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Bilateral anterior uveitis as a presenting feature of Juvenile Xanthogranuloma in a neonate

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A B S T R A C T

Purpose: To report a case of diffuse xanthogranuloma presenting as bilateral anterior uveitis in a neonate.
Observations: A neonate was brought by the parents with complaints of redness, watering, and photophobia in both eyes for 10 days. Examination under anesthesia revealed the presence of bilateral hyphema, fibrinous membrane, corneal haze, and raised intraocular pressure (IOP). Ultrasound Biomicroscopy revealed diffuse bilateral iris thickening. The child was managed medically with topical glaucoma medications, topical steroids, and cycloplegics. The child responded well with the resolution of hyphema, anterior chamber inflammation, and reduction of IOP.
Conclusion and importance: In neonates and infants presenting with bilateral uveitis, spontaneous hyphema, and secondary glaucoma, even in the absence of a well-defined iris lesion, diffuse juvenile xanthogranuloma should be considered as a differential diagnosis.

1. Introduction

Juvenile Xanthogranuloma (JXG) is an extremely rare, benign, inflammatory histiocytic disorder that typically manifests in infants. The most frequent signs are cutaneous lesions, which mostly affect the head and neck region and typically appear as brownish papules. The eye is the most common site of extra-cutaneous involvement. According to reports, 0.3–0.4% of patients with cutaneous JXG can also have ocular JXG.[1] The severity of ocular involvement in JXG can vary from asymptomatic to blindness. An iris nodule, a hyphema, and elevated intraocular pressure (IOP) are typical signs of ocular involvement.[2] In this report, we describe a neonate who presented with bilateral anterior uveitis, hyphema, and elevated IOP that was secondary to Xanthogranuloma.

2. Case report

A 1-month-old male child was brought with complaints of redness and watering of both eyes for 10 days. The parents also complained of multiple raised lesions on the child's scalp and trunk since birth (Fig. 1). The child had more than 6 café-au-lait spots having a size of more than 5mm over the body as well as axillary freckles. His mother also had neurofibromatosis (NF-1), (Fig. 2). There were no abnormal craniofacial features or cardiac defects. We identified a heterozygous pathogenic deletion c.3048_3053del; p. Cys1016_Leu1018delinsTer in the *NF1* gene (located in Exon 23) in the child, on Exome sequencing.

Examination under anesthesia revealed an IOP of 34 mmHg and 28 mmHg in the right eye (RE) and left eye (LE) of the child respectively, with a horizontal corneal diameter of 11 mm in both eyes. There was hyphema with the presence of inflammatory membranes in both eyes which precluded a proper fundus examination (Fig. 3). B-scan ultrasonography was anechoic and no optic nerve head cupping was noted. An ultrasound biomicroscopy (UBM) of both eyes revealed a generalized thickening of the iris (Fig. 4) especially involving the posterior pigment epithelium.

A diagnosis of xanthogranuloma was made based on clinical examination, especially the typical location of lesions, as well as the appearance of a sunset sign in these lesions on dermoscopy.

The child was started on topical Prednisolone acetate 1% 8 times/day, which was tapered slowly over 8 weeks as also topical Homatropine 1% 4 times/day, and topical glaucoma medications including Betaxolol 0.25% twice a day, Dorzolamide 1% thrice a day, and Bimatoprost 0.01% once a day in both eyes. The child showed improvement after 3 weeks with a reduction in anterior chamber inflammation and hyphema. The IOP was reduced to 10 mmHg in RE and 12 mmHg in LE on topical glaucoma medications. The media became clear and a fundus examination was done subsequently using a Retcam revealing a Cup Disc Ratio (CDR) of 0.5:1 in both eyes.

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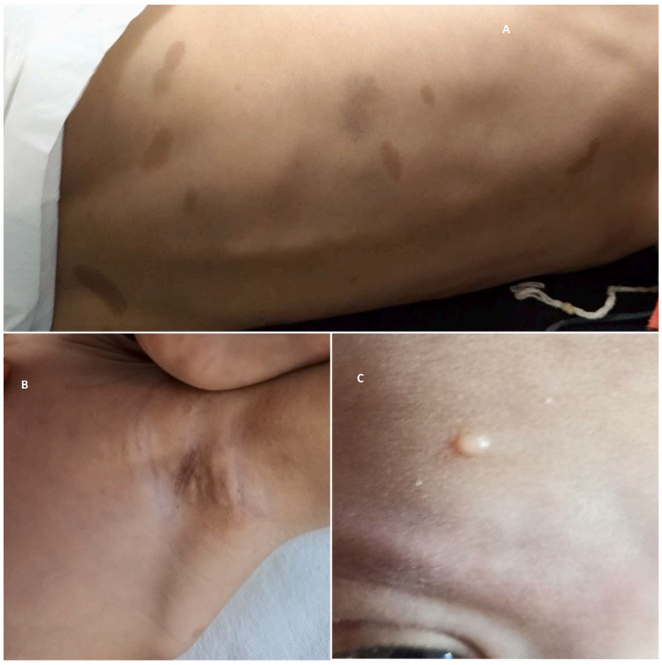

