

Introduction

How do we know that a red eye is not just another case of conjunctivitis? GPs, optometrists and nurses are faced with this question every day and their decision is important. Registered nurses need to learn to distinguish between conjunctivitis and more serious sight-threatening conditions, in order to provide effective patient treatment, education and health promotion. Nurses need to understand the importance of not delaying a review for patients with potential serious eye conditions. This case study examines the care of a patient presenting with a red eye, previously treated for conjunctivitis by a GP. This patient was later diagnosed and treated for anterior uveitis. This case study will further explore anterior uveitis and its associated systemic diseases, while also highlighting the importance of the nursing role in treatment, education and health promotion.

Patient History

- **Patient details:** Mr P, 38yo male, DOB: 05/02/69.
- **Family history/Background:** No relevant family history of any eye problems, this gentleman is of African American origin.
- **Presenting complaint:** Aching right eye, extremely sensitive to light, watery in the morning and slight loss of vision in that eye.
- **Medications taken:** None.
- **Medical/Surgical history:** None.
- **Allergies:** None
- **Past ophthalmic history:** Left eye treated by a GP 4 years ago with same symptoms.

Assessment

Patient history was taken and presenting complaint was recorded. This was done by using a simple language, active listening and asking open-ended questions. The importance of obtaining a full and precise patient history of a complaint can not be

overestimated in helping an ophthalmologist obtaining their diagnosis (Goldblum 2004, 20). Visual acuity was measured without glasses; R) 6/9, L) 6/6. The right eye improved with a pinhole to 6/6. However, on examination his right pupil was more constricted than the left, though still round and reactive to light. Other significant findings was a “ciliary flush”, watery eye and general scleral redness. Watering is caused by irritation of the trigeminal nerve by the lacrimal gland (Marsden 2006, 402). On upper lid eversion there was no foreign body observed. There were normal extraocular movements; however pain was present with right eye movement.

Doctor’s assessment and Diagnosis

Diagnosis of anterior uveitis will require evaluation of patient’s medical history, presenting symptoms, elements of a comprehensive eye and vision examination including a dilated examination. On further examination by a doctor via slit lamp, the patient had:

-Small to medium keratic precipitates. Keratic precipitates are cellular deposits on the corneal endothelium (Marsden 2006, 402). As per Kanski (1990, 13), distribution and characteristics of these precipitates may provide a clue as to possible aetiology of the uveitis. Marsden (2006, 402) supports this.

-+3 of aqueous cells. Cells were graded according to number observed in the oblique beam. Slit lamp was set on maximum beam 3mm long and 1mm wide.

- Moderate aqueous flare was recorded after the beam of the slit lamp was passed through the plane of the iris.

-There were no iris nodules, indicating this is non-granulomatous uveitis (Kanski 1990, 137).

-Intraocular pressure (IOP) in both eyes was 12 and no posterior synechiae adhesions between the anterior surface of the lens and iris were observed. If this was to occur, it would obstruct the flow of the aqueous resulting in build up of pressure in posterior chamber (Marsden 2006, 403). IOP was measured by a slit lamp mounted tonometer with a fluorescein lidocaine drop administered prior.

-There were no pigment or fibrin deposits on the lens thus excluding synechiae at this point. There was no cataract noted. Cataract can be a complication associated with anterior uveitis (Alexander 2004, 14).

- Vitreous was clear of RBC. Red blood cells can indicate retinal detachment.
- Macula was also assessed for evidence of cystoid macular oedema, as this can be one complication of anterior uveitis.

As this is possibly second episode of anterior uveitis, further blood testing was undertaken. Marsden (2206, 404) agrees by saying that 25% of the patients have idiopathic uveitis and they should be further tested if this is a second episode, or if there are significant systemic factors identified.

