REFRESHER COURSE FOR GENERAL PRACTITIONERS

MINOR AILMENTS OF THE FEET—I

BY

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Despite the great modern-day use of mechanical transport, or possibly because of it, minor ailments of the feet seem to be increasingly encountered in medical practice, so that the doctor is often asked to give advice upon and to treat such conditions. Unfortunately there are a large number of foot troubles, and I shall deal only with the commoner ones.

Corns

At the head of the list comes the ubiquitous corn. Most of these, however, are handled by the sufferers themselves or by chiropodists, and only the more persistent and troublesome ones will reach the doctor. Footwear is usually held to blame for the production of corns, but it must be remembered that without counter-pressure the shoe could do no harm. This counter-pressure is provided by structures in the foot, usually by bone. Thus deformed bones, enlarged joints, contracted toes, and so on are found underlying corns (with the exception of seed corns and the so-called vascular or neurovascular corns, which have a different aetiology) and share with the shoe in the production of the corns. Sometimes, however, one structure in the foot provides the counter-pressure for another, as in the case of soft corns lying in the fourth interdigital gap where pressure occurs between the head of the proximal phalanx of the fifth and the base of the proximal phalanx of the fourth toe.

The outer toes in the human foot are rather insignificant digits and the phalangeal shafts are disproportionately small as compared with the articular ends of the bones. This is a factor which concentrates the pressure and friction, between the toes or against the shoe, on small areas over the joints and so predisposes to corn formation at these points. In searching for the cause of recurrence of corns after treatment these are matters to which attention must be paid. Again some change of stance occurring automatically as a reaction to a painful lesion elsewhere in the foot or to an alteration in the balance higher in the limb may be responsible for the corn-producing pressure.

Unless and until such underlying factors can be remedied the corns will be prone to recur, the more so as skin which has once produced a corn seems predisposed to the production of others. The full investigation of a simple case of corns can thus involve the practitioner in a prolonged examination if the true cause is to be discovered. Disappointingly, when such causes have been found it is not always possible to remedy them by simple measures commensurate with the trivial, though troublesome, lesion they are producing. Thus excision of an enlarged toe-joint might relieve the pressure, but there are few who would be willing to submit to this. It will be easier in most cases to make the shoe fit the foot than the foot the shoe. This may be accomplished by having a special last made, or more simply, where the deformity is less marked, by having the shoe leather

stretched over the critical point by carefully padded shoe-trees.

In practice treatment is often palliative—that is, the paring of the corn or callosity followed by protective padding. This is essentially work for the properly trained chiropodist, but if the doctor undertakes it he must see that the central white dyskeratotic core of the corn is removed or there will be early recurrence. Alternatively the cornified epithelium may be softened and exfoliated by the application of a corn salve, the basis of which is salicylic acid, usually in collodion, and classically with a little cannabis indica. This method often gives relief but is not, of course, curative.

The commonest complications of corns are infection (Fig. 1) and suppuration. In many corns a small fluid-

FIG. 1.—Hammer-toe with inflamed corn over the proximal interphalangeal joint.*

containing sac, often improperly called a bursa, forms in the deeper layers of the epidermis, and it is in this that infection arises either *de novo* or after treatment. As the overlying tissue is entirely epidermal, drainage is easily and painlessly instituted by skiving down the corn until the sac is reached. The corns which form over the prominence of a hammer-toe or clawed toe may, however, have a real bursa in the underlying dermis; here drainage will be painful without anaesthesia.

Callosities

The causative factors of corns and callosities are similar, but in the latter the pressures are distributed over larger areas of the surface either owing to the conformation of the bones or to the intervention of a thick pad of

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

subcutaneous fibro-fatty tissue—for example, the callosities under the heel. Many callosities are harmless and some are beneficial, but when they occur in unusual situations—for example, under the heads of the second and third metatarsals—they are often troublesome and demand treatment. This must be directed not only to the reduction of the callosity itself but to the removal, if possible, of the causative factor, such as “dropping” of the metatarsal head. It may be interjected here that this is not a true dropping but implies that the particular metatarsal is carrying a greater proportion of the stresses of locomotion than it should normally do.