Fig. 1. Clinical Photograph of the child showing A) café-au-lait spots, B) axillary freckles, and C) xanthogranulomatous lesions.

3. Discussion

Juvenile Xanthogranuloma is a part of the spectrum of benign non-Langerhans cell histiocytic disorders.[3] It is rarely seen at birth, but in almost 80% of cases, presents within the first year of life.[4] The diagnosis of JXG is generally based on the clinical signs and a skin biopsy is needed only for confirmation.[5] In children, Zimmermann had described unilateral glaucoma, unilateral iris mass, spontaneous hyphema, red eye with uveitis symptoms, and congenital/acquired iris heterochromia as signs suggestive of JXG.[6] Except for iris heterochromia, which is difficult to appreciate in eyes with dark irides, the rest of the signs of JXG were present in our patient. While ocular involvement in JXG is characteristically unilateral, our patient had a bilateral presentation.

Hyphema in a child can be due to various causes, the most common cause being blunt trauma. In the absence of trauma other important causes of hyphema in children that need to be investigated are retinoblastoma, medulloepithelioma, Coats disease, and blood dyscrasias. In the absence of these, iris xanthogranuloma should be considered and treated.[7–10]

A diffuse iris thickening as described by Syed et al. was also seen in our case on ultrasound biomicroscopy, which suggests diffuse involvement of the iris by JXG.[11] Interestingly, we found a thickening of the iris at the level of the posterior pigmented epithelium. However, this was not associated with an extension of the posterior pigment epithelium onto the anterior iris surface. Such an extension is described in cases of a primary iris pigment epithelial hyperplasia associated with glaucoma and neurofibromatosis[12] Syed et al. described a bumpy (moth-eaten) appearance of iris lesions, on UBM in their case that presented in infancy.[12,13]

Our patient had coexistent neurofibromatosis (NF), which can be found in association with Juvenile Xanthogranuloma in 5–10% of cases.[14] Neurofibromatosis is marked by cognitive impairment, macrocephaly, neurofibromas, café-au-lait spots, and a propensity for several neoplasias. The coexistence of JXG along with NF has been shown to be associated with an increased risk of Juvenile Myelomonocytic Leukaemia (JMML).[15]

While spontaneous hyphema and secondary glaucoma have been described previously as manifestations of JXG in infants, we report the unusual presentation of acute bilateral anterior uveitis with hyphema in a neonate. We also observed a diffuse involvement of the iris by xanthogranuloma, unlike most other reports that described a localized involvement of the iris by the xanthogranulomatous lesions along with the classical presenting features of spontaneous hyphema and the presence of cutaneous lesions.[15,16] Non-granulomatous anterior uveitis in a neonate can be either Idiopathic or secondary to Herpetic disease, toxoplasmosis, toxocariasis, or Human immunodeficiency virus infection.[16,17,18]

