REFRESHER COURSE FOR GENERAL PRACTITIONERS

MINOR AILMENTS OF THE FEET—II

BY

NORMAN C. LAKE, M.D., M.S., D.Sc., F.R.C.S.

Senior Surgeon, Charing Cross Hospital; Emeritus Consulting Surgeon, Bolingbroke Hospital

Hallux Valgus

Hallux valgus is a very common cause of disability in the feet. Except in certain congenital cases, when the deformity may affect the interphalangeal instead of

FIG. 5.—Extreme degree of hallux valgus. The splaying of the feet and the rotation of the great toe are well shown.

the metatarso-phalangeal joint, the condition is usually associated with and dependent upon a splaying of the anterior metatarsal region (Fig 5*). This splay occurs chiefly at the first interdigital space, so that the first metatarsal becomes widely separated from the others (*metatarsus primus varus*); it constitutes the primary cause of the whole deformity. The deviation is sometimes congenital, but much more often it is acquired as a result of excessive forces falling on the metatarsal region such as occur when high-heeled shoes are worn. As the metatarsal deviates away from the mid-line of the foot, the toe itself, tethered at its base by tendons and ligaments, is pulled towards the midline, thus producing the prominence of the metarso-phalangeal joint.

As secondary effects the toe rotates so that the nail faces sideways, an exostosis with an overlying bursa forms over the mesial aspect of the metatarsal head, the structures on the lateral side of the joint contract, the sesamoids are displaced towards the interosseous space, and the second toe passes into a hammer deformity. Treatment may be sought for aesthetic reasons or because of disability. In early cases in young patients a good deal can be done by the use of corrective appliances. A suitably designed elastic accumulator worn along the inner border of the foot, a night sandal to which the toe is strapped in the corrected position, special corrective padding and strapping as used by the chiropodist, may all be of value, but more important is the correction of the splaying of the foot by metatarsal straps and footwear made with a particularly snug-fitting instep. High

heels must be forbidden, but if the foot has already become "set" in the high-heel position the change to low heels should be brought about gradually.

For more advanced cases these measures are insufficient and operative treatment must be adopted. The nature of the various procedures is outside the scope of this article, but inflammation of the bursa (bunion) may need the practitioner's attention. Often this is traumatic (non-infective) in origin and will subside with rest, but at times it goes on to suppuration and may discharge spontaneously, though this is hindered by the thickness of the overlying skin. Sulphonamides and antibiotics will often arrest the infection in the early stages but the necessity for surgical drainage may still arise, especially if there is any indication of spread to the cellular tissues. After subsidence of the infection a fistula may remain which discharges a small amount of glairy fluid. Although destruction of the bursa by injecting caustics through the fistula has been tried it has proved unsatisfactory, and the best treatment is removal of the bursa together with the underlying exostosis, an operation that with the help of antibiotics can nowadays be undertaken without the risk of spreading infection to the soft tissues, the joint, or the bone. For advanced cases of hallux valgus, when operation is for some reason contraindicated, some relief may be obtained by the fitting of appropriate pads by a trained chiropodist.

FIG. 6.—Extreme degree of hallux rigidus. This type is sometimes designated "hallux flexus."

*All the illustrations for this and the preceding article on "Minor Ailments of the Feet" have kindly been provided by the Photographic Department, Royal National Orthopaedic Hospital, London.

Hallux Rigidus

In hallux rigidus the causative pathology is an osteoarthritis (probably of the wear-and-tear or traumatic variety) of the metatarso-phalangeal joint producing osteophytic ridges which mechanically limit the movements of dorsi and plantar flexion. The most troublesome cases are those in which the toe (often an unduly long one) is held rigidly in a position of plantar flexion (Fig. 6), for this interferes seriously with the "take-off." Patients adopt all sorts of dodges to overcome this difficulty in walking. The only treatment which can be expected to bring about a real improvement is surgical, but if this cannot be done a metatarsal bar must be fitted to the shoe.

