Plastic and Reconstructive Surgery

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CONGENITAL ABNORMALITIES

Hypospadias

Hypospadias is a congenital anatomical disorder of the penis in which the urethral meatus fails to reach the tip of the glans. It occurs in one in every 300 live male births. Subglandular or coronal siting of the urethra is the commonest form, followed by the distal and mid-penile forms and then the much rarer penoscrotal, scrotal, and perineal forms, in which the deformity can be so severe that identification of sex is difficult. The more proximal the urethral orifice the higher is the incidence of associated genitourinary anomalies requiring investigation and treatment.

The anatomical fault is not only of the urethra itself but also of an absent corpus spongiosum between the orifice of the urethra and the base of the glans penis, which is substituted by a fan shaped sheet of fibrous tissue (chordee) to give an abnormal distal curvature that is more obvious on erection. Failure of development of the prepuce on the ventral surface gives a hooded appearance to the penis and exaggerates the ventral curvature. Thus the signs and symptoms of hypospadias are of ventral bowing of the penis and spraying of the urine between the legs, which forces untreated older boys to crouch to pass urine. Chordee is absent or insignificant, however, in the glandular and coronal forms, permitting normal erections and tolerable spraying.

The aim of treatment is to construct in as few operations as possible a penis that looks and functions as normally as possible and has a natural urethral orifice at the tip of the glans, allowing the boy to start primary school without disadvantage. Surgery may not be necessary at all in glandular hypospadias, but, if indicated, the condition deserves a simple meatoplasty as a day case or overnight stay. Coronal hypospadias is treated in one operation, using local flaps to create the new urethra and its covering. More proximal forms of hypospadias commonly require a procedure in two stages: in the first the chordee is meticulously excised before introducing new skin to the defect either as a free, full thickness, prepuce graft or as a prepuce flap that is allowed to "settle" during an interval of six months; in the second a urethroplasty is done.

At present there is a tendency to attempt repair in one stage, using prepuce and penile flaps, but, regardless of the technique, the child remains in hospital during each operation for not less than 10 days with an indwelling catheter or temporary perineal or suprapubic urinary diversion until the dressings, sutures, and catheters can be removed.

The main complication of repair of hypospadias—namely, penile urethral fistula (incidence seldom greater than 10%)—may unfortunately obstruct surgical goals, in which case further surgery to close the fistula is necessary. As residual prepuce skin may be used for repair of the fistula any religious, racial, parental, or professional pressures for formal circumcision must be resisted until a watertight urethra has been constructed to the tip of the penis.

Haemangiomas

Haemangiomas are the commonest tumours of infancy, occurring in 3% of all neonates and 12% of all one year old children. The described varieties have acquired many confusingly impressive eponyms and poetic titles, but essentially the appearance, distribution, and behaviour of a haemangioma depend on the types of vessels it contains, the characteristics of flow within them, and the level at which the vascular complex lies in the skin and subcutaneous tissues.

The portwine stain is a consequence of abnormal intradermal arterial and venous capillaries lying in the facial distribution of one or more of the three sensory branches of the fifth cranial nerve. Apart from the eye catching colour there is a 40% added risk in those patients in whom the ophthalmic and maxillary areas are affected of developing glaucoma or the much rarer complication of intracranial meningeal infiltration by haemangioma in the frontoparietal region with subsequent cerebral symptoms such as epilepsy. Early ophthalmic and neurological assessment and follow up is therefore prudent. Portwine stains tend to darken in colour and, in later adult life, to develop ugly, verrucous lesions. There is no single satisfactory method of treatment, and excision, skin grafting, flap cover, tattooing, superficial diathermy, and even argon laser treatment all have their limitations. The advantages of each method singly or in combination are discussed with the patient and parents before a test patch is treated with the most appropriate technique. More extensive treatment is continued or another method tested according to the later appearances of the area treated. Cosmetics used according to professional advice remain a popular means of camouflaging untreated haemangiomas or the inevitable scars and residual stains that follow surgical treatment but are not well accepted by men.