The second metatarsal is particularly prone to develop these painful thickenings under its head. There are several factors concerned in this, the most important being the relative projection forwards of the various metatarsal heads. Radiographs of the feet (in many cases this can be more simply determined by direct palpation of the bones) show that in about 50% of people the second metatarsal projects beyond the first, that in about 30% the first projects beyond the second, and that in the remainder the heads are level. When during walking the foot rises to the take-off position the metatarsals are almost vertical and obviously the one which projects furthest forwards will take most of the stresses. It should be noted that these figures are averages from normal feet.

If the great toe deviates away from the others—for example in splay-foot—or if its metatarsal is unstable, the stresses will fall on the second (and third) metatarsals whatever the relative lengths. These facts explain why the mere reduction of a callosity cannot bring about a permanent cure; a redistribution of the stresses is necessary so that the sturdy first metatarsal can again carry its proper large share of the burden. As it is usually not possible to change the anatomical conformation of the foot the desired effect must be accomplished by suitably fitted and shaped pads and elevators, the construction of which is beyond the scope of this article.

Forward Displacement of Pads under Metatarsal Heads

A condition in this region of the foot which has not yet received the recognition it merits is displacement forwards of the fibro-fatty pads which underlie the metatarsal heads and normally cushion the impact and pressure of these on the ground. The practitioner undoubtedly sees many of these cases; they occur chiefly in older people and particularly in women. The foot displays the characters which indicate that the patient has for long worn high heels—that is, it is plantar flexed, with a high rigid arch, clawed toes, callosities under the metatarsal heads, etc.—and the complaint is of pain on the plantar aspect of the anterior metatarsal region. “I feel as if I were walking on bare bones” is a common description. Upon examination it will be noted that the metatarsal heads are too readily felt in the sole. There is very little tissue between skin and bone, the normal pad having been displaced forwards as a roll of tissue under the proximal phalanges of the toes, which it has pushed up into the clawed position. This displacement occurs as a result of the forward rolling movement of the metatarsal heads, an action which is greatly enhanced when the heel is kept raised as in women’s high-heeled shoes. The fatty pad is indeed being constantly heaped forwards like dough before a rolling-pin, and eventually comes to occupy the new position permanently; elevation of the proximal phalanx naturally follows.

The treatment of the condition is not easy, for the pads cannot be induced to retrace the movement by any simple measures. I have tried plastic surgical measures with mediocre success, but for the most part the condition must be accepted as a late outcome of high heels and a pad of sponge rubber or felt of suitable shape and thickness should be placed under the metatarsal heads. Any measure which relieves pressure on the bone heads—for example, metatarsal bars on or in the shoes—should be tried in these difficult cases.

Metatarsalgia

The term metatarsalgia is applied rather loosely to almost any pain in the anterior metatarsal region of the foot not due to some obvious external cause, but one well-defined type (distinguished by the eponym Morton’s metatarsalgia) has been shown to have a precise pathological basis. This pain occurs predominantly in the region of the head of the fourth metatarsal and extends forwards to the digit, sometimes also to the third toe and rarely even further afield. It is an acute lancinating pain coming on, chiefly in women, after walking a short distance; it compels the patient to stop and not infrequently to take the shoe off and squeeze the foot. A change of shoe may give some relief, but on the whole the condition is progressive. The pain, at any rate in the early stages, disappears quickly with rest, but it may be

FIG. 2.—Morton’s metatarsalgia: neurofibroma removed from the interspace between the third and fourth metatarsals.

associated with tingling and numbness of the toe. Morton ascribed it to nipping of the digital nerves between the metatarsal heads, but operative exposure has shown that a neurofibroma, the removal of which cures the symptoms, can usually be displayed on the communicating branch between the plantar nerves (see Fig. 2). In patients for whom surgical treatment is not available for one reason or another a good deal of relief is afforded by metatarsal bars or pads associated with a wide type of footwear.