A second type of hallux rigidus is seen in youth, in which there is no radiographic evidence of joint change. In these cases the rigidity is produced by muscle spasm secondary to a synovitis of the joint which may be traumatic or, as Trethowan suggested, toxic, arising from septic foci in tonsils or elsewhere. The treatment is that of synovitis locally and the clearing up of any focal sepsis. The injection of local analgesic into the joint relieves the spasm temporarily, occasionally permanently.

Hammer-toe

It has already been remarked that hammer-toe is often secondary to hallux valgus, but in some cases it seems to be congenital. If mild in degree it may be treated by suitable protective padding and by the use of a sandal to which the toe is strapped. In this deformity corns develop over the prominent interphalangeal joint and (in the so-called "mallet-toe") at the tip of the toe where it presses upon the ground. The former are prone to infection of the underlying bursa. In more severe cases surgical treatment is best; it consists essentially in excision of the interphalangeal joint so that bony union can occur between the phalanges in the straight position. This union is encouraged by the use of external or internal splints. Alternatively the "spike" operation may be done, in which the pointed end of the proximal phalanx fits into a corresponding depression in the cut end of the intermediate phalanx. The metatarso-phalangeal joint is not usually touched, though the deformity here constitutes an essential, and perhaps the primary, part of the whole deformity; however, the shortening of the toe which results from the excision relaxes the pull of the long tendons and so helps in the reduction of the dorsal subluxation at the metatarso-phalangeal joint.

Ingrowing Toe-nail

Ingrowth of the toe-nail (onychocryptosis) is, like many other foot conditions, usually attributed to the effect of tight or badly shaped shoes. The truth is that footwear is only a minor factor in its development. There are two distinct types of ingrowth of nails; the first is met with commonly in youths of 14 to 18, much less frequently in girls; the second occurs in later life and is often associated with an increased transverse curvature of the nails, especially with the "involved" nail. In both types the great toe is the one chiefly involved. In the former variety the nail is fairly flat and wide, as is the toe itself, but it cannot be shown that the shoe has been exerting any undue pressure. It is prone to infection and suppuration in the lateral nail grooves, and this brings the patient for treatment.

Possibly the real cause is cutting the nail too short so that its termination receives no support from the pulp at

the end of the toe when downward pressure occurs on the bony phalanx by the pull of the long flexor tendon during walking. The nail follows the phalanx and tends to bed itself in its soft surroundings, its lateral margins cutting their way into the rolled-over skin (Fig. 7). Once the nail is embedded the patient finds it difficult to trim the nail across right up to the edges and so a tongue of nail grows forwards on each side into the pulp: this is often called a "splinter." Careful removal of the whole

Fig. 7.—Advanced degree of onychocryptosis with inflammatory fungation in the lateral nail grooves.

of this splinter forms an important part of the treatment, for it will otherwise keep up the infection whatever other measures are adopted.

In slight and early cases, after the nail groove has thus been cleared and any granulations touched up with the silver stick or copper sulphate, a small piece of metal foil or gauze may be packed under the nail border and brought up over the prominent roll of skin. Sulphonamide and flavine powders help to overcome the infection. In persistent or recurrent cases I have no hesitation, however, in recommending amputation of the end of the toe, together with the whole of the nail and its bed, through the terminal phalanx, using a long plantar flap to cover the end. This operation gives a quick result, can be relied upon to be permanently successful, and causes no disability beyond the cosmetic effect of loss of the nail. Other surgical methods can be practised, but in my opinion they are less satisfactory.

