The subject of squint (strabismus) is one that many practitioners approach with great trepidation, sometimes with justification. If, however, it is approached systematically much of the myth and mystery can be dispelled.

What is a squint? The word is used in many different ways. Some people mean by squint that the eyelids are screwed up; the patient is creating a pinhole effect to reduce the effect of any refractive error in order to see better. The true definition of squint, however, is that one of the eyes is not directed towards the object under scrutiny. It should be noted that when the eyes converge for close work there is no squint.

**Why is a squint important?**

- **A squint may show that the acuity of the eye is impaired** because of ocular disease. The eyes are kept straight by the drive to keep the image of the object being viewed in the centre of the macular area. The tone in the extraocular muscles is constantly being readjusted to maintain this fixation. If the vision is impaired in one or both eyes this constant readjustment cannot occur and one eye may wander. This is important, as the cause of impaired vision may be eminently treatable, as in the case of a cataract or a refractive error. It is especially important in a child because—unlike an adult—a child’s vision may be irreversibly impaired if treatment is not given in time: the visual pathway on the side of the impaired eye fails to develop normally, causing amblyopia or a “lazy” eye. It is important to realise that a child does not complain that the sight of one eye is poor, and the prevention of permanent blindness in a child’s eye may require treatment as simple as a pair of glasses to correct a refractive error.

- **The squint may itself cause amblyopia in a child**—Misalignment of the eyes may be the primary problem; presumably double vision results. In a child the vision of one eye may be suppressed to avoid this diplopia and the visual pathways then fail to develop properly. This leads to amblyopia of the eye that is otherwise organically sound.

- **A squint may be a sign of a life threatening condition**—Squint is a common presentation in a child with a retinoblastoma. The resulting squint is non-paralytic and therefore the angle of deviation is the same irrespective of the direction of the gaze. The eye deviates because vision is impaired and this may occur in any eye with visual impairment. A squint may also be caused by a sixth nerve palsy resulting from a tumour that is causing raised intracranial pressure. In this case the squint will be paralytic and the angle of squint will vary depending on the direction of gaze. Myasthenia gravis may first present with squint and diplopia.
How can a squint be detected and assessed clinically?

Adults may complain of deviation of the eyes or of diplopia. Children are often brought because their parents or relatives notice the eye or eyes turning in or out, or there may be a family history of squint. Children may also be referred from vision screening programmes.

History

A family history of squint is a strong risk factor in the development of squint, and if there is any doubt the child should be referred. Children with disorders of the central nervous system such as cerebral palsy have a higher incidence of squint than normal children. Problems during birth and retarded development also increase the likelihood of a squint. The parents' visual problems should be ascertained, particularly large refractive errors.

The earlier the age of onset the more likely is the need for operation. A constant squint has a worse visual prognosis than one that is intermittent.

Examination

- **Check the visual acuity**—If it does not correct with spectacles or a pinhole ocular disease or amblyopia must be suspected. This is particularly important in children as the amblyopia or ocular problem must be treated immediately if the sight is to be preserved. Visual acuity in infants is difficult to assess. A history from the mother is useful to find out whether the baby looks at her and at objects. If, however, only one eye is affected the visual problem may not be apparent. If the sight is poor in only one eye, covering the good eye may make the child try to push the cover away. In an older child small coloured sweets may be used to get a rough estimate of acuity. The older child may also be able to match letters.

- **Look at the position of the patient's eyes**—Large squints will be obvious. Wide epicanthic folds may give the impression of a squint (pseudosquint), but children with wide epicanthic folds may still have true squints.

- **Look at the corneal reflections** of a bright light held in front of the eyes. Note the position of the reflections; they should be symmetric. This test gives a rough estimate of the angle of any deviation.

- **Cover tests**—There are two types of cover tests that help to reveal a squint, especially if it is small and the examiner is unsure about the position of the corneal reflections. In the cover/uncover test one eye is covered and the other is observed. If the uncovered eye moves to fix on the object there is a squint that is present all the time, a manifest squint. The test should then be carried out on the other eye. A problem arises when the vision in the squinting eye is reduced, and the eye may not be able to take up fixation. This emphasises the need to test the vision of any patient with a squint. If the cover/uncover test is normal (indicating no manifest squint) the alternate cover test should be done. In this test the occluder is moved to and fro between the eyes. If the eye that has been uncovered moves then there is a latent squint.

