cost of the brand of benzathine penicillin used is 12s. 7d. (personal communication from Joint Pricing Committee for England).

Treatment of a penicillin-sensitive infection in the newborn may be carried out with oral sodium (or potassium) penicillin, 150,000 units, given eight-hourly for five days. As suggested by Cathie and MacFarlane (1953), an initial loading dose of say 100,000 units of an intramuscular crystalline preparation of penicillin ensures an adequate initial blood level. It must be emphasized that these doses are recommended for the newborn only.

Summary

Oral benzathine penicillin has been compared with oral sodium penicillin. For the newborn, sodium penicillin is as effective as benzathine penicillin. The reliability of absorption is about the same for each. Benzathine penicillin is more palatable than sodium penicillin and keeps well at room temperature; it does not, however, give peak levels in the blood quite as quickly or possibly as high as sodium penicillin. There is no evidence that it maintains an adequate serum level for an appreciably longer time than sodium penicillin. The cost of benzathine penicillin is greater than that of sodium penicillin.

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REFERENCES

- Bayne, G. M., Gylfe, J., Carfagno, S., and Boger, W. P. (1953). *Amer. J. med. Sci.*, **225**, 190.
 Beasley, D. M. G., and MacPherson, M. J. (1954). *Lancet*, **1**, 861.
 Buckwalter, F. H., and Holleran, R. (1953a). *Antibiot. and Chemother.*, **3**, 540.
 — (1953b). *Ibid.*, **3**, 543.
 — and Walsh, E. A. (1953). *Ibid.*, **3**, 1020.
 Cathie, J. A. B., and MacFarlane, J. C. W. (1953). *British Medical Journal*, **1**, 805.
 City Analyst of Birmingham (1953). Report for third quarter.
 Elias, W., Price, A. H., and Merriam, H. J. (1951). *Antibiot. and Chemother.*, **1**, 491.
 Fairbrother, R. W., and Daber, K. S. (1954). *Lancet*, **1**, 858.
 Foltz, E. L., and Schimmel, N. M. (1953). *Antibiot. and Chemother.*, **3**, 593.
 Food and Drugs Administration, Washington (1948). *Meth. med. Res.*, **1**, 25.
 Lepper, M. H., Rodriguez, J., Blatt, N., and Spies, H. W. (1952). *Antibiot. and Chemother.*, **2**, 175.
 National Formulary, 1952, p. 87. B.M.A., London.
 Smith, C. A. (1951). *The Physiology of the Newborn Infant*, p. 189. Oxford.
 Welch, H., Randall, W. A., and Hendricks, F. D. (1953). *Antibiot. and Chemother.*, **3**, 1053.

This week has been dubbed "Safety in the Home Week" by the London County Council, which is running a campaign to reduce accidents at home. More people are killed in their own homes, almost always through carelessness, says the L.C.C., than in road accidents. In England and Wales alone about 5,000 people a year die as the result of accidents in their homes, half of them being old people and about a quarter children. Accidents in the home are the commonest cause of death in children between 1 and 5 years of age. The council's health committee regards the teaching of safety in the home as a very important part of its health education duties.

TENDO ACHILLIS BURSITIS ("WINTER HEEL")

BY

N. W. NISBET, F.R.C.S.Ed.

Associate Professor of Orthopaedic Surgery, Dunedin Hospital, New Zealand

This minor complaint usually occurs in females, often in adolescence, and is caused by the upper rim of the shoe rubbing on the back of the heel. The posterior aspect of the heel is most prominent at its supero-lateral angle, and consequently the shoe does not fit this accurately until it is worn in.

The lesion is an aseptic inflammation of the tendo Achillis bursa. This bursa lies between the tendon and the calcaneum, and encroaches on the upper surface of the bone. A secondary bursitis may appear in a small superficial bursa where the tendon is subcutaneous, this sharply localized area being devoid of underlying fat. The inflammation may also spread to involve the paratenon. Primarily, however, this is a disease of the tendo Achillis bursa.

The condition tends to recur each winter. Why this should be is not clear, unless it is that cold weather and variations of temperature cause a vascular disturbance of the feet comparable to chilblains. The region of the insertion of the tendo Achillis—described in detail below—becomes swollen, and a vicious circle sets in which may not be broken until the shoe is discarded. Walking, especially uphill, aggravates it. It is often bilateral.

Most cases respond to conservative treatment. Care with the fitting of the shoes, and insertion of a thin layer of sorbo rubber moulded to the back of them, will usually prevent a rub. The patient is also advised not to vary the height of the heel. The few cases which do not respond to conservative treatment can be cured by a simple operation. Since an accurate description of the anatomy of this part of the heel is not to be found in textbooks, and as it has a bearing on the cause and operative treatment of the condition, I made several dissections, which are described below.

Anatomy

With the foot on the ground it will often be found that the most prominent part of the heel is a knob on its superior and lateral aspects. This prominence does not coincide with that caused by the insertion of the tendo Achillis in the dried calcaneum; it is due to a thickening of the expanded portion of the tendon itself where it fits snugly, like a cap, on the prominent postero-superior angle of the bone. On the deep aspect of this tendinous prominence there is an oval facet, obliquely placed, which articulates with a corresponding facet on the back of the calcaneum, and the bursa gives this tendo-osseous articulation a kind of synovial lining. It is pressure on this thickened and prominent portion of the tendon, transmitted to the bursa, which causes the inflammation and effusion.