Treatment advocated for portwine stain

- Cosmetic camouflage
- Superficial diathermy
- Dermabrasion
- Argon laser
- Serial excision
- Excision and graft
- Excision and flap

Haemangiomas in the deeper layers of the skin and subcutaneous tissues contain sinusoidal vessels that, depending on their calibre and intra-arterial pressure, take on different sizes and may persist into adult life. They are not always present at birth and may crop up from two weeks until three months later, growing rapidly to the horror of anxious parents, who must be reassured that nature is the best physician and that, although the haemangioma may continue to increase in size up to one year, it will tend to involute spontaneously after that time. Of the more superficial strawberry haemangiomas, 95% will have regressed by the age of six, but about 30% of the deeper cavernous haemangiomas will persist into adult life. Even after involution, however, an unsightly sac of redundant skin may remain, which is easy to tidy up surgically. In the absence of any reliable clinical indices to predict which haemangioma will fail to regress the only indication for early intervention is if breathing, feeding, vision, or voiding are seriously compromised, in which case a short and carefully supervised regimen of treatment with prednisolone is useful; alternatively, surgical excision or, in the last resort, low dose irradiation may be performed. The rare complication of disseminated intravascular coagulopathy (the Kasabach-Merritt syndrome) is best treated medically.

Giant pigmented naevus

Persistent cavernous haemangiomas in adults are difficult to ablate permanently for, although their bulk and vascularity may be diminished by ligation or superselective therapeutic embolisation of the main arteries before surgical excision, there is a tendency for later revascularisation and recurrence.

A pigmented naevus is regarded as giant if the defect expected after excision cannot be closed directly and needs a flap or skin graft. It consists of excessive congenital naevus cells within the dermis concentrated particularly around the sebaceous glands and hair bulbs and invading the subcutaneous tissues. The indications for treatment are cosmetic (very reasonably, especially for those on the face, which account for 60% of all giant naevuses) and the potential hazard of malignancy. The true incidence of malignant melanoma in giant naevuses is not known and is quoted as being between 2% and 15%, but whether the risk deserves total excision of very large lesions, such as the bathing trunk naevus, is debatable.

Effective aesthetic treatment is difficult. Neonatal dermabrasion before three months while the naevus cells are lying more superficially in the dermis is appealing, but hairs are not eliminated and patchy pigmentation can recur. Shaving by a skin graft knife has the same limitations, leaving the surgeon with few alternatives to a deeper excision and resurfacing with skin grafts or flaps, with all the concomitant disadvantages of added scarring and donor sites.

Deformities of the ear

The commonest deformity of the ears is prominent ears secondary to a failure in development of the normal antihelical fold or an abnormally large and deep conchal bowl, or a combination of the two. Parents are naturally concerned on behalf of their baby, especially if they themselves have been teased excessively in childhood for their own "bat" ears. There is no good reason, however, for surgical correction before the age of 6 as the deformity becomes less obvious with growth of the head and early treatment may interfere with normal growth of the ears. Also, children are quite often unaware of the problem and do not suffer at school. It may seem a little unfair that the selection of children for treatment should be based on whether they are appreciably teased, but at least this avoids having to operate, without good reason, on a large number of children.

Treatment is aimed at correcting the anatomical fault through an incision in the back of the ear that becomes a hidden scar as soon as the ear folds back. It is a simple procedure as a day case, using general anaesthesia for younger children and local anaesthesia for older and more resilient children and for adults. Well padded circumferential head bandages are worn for two weeks followed by bandaging at night for a further four weeks.

A rare deformity of the ear is failure in development ranging from anotia to varying degrees of microtia, occasionally associated with middle ear problems, absent external auditory meatus, facial palsy, and craniofacial anomalies. Reconstruction of a convincing, aesthetic ear is difficult and requires a surgical programme in many stages starting from the age of 6 and using a silastic or appropriately carved autogenous cartilage framework implanted within locally mobilised flaps of skin. A compromise sometimes has to be reached whereby attention is paid mainly to constructing the lower third of the ear, leaving the upper part to be obscured by hair grown to the right length. Alternatively, a prosthetic ear can be used that often looks better than one made by several lengthy operations, but this has the disadvantage of being displaced during the normal activities of a growing child.

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