Flat-foot

One of the commonest diagnoses made in the past to account for foot pain was "flat-foot." Nowadays we hear much less of this, for in many of the cases it is recognized that the disability is due to other causes occurring in a foot with a naturally low arch. The first thing to be said about flat-foot, therefore, is that most of the so-called cases are not flat-foot. Nevertheless there is a true condition of flat-foot (Fig. 3). There are two

FIG. 3.—True flat-foot, showing the inner border in contact with the ground.

schools of thought regarding the formation and maintenance of the arches of the feet, but to consider the arguments for and against would occupy too much space. Briefly it must be stated that the arches of the feet vary within wide limits, so that the diagnosis of flat-foot should be made only in those cases which show definite changes in the arches. It is easy otherwise to be misled, for instance by intermittent claudication of the small muscles of the sole of the foot and of the calf, a pain which comes on like that of flat-foot after the patient has walked a short distance. In younger people the condition often designated "foot strain" may lead to misdiagnosis, as it is often associated with some degree of pronation of the forefoot.

When it has been concluded that the case is one of true flat-foot it is customary to divide the process into three stages. In the first the foot is normal in appearance when at rest, but the arch drops excessively on weight-bearing; in the second the arch is constantly dropped but can be returned on manipulation; in the third stage the arch is permanently down and cannot be restored

FIG. 4.—Spastic flat-foot. Note spasm of peronei.

except by forcible wrenching. In the last type there are usually well-marked arthritic changes present (rigid flat-foot).

Treatment in the first stage consists chiefly in exercises designed to strengthen the muscles, with perhaps the wearing of a light resilient support in the shoe, which is built up along its inner border. In the second stage the same treatment is applied but with rather more sturdy supports. In some cases it may be worth retaining the foot in an over-corrected position for a week or two at the start of treatment by means of a splint (split plaster would be suitable) which can be removed for massage and exercises. In the third stage it is sometimes best to leave the foot alone, since, though both foot and gait are ugly, the condition is often not very painful. In the painful cases gentle manipulation combined with treatment for the arthritis is advisable.

The use of supports is a controversial question which cannot be discussed here, but most flat-foot patients find them of value, even though they may be acting as splints rather than supports. Brief reference must be made to spasmotic and acute flat-foot. The former occurs in youths and is really a forcible eversion of the foot produced by spasm of the peroneal muscles (Fig. 4). The spasm is not infrequently associated with a toxic synovitis of one or more of the intertarsal joints, as can be demonstrated by the temporary cessation of spasm when the joint is injected with local analgesic. Septic foci elsewhere in the body have been held responsible, but in my experience they are rarely found. The treatment in severe cases consists in over-correction under anaesthesia followed by retention in a plaster case. Very intractable cases may actually need crushing of the nerve supply to the muscle.

Acute flat-foot arises after some particularly strenuous exertion, but may also appear more or less spontaneously in cases of gonorrhoea. In the former type rest and massage for a few days are all that is necessary; the latter type will very rarely be seen nowadays.

The *Fifth Annual Report* of the Institute of Child Health, University of London, announces the proposal to build a model child-welfare centre and school treatment clinic on the corner of Lamb's Conduit Street and Guilford Street, near the Hospital for Sick Children. The architects are to be Messrs. Eason and Robertson, who are also to be responsible for the building of the British Postgraduate Medical Federation central offices (*British Medical Journal*, 1950, 2, 1400) on the adjoining corner of the north end of Lamb's Conduit Street, so that the two new buildings there can form part of a general plan. During 1950, 126 full-time students attended, coming from 21 different countries. Nine non-Commonwealth countries were represented during the year, showing that students from Europe are beginning to make London the centre for postgraduate study. Among other interesting research projects work on problems of blood disorders in the Postgraduate Medical School of London has been helped by members of the Institute, who have also served on the Joint Committee which (helped by a grant of £6,000 from the Nuffield Fund) has been following the health and development of a national sample of children. These children, born during the first week of March, 1946, have already been studied in 1946 and 1948, and information will be available for over 90% of the original sample of more than 5,000.