

SSC 5c ELECTIVE PLACEMENT REPORT

1. What are the prevalent ophthalmic problems/diseases/conditions seen and how do they present?

There are many conditions that affect the eyes and the prevalence of each can vary from place to place. Based on paediatric patients in the city of New York, strabismus is a common problem. This is when the eyes appear misaligned, and eye movements are uncoordinated. This coordination is necessary to maintain single vision hence impairment can result in double vision.

Strabismus can also be referred to as a squint or a tropia. This term can be divided into two types: paralytic and non-paralytic.

Non paralytic squints

A non paralytic squint usually starts in childhood and needs ophthalmological assessment as vision can be damaged if left untreated.

This type of squint can be diagnosed via two screening tests but can prove difficult in uncooperative patients such as young children. The tests are as follows:

a) *Corneal reflection*: assess whether the reflection of a bright light falls centrally and symmetrically on the cornea. Asymmetry implies the presence of a squint.

b) *Cover test*: when one eye is covered the uncovered eye takes up fixation demonstrating a squint. Movement of the covered eye upon removal of the cover implies a latent squint.

A non paralytic squint can further be subdivided into two categories: Esotropia and Exotropia

Esotropia is where the eyes are convergent and the patient appears cross eyed. This is the most prevalent amongst children and often there is no cause. Hypermetropia (long-sightedness) is also a common cause of this type of squint. Improper visual stimulation can result in structural changes in a child's developing brain. This can cause a condition known as Amblyopia which means reduced vision in one or both eyes caused by this visual deprivation in childhood.¹

Exotropia is where the eyes are divergent and the patient gets the appearance of one eye turned out. This is less common than esotropia and tends to develop in much older children and is often intermittent. Many patients are able to control the deviation of their eyes, and the appearance often manifests when patients are tired and unable to control the eye.¹

Patients can sometimes appear to have a form of tropia when in fact it is the prominent epicanthic folds of the eyes that make it seem that way. Children outgrow this feature with age and no treatment is required. This is referred to as a **Pseudosquint**.¹

Management

Treatment should ideally be started as soon as a squint is noticed. The three main treatment approaches are as follows:

- a) Optical: correction of refractive errors after the appropriate assessment and exclusion of more extensive signs such as macular scarring, optic atrophy and retinoblastomas. Glasses are provided to aid correction.¹
- b) Orthoptic: the patient's good eye should be patched to encourage the use of the weaker eye.
- c) Operations: can be performed to re-align the eyes. This is done by resection and/or recession of the eye muscles involved.¹

Paralytic squints

With paralytic squints, the patient experiences diplopia (double vision) which is worst when looking in the direction of the paralyzed muscle. Different cranial nerves can become affected, and the manifestation of the squint depends on this. The different types are as follows:

Third nerve palsy: involves ptosis, reduced muscle tone and deviation of the eye down and out.¹

Fourth nerve palsy: there is double vision and patients often hold their head tilted which is referred to as ocular torticollis. This can be seen easily when looking at previous pictures of patients. The eye is deviated up and held in adduction. As the superior oblique is paralysed the patient cannot look down and in. Trauma and diabetes both contribute to 60% of cases.¹

Sixth nerve palsy: in this type of palsy there is diplopia in the horizontal plane. The lateral rectus muscle is paralysed and so the patient cannot move the eye laterally from the midline. Causes include: basal skull fractures, multiple sclerosis and raised intracranial pressure secondary to a brain tumour.¹

2. How are the health services for ophthalmic patients organised and delivered? (How is this different from the UK?)

There are many similarities and differences in the health care system between the UK and New York City (USA).

Referrals:

In the UK, any patient that has an eye related problem is referred to an ophthalmologist by their general practitioner. Without this referral, patients are unable to see specialists unless they have private medical insurance, in which case they can arrange their own appointments based on a fee.

In the USA, the system is much more complex and medical care depends upon the different types of medical insurance patients purchase.

There is a government run medical insurance known as Medicaid, which is a system in place for those who cannot afford medical care. Patients are usually referred to Ophthalmologists via their primary care physicians with this scheme and payments for the cost of consultations and treatments are handled by Medicaid.

There are also private medical insurance companies such as HMO. Some private companies require referral for treatment where others offer a direct service where patients can pay the appropriate fees and see the physician.

However it is difficult to elaborate on the health care system in great detail as it is highly circumstantial and case based.

Accident and Emergency:

In the UK, when patients are brought to accident and emergency, they personally are not required to pay any fee. However the primary care trust to which they belong do get charged an average fee of £100 just for attending, regardless of whether they are admitted or not.

In the USA, admission to the emergency room does require a fee. Once again depending on the type of medical insurance an individual has, either the insurance company will cover the costs or the patient will have to. Some insurance companies may pay for a particular 'emergency' where as others may not see the same situation as an emergency. However saying this, any patient that is admitted to the emergency room must be treated regardless of the type of cover they have, this is a doctors duty.

Insurance policies vary in both cost and coverage in the USA, and the same applies to UK private health insurance.

3. Describe, compare and contrast the methods of strabismus surgery

Strabismus surgery involves dealing with the affected muscles of the eye. It is a day case which takes around 40 minutes or so to complete if there are no complications. This type of surgery does not require removal of the eye as the eye muscles are very superficially positioned.

The eye muscles usually undergo resection or recession. A resection is when the muscle is shortened in order to strengthen it. A recession is carried out when the muscle needs to be weakened.

The initial step is to make an incision in the clear membrane that covers the eye known as the conjunctiva. There are many different types of incisions used but the most commonly used are the limbal and fornix incisions. The Swann incision is also widely used. The muscle is exposed and is "locked with sutures before being cut off the original point of insertion. This is done to prevent the muscle slipping to the back of the eye. Depending on whether the muscle is being resected or recessed, the new position is calibrated with a measuring device and sutured back on.

In some cases adjustable sutures are used where temporary suture knots are tied. These are used in cases when precise surgical results are not always possible. In such cases, the patient's eyes are evaluated on awakening from anaesthesia. Adjustments can be made if needed or else the sutures can be tied permanently, whilst the patient is awake under some local anaesthetic.

The sutures are dissolvable and dissolve within a few days to weeks depending on where the sutures are. The patient does not feel any pain but there is redness with the feeling of grittiness to the eye.

This type of surgery is recommended earlier in life so that children have a better chance of developing binocular vision and depth perception. Patients may still require further corrective surgery in the future despite appropriate surgery.

4. Gain clinical experience/ exposure

Ongoing assessment

Bibliography

1. Collier, J., Longmore, M., Turmezei, T. et al. Oxford Handbook of Clinical Specialities. 8th ed. New York: Oxford University press, 2009.