CASE REPORT

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Juvenile Xanthogranuloma with Ocular Manifestations in a Nigerian Infant: A Case Report

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Abstract

Accurate diagnosis is the foundation of optimal care, which occasionally requires a multidisciplinary approach. Rare diseases may pose some diagnostic challenges, especially in the context of their similarity to other more common pathologies. We report a case of Juvenile Xanthogranuloma (JXG), a rare disease that had some initial diagnostic challenges due to its similarity with molluscum contagiosum.

Keywords: Histiocytosis, Juvenile Xanthogranuloma, Molluscum contagiosum, Nigeria, Ocular manifestations.

Introduction

Juvenile xanthogranuloma is a benign cutaneous disorder which primarily affects infants and children[1]. It is the most common form of non-Langerhans cell histiocytosis. Histiocytosis represents a rare disease encompassing a spectrum of disorders, from benign to malignant. The primary aetiology is the accumulation of macrophages, dendritic cells, and monocyte-derived cells in various tissues and organs. They are characterized by multiple and sometimes overlapping manifestations and are broadly classified as Langerhans and non-Langerhans cell histiocytosis.[1]

In this report, we present a case of a 5-month-old boy with juvenile xanthogranuloma involving the eyes.

This report highlights the occurrence of this rare disorder and emphasizes the need for timely referral to the dermatologist and ophthalmologist to reduce morbidity or mortality significantly.

Case presentation

A five-month-old male infant was referred from a private hospital to the Paediatric Ophthalmology Clinic of the University College Hospital Ibadan on account of redness of the right eye noticed at three months of age. The redness had progressively worsened over two months and involved the left eye four days before his presentation at the eye clinic. There was associated photophobia, tearing and enlargement of the right globe. There was no history of trauma. He had also been observed to have some skin lesions at the age of three and a half months, and the referring facility had diagnosed them as molluscum contagiosum. The skin lesions had progressively increased in number and were pruritic with no discharge. There was no history

of fever, excessive urination, increased water intake, or tenderness in any of the extremities.

A history of weight loss during the same period prompted investigations for HIV/AIDS at the referring hospital, but the tests were negative for HIV 1 and 2.

Examination of the eyes revealed skin nodules on the upper lid, an enlarged globe, poor fixation, horizontal cornea diameter of 13mm, circum-ciliary injection, cloudy cornea, and clotted hyphaema on the right. Further examination under sedation with a hand-held slit lamp revealed inflammation in both eyes, a markedly hazy right cornea with clotted and fresh hyphaema in the anterior chamber in both eyes and cream-coloured iris nodules on the left, which were more on the nasal iris. Further details of the lens and fundus were also difficult at this visit because of the poor view. The intraocular pressure was 27mmHg and 14mmHg in the right and left eye, respectively.

A clinical diagnosis of Juvenile Xanthogranuloma with ocular involvement was entertained. The child was admitted into the ward, and a consult was sent to the Dermatology team for further review. During the dermatologic evaluation, it was observed that he was small for his age, irritable, afebrile, anicteric, not pale, not dehydrated, and not dyspnoeic, with no significant peripheral lymphadenopathy. He had multiple scattered, firm, non-tender hypo-hyper pigmented nodules involving the scalp, face and extremities with haemorrhagic crust or central ulceration on some of the lesions (Figures 1 and 2). There were no confetti-like macules or patches. The dermatology team agreed with the diagnosis of juvenile xanthogranuloma, and the child was scheduled for a skin biopsy for histopathologic confirmation.

