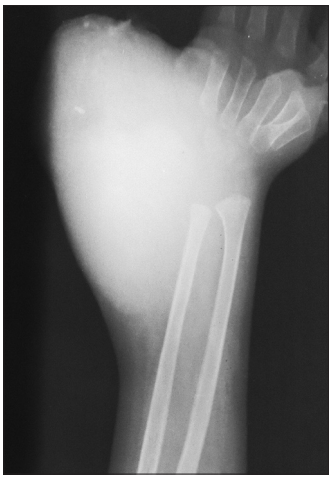

Figure 4: X-ray of the boy's left forearm and wrist

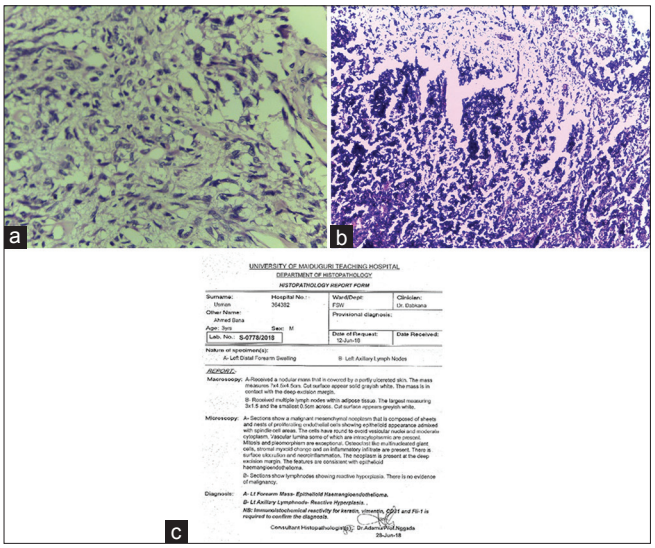

Figure 5: (a) Histology micrograph of the mass on left wrist. (b) Histology micrograph of the axillary lymph nodes. (c) Histology report of left wrist mass

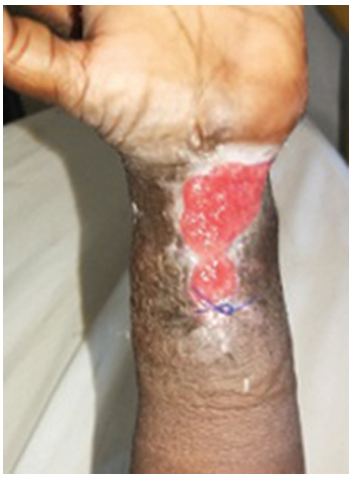

Figure 6: Picture of the wound following excision showing good healing with healthy granulation tissue

In diagnosing the tumour, ultrasonography demonstrates tumor vascularity and may help in making differential diagnosis.[22] Other test that can be done include PET[7] and bone scintigraphy.[23-25] Electron microscopy shows typical image of endothelial cells similar to those composing medium size vessels or large veins arranged in nests or cords.[26]

Because of its rarity, EHE has no standard treatment.[27] The available treatment options are surgical resection, adjuvant chemotherapy and/or radiotherapy. Radiotherapy after surgical resection is chosen for localized EHE to control residual disease because of the high rate of recurrence by using 6000 CGY in 23 fractions for 43 days, a dose that patients have been found to tolerate well.[11,28]

Chemotherapy is preferred in case of widespread disease. However, the beneficial effect is still not yet confirmed.[4,7,21,28,29] In patients with unilateral pleural-EHE (P-EHE) nodules, wedge, or lobe resection offer better survival outcomes than anatomic resection.[20] Patients with bilateral nodules, partial or complete response have been reported using interferon. In liver disease, no matter how advanced, organ transplant has been shown to have a good prognosis.[30] In bone, radical surgery is performed for resectable bone tumour followed by joint reconstruction if it occurs around a joint or any of the limb salvage procedures if it is diaphyseal. When pathological fracture occurs, temporary internal stabilization with plates and screws for pain control is chosen. Radiotherapy using 400 CGY for 4 weeks has proven to be effective protocol for P–EHE because the tumor is slow growing,[26] Mean survival is 4.6 years, with a range from 6 months to 24 years.[8,23,24]

Gómez-Arellano *et al*. reported that mortality is 13% when EHE is located in soft tissue, 35% when it affects the liver and 65% if it reaches the lungs. According to the Kenneth Lau analysis, the 1-year overall survival (OS) is 90% (73% the 5 years OS) whereas the 1 year and 5 years OS after EHE progression is 53% and 24%, respectively, (median survival is 1–3 years after disease progression.[8,31,30,32,33]

Conclusion

Because of its rarity, the diagnosis of EHE is often missed with attendant consequences. If diagnosed early however, cure could be achieved. Therefore, a high index of suspicion is needed in all tumors that have vascular characteristics on histology. Oncologists are also advised to work on a treatment protocol for this tumour.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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