In the other type of ingrowth the factors are different. Here it is the shape of the nail which is responsible for the ingrowth. With increasing age many toe-nails tend to become more curved, and shoe pressure, heredity, and vascular deficiencies all play their part in this change. In the involuted nail the lateral borders become rolled over upon themselves and are thus very difficult to trim. Pain arises from pressure effects, but actual suppuration is rare. A small corn or callosity develops on the rolled-over edge of skin and adds to the discomfort. In these cases operative measures are rarely necessary, but the lateral groove must be kept clear of all epithelial debris or hypertrophy, and the nail, which is usually unduly hard, must be trimmed with nail nippers. The occasional application of epithelial softeners, hydrogen

FIG. 8.—Onychogryphosis affecting all the nails, such as occurs in the aged and especially in bedridden patients.

peroxide or potassium hydroxide, to the groove is also of value. Some may prefer to have these troublesome nails dealt with by a qualified chiropodist.

Ram's Horn Nail

Onychogryphosis (ram's horn nail, Ostler's toe) is a less common condition which arises in two circumstances; in the first there has been a gross injury to the nail-bed, perhaps causing a subungual haematoma with separation of the nail; in the second, which occurs in the aged, the changes are probably brought about by vascular deficiencies in the nail-bed; it is often found in the bedridden (Fig. 8). A ram's horn nail is a nuisance because it precludes the wearing of ordinary shoes and is so hard that the patient is quite unable to trim it. It cannot be cured, for if the whole nail be removed the new one reproduces the deformity. In younger people the most satisfactory treatment is amputation through the terminal phalanx. In others the chiropodist may be able to reduce the nail to reasonable proportions by the use of his nippers and nail drills, often combined with some softening agent.

Plantar Warts

This infective papilloma of the sole of the foot is unique in that, owing to the thickness of the cornified layer of the overlying skin and to the pressures on the sole, it becomes pushed deeply into the tissues, leaving a flat smooth surface. For this reason it is often difficult to diagnose and resistant to treatment. Typically they are found in teenagers, especially girls, with a soft moist plantar skin, but they may be met with in later life. They are contagious and can be transferred from individual to individual, from one foot to the other, or to fresh areas on the same foot. The cause is almost certainly a virus infection; a portal of entry may be afforded by some small penetrating injury such as that produced by a nail in a shoe. The practitioner should suspect a verruca if he finds in a young person an apparent callosity in an unusual situation—for example, the hollow of the instep—which is very sensitive to the release of pressure, giving a throb of pain as the finger is removed. If some of the overlying callus be skived down the tips of the papillae may be observed, sometimes appearing as black spots if bleeding has occurred into them.

The very multiplicity of treatments advocated indicates that no entirely reliable one has yet been discovered. It would seem that on occasions a small verruca can disappear spontaneously, like warts elsewhere, and so add to the fame of the wart charmers. The chiropodist skives down the cornified tissue until the tips of the papillae are just exposed and then applies some caustic

material—probably monochloroacetic or trichloroacetic acid, pyrogallol acid, nitric acid, and formaldehyde are the most popular. The process has to be repeated many times in the case of a large growth and is by no means painless. Carbon-dioxide snow can be used upon a small growth but is rather unreliable. Direct cauterization with a Paquelin or electric cautery, but better with diathermy, is a valuable method for surgical use. These warts extend surprisingly deeply and so thorough anaes-

thetization is essential if the whole growth is to be destroyed. This may be combined with curettage, but complete surgical excision is not recommended on account of the great tendency to recurrence in the scar. Radium (beta or gamma rays) and x rays are useful and painless treatments, but again the result is not always certain and it would be unwise to continue with such treatments for long.

FIG. 9.—An extremely florid verruca showing the papillomatous structure of the growth. Usually, however, verrucae are buried beneath a thick layer of horny tissue.

In really difficult extensive and resistant cases (Fig. 9) I believe that thorough diathermic cauterization gives the best chance of cure. The wound left is a deep one, but not proportionately painful, which will heal slowly under simple stimulant dressings. As the condition is very contagious it is necessary to institute common-sense prophylactic measures to prevent the spread of infection to others.

The very common fungus infections of the feet and nails have already been dealt with elsewhere in this series (see *British Medical Journal*, 1951, 1, 28).