- **Test eye movements in nine directions of gaze**—If there is a paralytic squint, the angle will vary with the direction of gaze. An adult will often say that the separation of the images varies.
Management

Paralytic squints usually occur in adults. Underlying conditions such as raised intracranial pressure, compressive lesions, and diseases such as diabetes, hypertension, myasthenia gravis and dysthyroid eye disease should be excluded. If diplopia is a problem one eye may need to be occluded temporarily—for example, by a patch stuck to the patient’s spectacles. Alternatively, temporary prisms may be stuck on to the spectacles to eliminate the diplopia. Operation on the ocular muscles may be indicated if the squint stabilises. If an operation on the muscles either is not appropriate or proves inadequate permanent prisms may be incorporated into the spectacle prescription.

Non-paralytic squints usually occur in children. If the squint is caused by disease in the eye that is itself causing reduced vision and subsequent deviation of the eye—for example, cataract—this needs to be treated. Types of treatment for non-paralytic squints are listed below.

- **Examine the eye with a pupil dilating agent (mydriatic) and a ciliary muscle relaxing agent (cycloplegic)—**Any overt abnormalities of the eye should be noted. The reason for dilating the pupil is to exclude retinal disease such as retinoblastoma, and the cycloplegic allows a check for any refractive error. Adequate examination of the peripheral fundus and refraction require dilatation of the pupil and special equipment. Nevertheless, cataracts and other opacities in the media, and the white reflex that is suggestive of retinoblastoma, may readily be checked for by looking at the red reflex without dilating the pupil.

- **Spectacles—**There are two main indications for prescribing spectacles. Firstly, they should be given to the child who is hypermetropic (longsighted) and has a convergent squint. Normally when the ciliary muscle contracts the lens becomes more globular to allow the eye to focus on close objects (accommodation). This is linked to convergence so that both eyes can focus on the close object. If the child is hypermetropic the ciliary muscle has to contract strongly for the child to be able to focus on a near object. This excessive accommodation may cause overconvergence so that a squint occurs. This is termed an accommodative convergent squint. The use of hypermetropic glasses in this case relaxes the ciliary muscles and removes the drive to overconverge. Occasionally long acting drops that contract the ciliary muscle (such as ecotiohiope iodide) may be used. These may, however, cause iris cysts and they should always be stopped before a general anaesthetic as they may impair recovery from muscle relaxants.

Secondly, spectacles are suitable for the child who has a refractive error, particularly if this is unilateral. As a consequence the image on the retina will be indistinct. The visual pathways will then not develop properly (resulting in amblyopia). Such children may not develop a squint until the...
vision is poor in one eye. This point emphasises the need to check the visual acuity. The use of glasses may therefore prevent severe visual loss in an otherwise “normal” eye—hence the need to refract every child with a squint or impaired vision.

- **Oclusion**—This is the familiar patching of one eye to encourage the development of the visual pathway of the “bad” eye. If the development of one pathway has been retarded by a squint or a refractive error this pathway can be stimulated if the “good” eye is patched. This can, however, only be done for a limited period, and there is a danger of the good eye itself becoming amblyopic. The underlying problem must, of course, be corrected in the meantime. The vision of the good eye may also be “blurred” with drops such as atropine.

- **Orthoptic treatment**—A series of visual exercises may encourage the simultaneous use of both eyes.

- **Operation**—The ocular muscles can be repositioned to straighten the eyes. Spectacles are prescribed and occlusion performed before operation because an eye is more likely to stay straight if the vision is good.

The effectiveness of treatment in reversing amblyopia decreases as the child gets older. Once the child is about 8 or 9 years old the visual system is no longer flexible and amblyopia cannot be reversed. The child may, however, still need glasses to correct refractive errors, and an operation may be required if there is a cosmetic problem.

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**ANY QUESTIONS**

What is the risk of coning during a lumbar puncture on a patient suspected of having meningitis or subarachnoid haemorrhage if a computed tomogram has not been obtained?