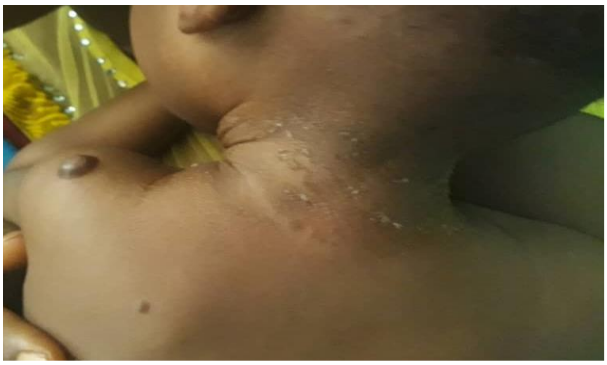


Figure 1: Hyperpigmented nodules and papules on the neck and trunk

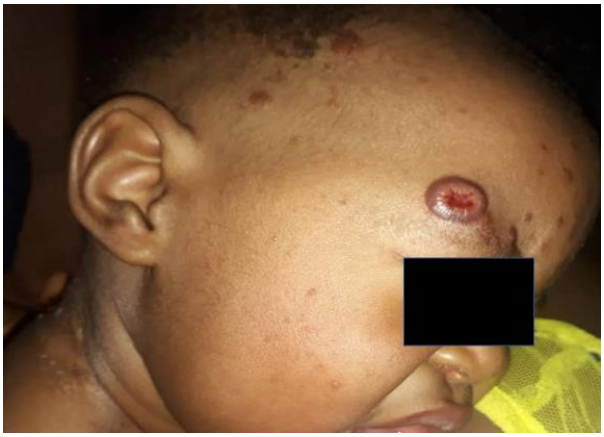
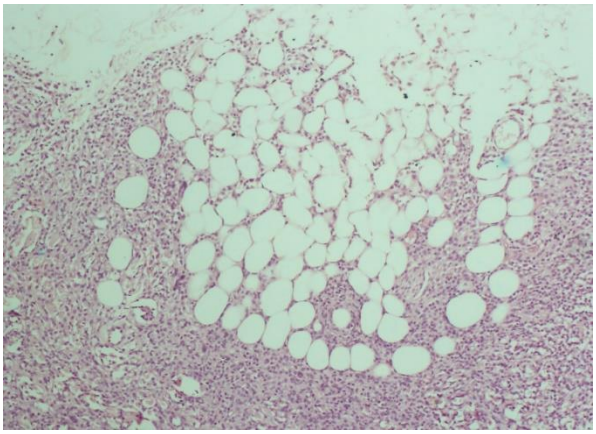


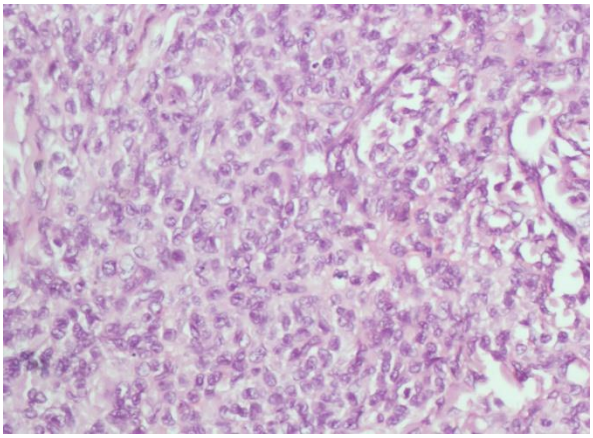
Figure 2: A nodule with central haemorrhagic crust on the right brow

An ocular B scan showed multiple hyperechoic masses in the iris with no obvious calcification. The histology of the skin biopsy revealed diffuse infiltration with foamy histiocytes and a few Touton giant cells (Figures 3 and 4). However, his parents could not afford immunohistochemistry studies.

Full blood count with differential counts showed packed cell volume of 33.6%, lymphocytosis of 64.8% (normal values 20-50%), and monocytosis of 13.7% (normal values 2-10%). The peripheral blood film showed anisocytosis, poikilocytosis, microcytosis, hypochromia, and target cells. The liver function tests, Erythrocyte Sedimentation rate (ESR), and lactate dehydrogenase (LDH) assay were normal. The abdominal ultrasound scan was also normal.