If the tendo Achillis is examined further, it will be found that it does not lie parallel to the tibia; on the contrary, it sweeps backwards in a graceful curve, and opens out like a fan as it reaches the calcaneum (Fig. 1). Since the calcaneum is not parallel with the ground, but meets it obliquely, the bone and tendon form an acute angle, and that is why the bursa encroaches on its superior aspect. A nodding-like action takes place between them at this point, which makes the facets and this arrangement of the bursa necessary. The bursa is concealed on each side by expansions from the paratenon, which also blends with the periosteum, and all other interstices are filled with fat.

Fig. 2 is a drawing of the deep aspect of the tendo Achillis. The tendon has been detached from the middle third of the bone and turned over. It resembles the tail-piece of a violin. The fibres of the slender but strong tendon decussate and embrace the facet which articulates with the calcaneum. The expanded portion is concave in all directions, and along its edges are the remnants of the expansions which enclose the bursa. If the tendon is held between the forefinger and thumb at the level of the facet it will be found to be greatly thickened, and it is this which forms the most prominent part of the heel. Fig. 3 shows the back of the calcaneum from which the above tendon was dissected, and the appearances were found to be the same in several other specimens. The postero-superior aspect of the calcaneum

FIG. 1.—Dissection showing the region of the tendo Achillis insertion. The most prominent part of the heel is a thickening of the tendo Achillis overlying the postero-superior angle of the calcaneum. The bursa intervenes between the two. Note how the tendon sweeps backwards to its insertion, and gives an expansion forwards which blends with the periosteum. FIG. 2.—The deep aspect of the lower 6 in. (15 cm.) of the tendo Achillis. The expanded lower portion is concave, and fits over the postero-superior angle of the calcaneum. The facet on the tendon articulates with a similar facet on the bone. This is the most prominent part of the back of the heel, and not the attachment of the tendon as seen on the middle third of the dried bone. FIG. 3.—The posterior aspect of the calcaneum. Note that this is asymmetrical and has an oval facet on its superior and lateral aspects. There is a vertical ridge below the facet. The remainder of the bone shelves towards the sole.

is asymmetrical, and the facet which articulates with that on the tendon is shown. It is this prominent postero-superior angle over which the tendo Achillis passes to reach its insertion which must be removed to decompress it.

Operation

The operation is very simple. The outer aspect of the tendo Achillis is exposed through a short curved incision. The expansion from the paratenon is incised and the bursa opened. This exposes the prominent postero-superior angle of the calcaneum, which is excised with a gouge. Care must be taken to remove enough bone. The skin only is closed. Since the insertion of the tendo Achillis is not interfered with, no post-operative splinting is required, and walking is resumed as soon as the skin incision is healed.

The results of this simple operation are uniformly good, though failures occur when other prominences in this region are confused with the real underlying cause of the condition.

Summary

A lesion caused by rubbing of the shoe rim on the back of the heel is discussed.

The anatomy of the part involved is given in detail.

Most cases respond to conservative treatment, but a few require the simple operation described.

PLACENTAL GLOBULIN IN THE PREVENTION OF MEASLES

BY

H. GANGULI, M.D.

AND

S. N. MUKHERJEE, M.B., D.T.M.

(From the Department of Medicine, Medical College, Calcutta)

Measles is perhaps the commonest of all the eruptive fevers in man. It is widely distributed, and in the past has been responsible for a high mortality during epidemics. It is on record that a quarter of the population of the Fiji Islands was wiped out during an epidemic of measles in 1875. Death due to measles *per se* is rare; it is the secondary infection that is responsible for such a high mortality. Antibiotics have lowered the death rate by combating the secondary infection.

Prophylactic measures such as quarantine, isolation, etc., with a few specific exceptions, are not of much value in preventing the spread of measles in a community, because of the highly communicable nature of this disease during its early prodromal stage, when it is seldom diagnosed. Quarantine and isolation may, of course, be imposed when measles breaks out in hospitals or institutions, and in that case quarantine should ordinarily be enforced not less than two weeks from exposure and should be increased to about three weeks if immune serum has been injected (which increases the incubation period). To be effective, isolation must be carried out early in the catarrhal stage. It helps in two ways; first, by preventing spread of the disease, and, secondly, by protecting the patients from a possible source of secondary infection.

Immunization of the susceptible section of the population is by far the best method of prophylaxis, and, as with other infectious diseases, active immunization is of greater value than passive immunization; but, unfortunately, active immunization with measles virus grown upon chorio-allantoic membrane of growing chick embryo has not yet passed the experimental stage.

Seroprophyllaxis

Seroprophyllaxis is the next best method: in this, prepared or ready-made antibody is used either to prevent an attack or to produce an attenuated attack of measles after a child is known to have been exposed to the infection, by suitably adjusting the dose and time of the injection of antiserum. The following are the agents used: pooled convalescent serum, pooled adult serum, pooled ascitic fluid, placental globulin (immune globulin), and gamma globulin.

Since Nicolle and Conseil, in 1918, demonstrated the presence of protective antibody in the blood of patients convalescing from measles, convalescent serum has been used successfully in prophylaxis of the disease. The prophylactic value of the serum has been summarized by Stillerman *et al.* (1944). They have shown that out of 502 household contacts, ranging between 6 months and 15 years, who were given prophylactic doses, 50% were completely protected, 49% had modified measles, and only 1% had regular measles. The result is encouraging, but the serum is not readily available.

Degkwitz in 1920 first showed that, though the titre of protective antibody in the blood of measles convalescents gradually declines, the protective antibody remains in the blood throughout life. This discovery has given rise to the