

Unusual presentation of more common disease/injury

Red eye in chickenpox: varicella-related acute anterior uveitis in a child

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Summary

Varicella-zoster virus is a common viral infection of childhood. This report concerns an 8-year-old girl who presented with a 5-day history of a typical varicella rash. She then developed red left eye 'conjunctivitis'. She had no discharge, mild pain and intense photophobia. She was referred to the acute eye clinic after 1 day and she was noted to have acute anterior uveitis. She was treated with gutt atropine 1% for 2 weeks until the inflammation resolved. She had no sequelae.

BACKGROUND

This report highlights that, even though it is thought to be rare, acute anterior uveitis (AAU) is more common than first thought in a child who has chickenpox. Other serious ocular conditions caused by primary varicella infection include keratitis and posterior uveitis. Such children would require ophthalmic assessment and possibly treatment.

CASE PRESENTATION

An 8-year-old girl presented to her general practitioner with a vesicular rash for 5 days; she gave a 1–2 day history of 'conjunctivitis'. She had a red left eye, with no discharge, no foreign body sensation, but a deep ache. She had not noticed a change in her vision but had intense photophobia. She was referred to the acute eye clinic.

On examination she saw 4/4 unaided. Her left pupil was small but reactive with no relative afferent pupillary defect. She had perilimbal injection and tarsal conjunctival follicles. The cornea had a few fine keratic precipitates inferiorly and her anterior chamber had 1+ on cells with 1+ flare. Intraocular pressure was 16. The other eye was normal. Dilated fundus examination showed no vitritis and the retina was normal.

DIFFERENTIAL DIAGNOSIS

She was diagnosed with AAU secondary to chickenpox.

TREATMENT

She was treated with gutt atropine 1% twice daily only for comfort. No gutt steroids were used.

OUTCOME AND FOLLOW-UP

She was seen 3 days later. She was comfortable with only occasional cells in the anterior chamber. At 1 week there was only one cell seen. Atropine was stopped as she was comfortable. At 4 weeks she was comfortable with a white eye and visual acuity of 4/3-1; she had no inflammation. Her fundus was normal. She was discharged from clinic.

DISCUSSION

Varicella is a highly communicable disease of childhood occurring principally in children under 16 years of age.^{1–3} Varicella-zoster virus is a DNA virus of the herpes virus family. It is the cause of two clinically very distinct diseases: varicella (chickenpox) and herpes zoster (shingles).⁴ In contrast to zoster ophthalmicus, where up to 72% of patients have ocular complications, varicella ocular lesions are not common.⁵ Live attenuated varicella virus vaccine has also been a cause of AAU.⁶

In primary varicella, crops of erythematous papules that develop over a 2–6 day period mean there are lesions in varying stages in the same area.² The lesions of chickenpox may affect the lids and lid margins. Healing is usually complete within 2 weeks.²

Children with ocular involvement typically complain of irritation, soreness, photophobia, tearing, redness and lid swelling.⁵ The ocular manifestations include conjunctival, corneal lesions, anterior and posterior uveitis, secondary glaucoma, cataracts, optic neuritis and optic atrophy, and internal ophthalmoplegia.^{1–12}

Corneal lesions usually appear 2–3 days after the onset of the skin vesicles.^{2,5} In the cornea, varicella can cause superficial punctate keratitis, stromal disciform keratitis or an interstitial keratitis.^{1,2,5} Atypical dendrites have also been reported. Corneal involvement is often only mild punctate staining of the cornea without dendrite formation that lasts only a few days.⁵ Corneal lesions usually heal without treatment over 12 days leaving no visual impairment.^{5,9,13}

AAU is usually considered a rare finding in varicella infection,^{3,5,8,9,11} but some postulate that it is probably common in the early acute stage of chickenpox if carefully looked for.^{5,9,11,14}

In one study of 24 children referred to an ophthalmologist with varicella, 62.5% had vesicular lesions of the lids, 33.3% had conjunctival involvement, 8.3% had corneal complications and 25% had uveal involvement.⁵ The AAU was noted 3–5 days after the appearance of the vesicles and lasted 5–25 days. All but one patient was treated with a

topical steroid antibiotic combination for 10–14 days. All cases resolved without complication.⁵ Another prospective study included 82 consecutive children with chickenpox seen by five paediatricians.¹⁵ Altogether, 25% of children without pox on their lids were found to have AAU. Follow-up of children with objective evidence of uveitis revealed no long-term sequelae.¹⁵ In a third prospective study of 100 children with chickenpox, 21% of patients had ocular involvement excluding eyelid rash.¹⁴ A varicella eyelid rash was present in 28.6% of patients with ocular involvement and 13.9% without eyelid involvement. Of the 21% with ocular findings, 38.1% had conjunctivitis, 57.1% had anterior uveitis and 4.8% had disciform keratouveitis.¹⁴ There was no significant association between severity of chickenpox and severity of ocular involvement or between eyelid rash and ocular involvement.¹⁴

There is normally a good visual outcome post-infection.^{1 2 5 9 14 15} It has been suggested that those with corneal lesions and those complaining of photophobia should receive early ophthalmic assessment as they are more likely to have ocular involvement.^{5 15} As the prognosis and sequelae of ocular involvement in varicella infection is good, only those patients with ocular signs and symptoms need be referred for an ophthalmologic examination.¹⁴ In most reported cases, gutt steroids with or without antibiotics and cycloplegics are used but, as in our case report, some argue that steroids are not required for varicella except in interstitial keratitis.^{1 8 9}

Pavan-Langston summarised her treatment of ocular varicella as¹:

1. Good hygiene, cool compresses, low illumination.
2. Cycloplegics for uveitis or keratitis.
3. Topical antibiotic for surface vesicle or ulcers.
4. Antivirals are not established as useful.
5. Cautious use of topical steroid for non-ulcerative interstitial keratitis.

This treatment is very similar to how we treated our patient who has had no long-term sequelae.

Learning points

- ▶ Ocular involvement is frequent in children with varicella; 12–25% of children with varicella may develop AAU but it is usually mild.
- ▶ Most are self-limiting and may not require treatment with steroids, but cycloplegia is often useful.
- ▶ Varicella may cause more serious ocular complication but these are rare.
- ▶ Significant lid swelling, discomfort, irritation, reduced vision, perilimbal injection or photophobia should warrant an ophthalmologic review.
- ▶ Most children with primary varicella have no long-term ocular damage.

Competing interests None.

Patient consent Obtained.

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