The risk of coning cannot be quantitatively assessed and in practice is really quite small. The crucial factor is the presence of cerebral oedema, especially with overwhelming infection, intracranial haematoma, or abscess. It is possible to minimise the risks so as to obtain an early diagnosis. There are certain rules of thumb.

With suspected subarachnoid haemorrhage a lumbar puncture should not be performed in the presence of deteriorating levels of consciousness, a major hemispheric defect, or signs of an incipient pressure cone. It is necessary a definitive diagnosis may have to be delayed until the patient’s condition becomes stable and arrangements can be made for transfer to a neurosurgical unit. Early contact with such a unit is necessary if the differential diagnosis from encephalitis or meningitis is unclear or if the clinician is unhappy to proceed—for example, because of the presence of papilloedema. Most clinicians respect the presence of papilloedema as of little importance in managing either subarachnoid haemorrhage or meningitis. In other circumstances, with subarachnoid haemorrhage grades I–III (Hunt and Hess), a diagnostic lumbar puncture without measuring the cerebrospinal fluid pressure is regarded as safe, and the computed tomogram, though helpful if positive, cannot always be relied on to establish a diagnosis of subarachnoid haemorrhage.

Similar criteria apply to meningitis in adults. Repeated lumbar punctures should be avoided because of the possible presence of an intracranial abscess. The question of lumbar puncture in paediatric practice is hotly debated, but the procedure is essential when the diagnosis is uncertain; when the organism has not been identified; or to forestall difficulties with an unusual organism or strain, antibiotic resistance, or hypersensitivity reactions. If there is a meningococcal rash or in epidemics when the organism is already known confirmation by blood and swab cultures may be sufficient. In expert hands an ultrasound scan can be as satisfactory as a computed tomogram in the newborn. A routine lumbar puncture is considered safe in a fully alert child but when doubt exists—for example, with a child who has had fits—a bolus of mannitol (2 g/kg birth weight, intravenously) can be given before the cerebrospinal fluid is examined. With an obtunded child or one who will need intensive care treatment, early liaison with a paediatric centre is essential so that the child can be transferred and a catheter inserted into the ventricles via an open fontanelle or a surgical burr hole. The pressure can then be monitored and, unless the ventricles are like slits, cerebrospinal fluid can be withdrawn from the ventricular system rather than from the lumbar subarachnoid space. —E M R CRITCHLEY, consultant neurologist, Preston


What treatment is advised for an overweight 40 year old woman who despite antibiotics and local antiseptics has had persistent skin infections in different areas, more recently as abscesses in the axillae?

Chronic discharging nodules often diagnosed as boils or abscesses, especially in the axillae, groins, and natal cleft, are usually due to hirudinaditis suppurativa, a disease of apocrine glands. Most dermatologists regard it as apocrine acne. Since antiseptics and antibiotics have failed to give relief to this lady perhaps this is the correct diagnosis rather than recurrent furunculosis.

Although bacterial infection may be present in this condition, the flora is varied and any infection is usually secondary to the primary disease. Nevertheless, as in cystic acne vulgaris, long term, wide spectrum antibiotic treatment is frequently beneficial. Oxtytracycline 1 g daily for six months or even a year or more is the preferred initial treatment, though if the discharge persists after two months then a change of antibiotic is recommended. Erythromycin 1 g daily, minocycline 100 mg daily, doxycycline 50 mg daily, or clindamycin 150 mg daily—be on the lookout for clostridial pseudomembranous colitis—can be tried. The usual reason for failure of antibiotic treatment is that it is not continued long enough.

If a course of antibiotic therapy of proven ineffectiveness a four month course of isoretinoin, a vitamin A derivative used in severe cystic acne vulgaris, may be justified. In the United Kingdom this drug is available only from hospital pharmacies and usually prescribed only by dermatologists. Apart from having several unpleasant side effects and being teratogenic it is costly so it is given only when the disease is severe and unresponsive to oral antibiotics.

Should oral treatment fail to suppress the discharge as a last resort surgical intervention may be considered. Either incision, drainage, and marsupialisation of the cystic nodules or total excision of the affected area may be justified. Although the disease itself leads to prominent scarring, surgical remedies frequently lead to more unsightly scars so the decision to seek surgery needs to be carefully weighed against the distress of the disease. —ALAN B SHANK, consultant dermatologist, Shrewsbury