Histology magnification x10
Figure 3: Diffuse infiltration with foamy histiocytes with few Touton giant cells



Histology magnification x40
Figure 4: Diffuse infiltration with foamy histiocytes with few Touton giant cells

The child received oral prednisolone 5mg daily for about six weeks, with subsequent tapering off as the skin lesions resolved gradually. In addition, he had anti-inflammatory medication for the eyes (dexamethasone eye drops), topical 1% atropine and timolol 0.25% eye drops, and carbonic anhydrase (Azopt®) eye drops for the right eye only.

Within a week of treatment, there was marked clinical improvement in the left eye with good fixation, which was central, steady and maintained. There was also resolution of the ciliary injection, fewer and smaller iris nodules and significant clearing of the hyphaema. The pupil was irregular with posterior synechia, the lens was clear, and the fundus was normal. The right cornea, however, remained opaque with diffuse scarring (Figures 5 - 7). He was discharged home. The improvement was sustained, while topical steroid was discontinued after six weeks of administration.

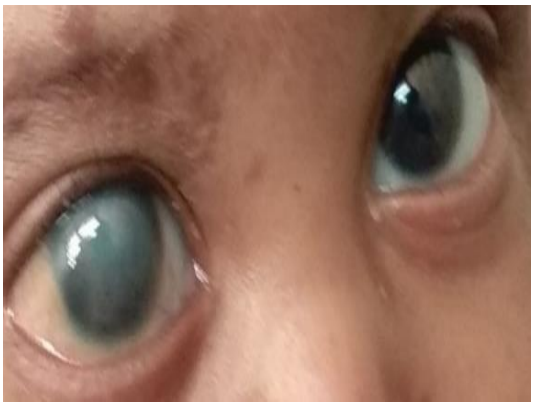


Figure 5: Buphthalmic Right eye, corneal opacity with resolving skin nodules around the right upper eyelid

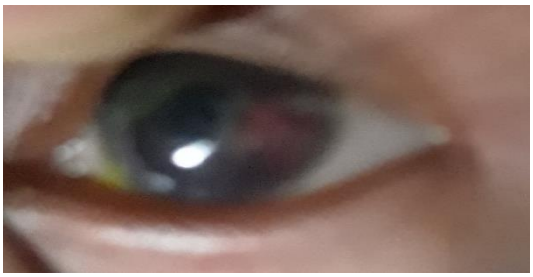


Figure 6: Left eye with hypheama at third visit to the eye clinic

Six months after the first consultation, the child was noticed to have developed a full cataract in the left eye and subsequently had an uncomplicated cataract surgery, posterior capsulotomy, and anterior vitrectomy without intraocular lens insertion. He was rehabilitated with spectacles, and his visual acuity remained good postoperatively.

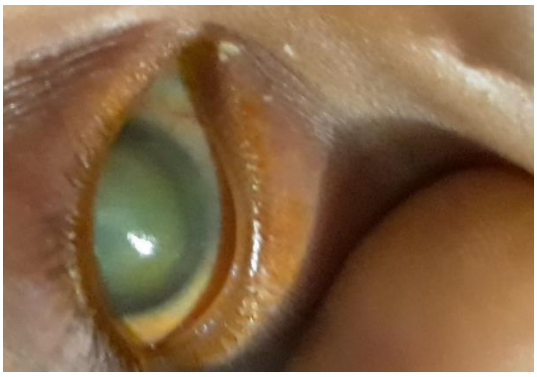


Figure 7: Scarring of the right cornea with no good view of details of the intraocular structures at last clinic visit

He has been followed up for two years, and intraocular pressure remains controlled on topical anti-glaucoma (acetazolamide/beta-blocker combination); iris nodules are entirely resolved, and the skin lesions are completely healed. The posterior segment of the left eye is essentially normal, with a healthy pink disc and cup disc ratio of 0.4. Intraocular pressure at his last clinic visit was 13mmHg and 10mmHg in the right and left eye, respectively. No further intervention was required on the right eye, which remained buphthalmic with a scarred cornea and poor visualization of the ocular structures.