The inflammatory cells in uveitis include leukotrienes, kinins, prostaglandins, leucocytes, serotonin and complement. These mediators together with mast cells are involved in an inflammatory process (Marsden 2006, 403). This results in our diagnosis of anterior uveitis: ciliary flush caused by vessels dilatation, increased vascular permeability which causes aqueous flare and release of aqueous cells into the eye leading to our +3 aqueous cells. Therefore, this in fact is the diagnosis of anterior uveitis and not just a simple case of conjunctivitis.

Differential diagnoses

Health professionals such as doctors and nurses have to be aware that there are other diseases that can present with an inflammatory response which can be easily mistaken for anterior uveitis. There are three types of uveitis: anterior, intermediate and posterior and they can be acute or chronic (McCluskey 200, 555). Other differential diagnoses include:

- Posterior uveitis with spill over into AC (Kunimoto, Kunal and Makar 2004, 290),
- Drug induced uveitis,
- Traumatic uveitis,
- Uveitis secondary to scleritis,
- Uveitis due to tight contact lens which can cause red eye, corneal edema and epithelial defect,
- Infectious keratouveitis and endophthalmitis,
- Swartz Syndrome,

-Tumours, like retinoblastoma in children.

Anterior uveitis is often idiopathic but it can also be associated with some systemic diseases such as juvenile chronic arthritis, Behcet's Disease, sarcoidosis, ankylosing spondylitis, Reiter's Syndrome and Chron's Disease and ulcerative colitis.

One important systemic disease that is worth considering is HLA-B27 antigen. According to Marsden (2006, 412) about 50% of the patients with anterior uveitis express this molecule and many of the patients have other immune disorders as well.

Management

Management of this patient's anterior uveitis required two primary goals to be achieved. One is to immobilize the iris and ciliary body (to prevent it from sticking) and to reduce pain. Other is to decrease inflammatory process.

This patient was put on Prednefrin forte (prednisolone acetate 10 mg, phenylephrine hydrochloride 1.2mg per 1 ml) drops hourly and Atropine (atropine sulphate 10mg/ml, hypromellose 3mg/ml) drops three times a day. Atropine has a mydriatic and cycloplegic effect and was used to prevent and break down the adhesion between the lens and iris. The cycloplegic effect in atropine also reduces iris sphincter spasm reducing patient's pain. Prednefrin forte was used to suppress the inflammatory response within the eye. It was tapered off over 6 weeks to reduce the risk of rebound inflammation. This is the most common management in most cases of uveitis (Marsden 2006, 408).

Mydriatic/Cycloplegic and steroid drops are the most discussed treatment regime in anterior uveitis. George (2007, 8) discusses nongranulomatous uveitis, medical management involved and includes cycloplegia and corticosteroids as mainstream treatment. This is also supported by Kunimoto, Kanitkar and Makar (2004, 293), Watkins (2006, 291), McCluskey (2000, 557) and Marsden (2006, 407).

Anterior uveitis may be part of a systemic syndrome and exploring this patient's medical history and performing further investigation is critical. By failing to do so we might miss a systemic process. The patient was sent off for some additional blood

tests to try and rule out other problems and confirm inflammatory process. Blood test included:

-Angiotensin converting enzyme, which can be increased in patients with active sarcoidosis. The patient was within normal limits. However, a normal result does not exclude diagnosis of sarcoidosis, it just reduces the likelihood.

-C-Reactive protein was slightly high and can indicate acute infection or inflammation.

-Rheumatoid factor (RF) was not elevated. However, patients' with rheumatoid arthritis may not show raised RF activity for months.

-ANA screen was negative, which negates a diagnosis of systemic disease like rheumatism or lupus.

-ENA screen was negative, which again cannot exclude the diagnosis of SLE or other rheumatic conditions, just reduces the likelihood.

-Full blood counts were within normal limits.

