Early treatment of juvenile xanthogranuloma of the iris with subconjunctival steroids

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Abstract

Five infants with biopsy proved juvenile xanthogranuloma of the iris were reviewed. Early treatment with subconjunctival injection of steroids and topical steroid drops resulted in regression of the lesion in four patients. One patient, reviewed at the age of 8 months after glaucoma which had developed secondary to the iris xanthogranuloma, had been treated by surgery alone: the visual outcome was very poor.

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Juvenile xanthogranuloma is a rare disorder of infants and very young children of unknown aetiology. It has a tendency to affect the ocular structures and particularly the iris. The ocular involvement was first recognised in 1949 and was described by Blank et al. The first case published in the ophthalmic literature was by Maumenee in 1956.

Early diagnosis and treatment of ocular involvement determine the final visual outcome.

Case reports

Case 1

This patient was referred at the age of 8 months. At 8 weeks of age a few yellowish skin lesions were noted which increased in number over the next month. A dermatologist performed a skin biopsy and the diagnosis of a juvenile xanthogranuloma was made. At about the same time a hyphaema was noted in the right eye. Treatment with topical steroids five times a day was initiated. Five other hyphaemases developed over the next months with cloudiness of the cornea.

On examination the child fixed and followed well with each eye. The right pupil was oval but reacted well. The iris was infiltrated and highly vascularised. An examination under anaesthesia revealed equal corneal diameters in both eyes and normal intraocular pressures. There was a grey-yellow mass in the inferior periphery of the iris and prominent iris vessels were present. Because the diagnosis had already been made by skin biopsy, an iris biopsy or paracentesis of the aqueous was not performed. Methylprednisolone, 30 mg was injected subconjunctivally adjacent to the lesion and the child was sent home on 0.1% dexamethasone drops six times a day for 1 month. There has been no hyphaema over the last 8 months and the iris mass has disappeared. The left eye is patched 1 hour a day. The skin lesions also resolved spontaneously.

Case 2

At 7 months this boy became very photophobic and the right eye was noted to be bloodshot and watering. On examination an extensive vascularised mass of the right iris and a hyphaema were noted. No typical skin lesions could be observed. An examination under anaesthesia revealed intraocular pressures of 20 mm Hg on the right and 9 mm Hg on the left. There was a very friable, pale, and highly vascularised iris mass extending temporally to the pupillary margin. An aqueous tap and an iris biopsy were taken and 30 mg of methylprednisolone were injected subconjunctivally. Afterwards he was treated with 0.1% dexamethasone drops six times a day. Postoperatively he developed a hyphaema which cleared over 7 days. Histopathological examination of the iris biopsy showed an infiltrate of bland histiocytes indicating a juvenile xanthogranuloma (Fig 1). Two months later another examination under anaesthesia revealed normal intraocular pressures and marked regression of the lesion. The subconjunctival steroid injection was repeated and 0.1% dexamethasone drops were continued for another month. The lesion was found to have regressed completely at an examination after 3 and 7 months. With Keeler acuity cards vision was found to be equal.

Case 3

This boy was referred at the age of 8 months. For 2 months he had had a watering left eye followed by a discolouration of the left iris. The mother also noticed the eye was bloodshot from time to time. No skin lesions were observed. He was very photophobic.

Figure 1 Iris biopsy showing an infiltrate of bland histiocytes. There are no features to suggest malignancy, and the appearances are compatible with juvenile xanthogranuloma. Haematoxylin and eosin, ×127.
Intraocular pressures were normal. The right iris was diffusely infiltrated and highly vascularised and there was a hyphaema in the anterior chamber. Fundi were normal in both eyes. She had been treated with 0.1% dexamethasone drops four times a day. We reviewed the child 1 month later. The right eye was very photophobic, the cornea was slightly cloudy, and a hyphaema was still present. No skin lesions could be detected. The next day the child was examined under anaesthesia with biopsy of the iris and an aqueous tap. Methylprednisolone, 30 mg, was injected subconjunctivally and the patient was sent home on 0.1% dexamethasone drops six times a day and betaxolol drops twice a day. Histopathological examination of the anterior chamber fluid and the iris revealed a juvenile xanthogranuloma. The child was reviewed 2 weeks later. She was much less photophobic, there was only a small remnant of a hyphaema, and a slightly cloudy cornea. Another examination under anaesthesia 1 month later revealed normal intraocular pressures, a clear cornea, and a much less infiltrated iris. Methylprednisolone, 30 mg, was injected subconjunctivally and she was discharged on 0.1% dexamethasone drops six times a day and betaxolol drops twice a day. Patching of the left eye for 30 minutes a day was started. The lesion cleared and no further hyphaema appeared.