Discussion

Juvenile Xanthogranuloma (JXG), a rare benign cutaneous disorder that affects mostly infants and small children, is the most common form of non-Langerhans cell histiocytosis.[1] This condition presents mainly within the first year of life but could also present at birth. [2,3] JXG has also been reported in adults.[4]

JXG lesions may be single or multiple, firm, slightly raised papules or nodules. [2] They measure from 0.2 cm to as wide as 2 cm.[5] The lesions appear yellow to pink in light-skinned individuals, but- in dark-skinned individuals, the lesions may take varying shades from normal skin colour to hyperpigmentation because of the background pigmentation. The eyes, head, face, neck and trunk are the most common sites affected. [2] Children under six months usually present with multiple lesions, with males more affected than females in a ratio of 12:1. [6]

Extracutaneous JXG, though uncommon, tends to occur in children younger than two years of age, with multiple cutaneous JXG lesions; the eyes are a common area of involvement. Ocular manifestations of JXG include spontaneous hyphaema and glaucoma as seen in this patient, heterochromatis iridis, involvement of the posterior segment and the eyelids. [7] A study that involved 30 children with ocular JXG revealed involvement of the iris, conjunctiva, eyelid, choroid and orbit in 68%, 19%, 6% and 3%, respectively, while those with iris involvement present earlier than those with conjunctival JXG. [8] Affected patients may or may not have associated skin lesions. [7,8]

Other extracutaneous sites in decreasing order of frequency include the lungs, liver, testis, and rarely, the central nervous system (CNS), kidney, spleen, and retroperitoneum with different presentations such as respiratory distress, nodular opacity on chest Xray, and hepatomegaly depending on the organ involved.

Molluscum contagiosum, a dome-shaped papule with central umbilication, haemangioma and neurofibroma, a firm lesion associated with café-au-lait spots, are close differential diagnoses of JXG. Without histopathologic studies, there is a high chance of misdiagnosis, as it was initially in the case presented. [7] This underscores the need for timely expert consultations when such lesions are encountered, as early diagnosis and treatment can significantly reduce morbidity and mortality. Although the disorder is rare, this report requires a high index of clinical suspicion in atypical molluscum-like lesions and immediate referral to dermatologists in such cases.

The histopathology of JXG shows well-circumscribed nodules with dense infiltrates of

histiocytes, and with skin involvement, the dermis is usually infiltrated. Giant multinucleated cells are variable in number with variable degrees of perivascular and perilesional inflammatory cells and lipid-laden histiocytes. [1,6] Touton giant cells, seen in 85% of cases of JXG, [2,5] are characterized by a wreath of nuclei around a homogeneous eosinophilic cytoplasmic centre. Touton giant cells and foamy histiocytes are characteristic and help differentiate the condition from the Langerhans cell histiocytosis. However, positivity for Factor XIIIa, CD68, fascin and negativity for CD1 and S-100 on immunohistochemistry helps to establish the diagnosis. Unfortunately, immunohistochemistry is not readily available and affordable in this environment as most treatment is still procured by out-of-pocket payment. As healthcare services evolve, facilities for these investigations will become readily available in the developing world.

The management of JXG sometimes involves observation, especially if the lesions are few and primarily cutaneous, as such lesions could resolve spontaneously. Other treatment modalities include the use of systemic steroids, chemotherapy, laser and surgical excision.

Conclusion

JXG is a rare and benign disease that typically occurs in infants and children, with a possibility of misdiagnosis. This clinical case presented at about six months, which is the typical age of presentation with multiple lesions. We hereby recommend a multidisciplinary approach to the management of such patients. The need for histological and immunohistochemical confirmation and the importance of the ophthalmologic assessment of these patients are also emphasized.

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