-HLA-B27 came back positive which suggests that there is a strong connection between the result and anterior uveitis. As per Marsden (2006, 412) about 50% of patients with acute anterior uveitis express this molecule. There is a strong association with recurrent uveitis, ankylosing spondylitis, Reiter's syndrome, inflammatory bowel disease and psoriatic arthritis as well (Alexander et al.2004, 4).

Even though this patient was not positive for some systemic diseases that we have tested him for, he needed to be further tested and assessed so he was referred to a rheumatologist.

Patient Education

Treatment compliance is of utmost importance when treating anterior uveitis. Continued inflammation may lead to permanent damage to the trabecular meshwork and glaucoma. Cataract and macula oedema can also form (Khaw and Elkington 1999, 10). The risks associated with non-compliance were therefore explained to the patient together with possible side effects of the treatment itself. Understanding of the treatment will help the patient to be more compliant with attending the clinic and going for further testing (Marsden 2006, 409). The patient was taught how to instil eye drops and was given time to practice and build his confidence. He was also given

written instruction on drops regime. Glanville (2000, 59) states in her article that written medication instruction in addition to verbal ones were found to improve compliance as the most common reason for error was forgetfulness.

Other information was explained to the patient, including the meaning of his blood test results and possible association between HLA-B27 to some systemic diseases. Since the combination of having a systemic disease and ocular disease can be very devastating to the patient, he was provided with our clinic number as a support network if he had any further questions or concerns.

Assessment of the treatment

The patient was closely followed during his treatment with drops regime that gradually reduced as the inflammation resolved. We reviewed the patient after 3 weeks of treatment to ensure that the conditions had resolved. At the final review, the patient was asked for his feedback about the care he received during these past few weeks. His response was very positive as he felt that he was well informed during his treatment and that there was a lot of support from our side. In general the patient received effective treatment as his anterior uveitis resolved within six weeks. He was well informed and cared for duration of his disease.

Discussion

The patient was positive for HLA-B27, giving him a greater risk of encountering anterior uveitis again. The patient should have been educated on importance of recognising this disease and commencing treatment as soon as possible at the first sign of recurrence. Watkins (2006, 291) in her article agrees that the recurrence of anterior uveitis is very common and that adequate and rapid treatment is essential for vision preservation. George (2005, 12) also agrees by saying that all patients with newly diagnosed HLA-B7 disease should be instructed to keep a bottle of steroids handy and instil the steroid at the first sign of an iritis flare. The patient should then see their ophthalmologist immediately to confirm or negate the presence of iritis.

When reviewing the treatment, there is another technique that could have been implemented to improve patient management. Marsden (2006, 407) suggests that in

anterior uveitis many patients find applying heat extremely soothing and that this actually may aid dilatation itself. This is supported by Watkins (2006, 291) who says that dark glasses, analgesia and applying warmth can help ease the pain in patients with anterior uveitis.

African American people have a greater chance of having sarcoidosis and systemic lupus associated with anterior uveitis (Kunimoto, Kanitkar and Makar 2004, 292). This is also supported by Alexander (2004, 11). Some of the signs of sarcoidosis can be various skin rashes including red lumps on the legs or erythema nodosum and purple skin patches. Sarcoidosis can also present itself with joint symptoms. Joint symptoms can also be related to rheumatic disease, which is another systemic disease associated with uveitis. Marsden (2006, 404) also agrees that there should be a targeted systemic physical assessment of joints and skin. The patient should have been assessed physically for these symptoms, even with blood screening for sarcoidosis. This would not change course of our treatment, but would provide useful guidelines to aetiology of the disease quicker.

Conclusion

Anterior uveitis can be a sight threatening condition that must be distinguished from other red eye diseases, such as conjunctivitis. Prompt treatment with topical steroid and mydriatics/cycloplegics is crucial in order to prevent further complications. When a systemic aetiology is suspected, a patient should be reviewed further and referred to relevant health care providers for evaluation and treatment.

Nurses play an important role in recognising various ophthalmic conditions such as anterior uveitis and are actively involved in the management of these patients.

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