CASE 5
At the age of 1 week this boy was noticed to have a hazy left cornea with high intraocular pressure. At 4 weeks a trabeculectomy was performed on this eye. Shortly afterwards he developed a sudden eruption of typical yellowish lesions over his body. Biopsy of the skin lesions confirmed the diagnosis of juvenile xanthogranuloma. As the intraocular pressure on the right was raised, two antiglaucomatous operations were performed. The child was referred to us at 8 months of age. There was only light perception. On examination under anaesthesia the eyes were found to be large with a horizontal diameter of about 14.5 mm and an ill-defined limbus.

Fibreoptic transilluminatiion showed that the posterior surface of the cornea was covered with pigment, presumably derived from the iris during the trabeculectomy procedures. There were also trabeculated areas of yellowish infiltrate in the cornea. Intraocular pressures were normal. The fundi could not be visualised but an ultrasound study did not reveal any infiltration. A dose of 500 cGy was delivered to each eye in five fractions over 5 days. For 2 years the ocular findings did not change, but during the third year he developed a retinal detachment in the left eye which became phthisical. The right eye maintained some vision and its intraocular pressure was maintained within normal limits with betaxolol drops.

Comment
Juvenile xanthogranuloma is a rare and mostly benign skin disease of infants and young children of unknown aetiology. The cutaneous lesions are yellow and yellow-brown; they are elevated and sharply demarcated and have a diameter from 3
Early to sites common. Involvement of trunk the series Zimmerman.4 cases younger. age. skin patient and at first disc, retina, a affect the been different of the granuloma cases, from spontaneous hyphaema and, '3 blood hyperplastic vitreous,'3 blood from spontaneous apparently '1 patients lesions retrolental however biopsy the diagnosis of the histopathological examination of the condition of the eye. Early treatment of iris involvement is mandatory because untreated it can lead to uncontrolled glaucoma, corneal blood staining, or amblyopia.

If a hyphaema or secondary glaucoma is not present, a therapeutic trial with topical steroids is suggested.21 Antiglaucoma therapy with acetazolamide can be added if necessary.22 This conservative management is justified because spontaneous regression of the ocular lesion might occur. An excisional biopsy of the lesion if smaller than one quadrant of the iris has been advocated in the past.23 Topical steroids, as in patients 1 and 4, may not prevent recurrent hyphaemias and glaucoma. Supplemental therapy with systemic steroids,24-25 low dose radiotherapy (300-400 cGy),24-29 or a combination of both29 might be necessary. Recently, successful treatment with one supplemental subconjunctival injection of steroids has been reported in a case with resistance to topical steroids.29 With only one supplemental injection of 2 ml of dexamethasone solution (4 mg/ml) and betamethasone suspension (6 mg/ml) in a 50:50 mixture, there was no further bleeding and a reduction of size of the mass.

Long acting periocular steroid injection is a good alternative to systemic steroids to avoid their side effects. The most important side effects of prolonged use of topical steroids are cataract and glaucoma. The risk increases with the amount and duration of therapy.

Subconjunctival injections of 30 mg methylprednisolone adjacent to the lesion were used in four of our five patients. They all presented early without evidence of glaucoma. Afterwards they were all treated with topical steroids. One patient did well after one injection; two patients needed two injections and the other patient three injections. There was regression of the tumour in all cases without recurrence of hyphaemias. None of our patients developed cataract or glaucoma. The last patient presented late with cloudy corneas owing to the secondary glaucoma. He had several antiglaucomatous operations. In this patient low dose radiotherapy was necessary to control further infiltration of the iris by the xanthogranuloma.

From those five cases we can conclude that early recognition of the condition before glau-
coma is present, is necessary for a successful outcome by treatment with subconjunctival injections of steroids. Systemic steroids or low dose irradiation should be considered if periocular steroids are ineffective. Low dose irradiation (300-400 cGy) in fractions of 50 cGy over at least 2 weeks has been advocated in order to prevent a sometimes uncontrollable secondary glaucoma. With this very low dose irradiation no cataract formation was reported. In more resistant cases cataractogenic doses of x ray may be required, but cataract is preferred to severe glaucoma and loss of the eye.