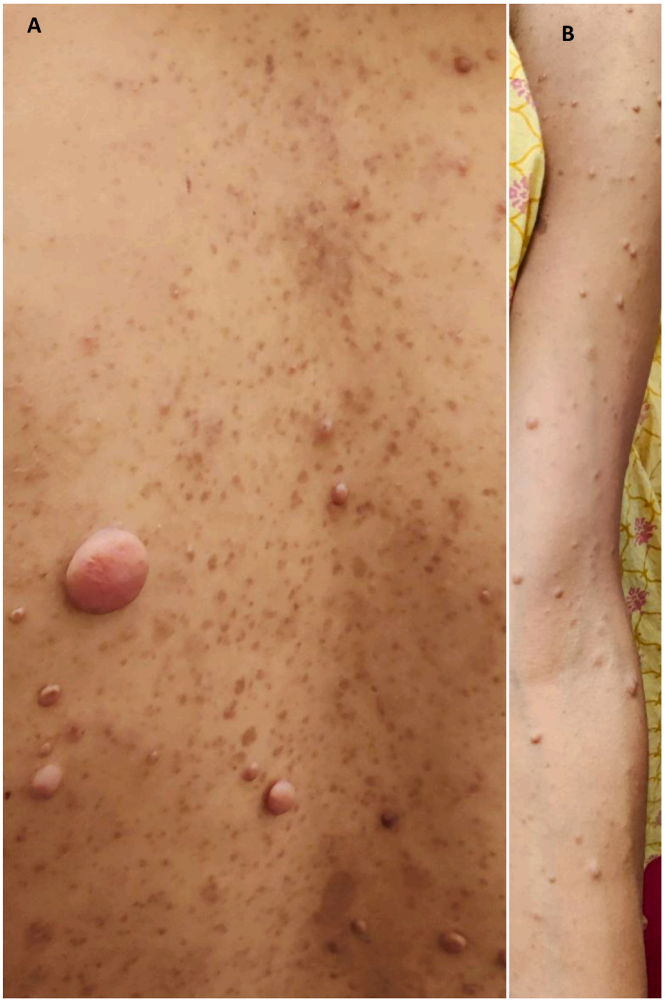

Fig. 2. Clinical Photograph of the mother showing A) café-au-lait spots, and B) cutaneous neurofibromas.

The mainstay treatment of non-infectious anterior uveitis associated with xanthogranuloma is topical corticosteroids that can be slowly tapered over 3–4 months.[17,18] In patients with poor response to topical steroids or with poor compliance, periocular corticosteroid injections have also been used. In recalcitrant cases, the use of systemic corticosteroids and low-dose ocular radiotherapy has also been described[18,19]

4. Conclusion

This case emphasizes that in neonates and infants presenting with bilateral uveitis, spontaneous hyphema, and secondary glaucoma, even in the absence of a well-defined iris lesion, diffuse juvenile xanthogranuloma of the iris should be considered as a differential diagnosis.

Patient consent

Consent to publish this case report has been obtained from the

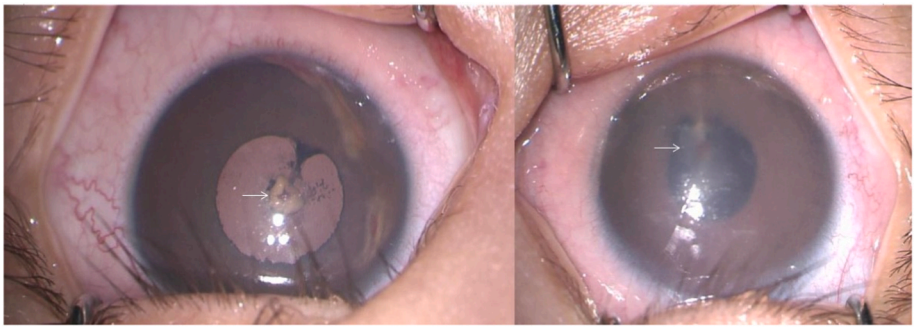

Fig. 3. Anterior segment photograph of the child showing an inflammatory membrane (white arrows) and hyphema in the anterior chamber of the A) Right Eye and B) Left Eye.

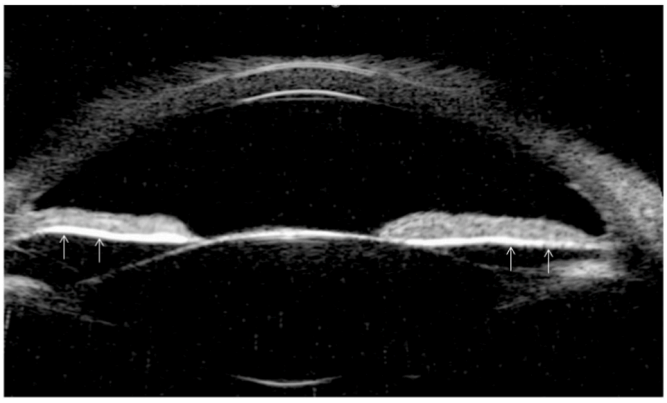

Fig. 4. Ultrasound Biomicroscopy Image of the Right Eye of the child showing diffuse thickening of the iris. The thickening of posterior pigment epithelium is marked by white arrows.

patient(s) in writing. This report does not contain any personal identifying information.

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Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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