from an institution in South-East London. These patients were in an early stage of measles, but enteritis was already present in all three instances. It is interesting to note that another case, previously admitted from the same institution, was also found to be suffering from enteritis, though no definite evidence of measles could be found in this patient. It is therefore possible that in this small group the enteritis was a precursor and not a complication of measles.

As might be expected, the best results were obtained in the earlier stages of the disease. In the later stages a few cases showed some very encouraging results, so that the treatment is not devoid of value even after some days have elapsed before the case comes under observation. Infants and very young subjects furnished the largest number of cases which derived no apparent benefit from treatment, and we have had under consideration the question of the advisability of increasing the dosage in these cases.

Conclusions.

1. Amidopyrin is a valuable adjuvant in the treatment of measles.
2. Its action is chiefly antipyretic, but it appears to exercise some influence on the other symptoms of the disease.
3. Its value is greatest when given in the earlier stages, and in some instances it appears to modify the attack, but even in the later stages its use may be followed by good results.
4. From the results in our series of cases we are not yet in a position to give a definite pronouncement on the claim, made by certain writers, that the drug is a "specific" for measles.
5. The treatment is comparatively inexpensive, and very simple in its method of administration. In the dosage used by us it seems to be devoid of deleterious effects.
6. The use of amidopyrin merits further investigation over an extended series of cases.

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AMIDOPYRIN IN THE TREATMENT OF MEASLES.

BY

W. H. W. ATTLEE, M.D., M.R.C.P.,
MEMBER OF THE ETON COLLEGE MEDICAL BOARD.

THE favourable reports in the *British Medical Journal* on the use of amidopyrin in measles decided me that it must be tried in an epidemic which happened to be going on at the time. It was a good opportunity for a test, seeing that all the patients were of one type and were nursed in similar circumstances. The epidemic, too, was half over, and the comparison between treated and untreated cases was made easy. This seems important, seeing that the severity of different epidemics varies within wide limits.

The patients were all boys at school, from 12½ to 16½ years of age. Each was nursed in a separate room with nurses who kept regular charts. The disease was of a mild type, and the weather was warm and sunny. Partly on this account probably, and partly because the general health was good, with an almost complete absence of catarrhal affections in the community, complications were few and convalescence was rapid. In all, 120 patients were treated on ordinary lines, and nine were given amidopyrin (pyramidon).

Cases Treated on Ordinary Lines.

The course of the disease in these 120 cases was similar in all during the prodromal stage. None felt particularly ill, and almost all wanted to eat light solids. The respiratory symptoms were slight in comparison with most epidemics. There was remarkably little cough and hoarseness. The temperature rose to its height as the eruption appeared, and then fell abruptly to normal, the whole period of real discomfort lasting, as a rule, only twenty-four hours. Most patients were able to get up in a week,

and to go away for sick leave in a fortnight after the rash appeared. In only four cases were there any marked signs of bronchial catarrh. Many had transient redness of the tympanic membrane, often without any pain or other symptoms referred to the ear. Two had definite otitis, needing myringotomy on both sides. Both were healed within ten days.

In this group the severity of the disease varied within wide limits. One boy, for example, reported sick only because of the rash on his face. He never felt ill. The rash was scanty, the temperature was 100.4° F. when he reported sick and was normal next day. At the opposite extreme was a boy who felt quite ill and reported sick four days before the rash appeared. Koplik's spots were present on the first day, three days before the rash. The rash and the injection of the palate were intense, and signs of broncho-pneumonia appeared two days after the eruption was at its height. Both tympanic membranes became congested, but resolved without myringotomy. The temperature was 104° at its highest, and it did not settle to normal for thirteen days. The average total duration of the fever was 4.07 days, and the average greatest height was 103.5°.

Cases Treated with Amidopyrin.

These nine patients each received 5 grains every four hours, beginning during the prodromal stage in three cases, and at the beginning of the eruption in six cases. The course of the disease was altogether different. The rash appeared more slowly, taking thirty-six to forty-eight hours to reach its height. The temperature rose as high as usual, but fell gradually and not abruptly, and the period of real discomfort was lengthened. This discomfort was increased in most cases by frequent vomiting. Complications were not prevented, for two patients had extensive bronchial catarrh and one of these had double otitis in addition, necessitating myringotomy on one side. Two had stomatitis and laryngitis so severe as to make feeding a trial and phonation impossible, complications unseen in the group treated on ordinary lines. The average total duration of the fever was 6.9 days, and the average greatest height was 103.5°.

There could be no doubt that these nine cases were more uncomfortable and did less well than the others, and this fact was so obvious to both doctors and nurses that it seemed unjustifiable to continue the administration of amidopyrin.

Summary.

During a school epidemic of measles, nine patients were treated with amidopyrin and 120 on ordinary lines.

The patients treated with amidopyrin were more uncomfortable than the others, their rashes took longer to mature, their fever was more prolonged, and the percentage of complications was higher.

TREATMENT OF VARICOSE ULCERS.*

BY

A. DICKSON WRIGHT, M.S., F.R.C.S.,
ASSISTANT DIRECTOR, SURGICAL UNIT, ST. MARY'S HOSPITAL, LONDON.

By way of introduction I would stress some general considerations before proceeding to the details of treatment and the results to be expected. These are the prevalence of varicose ulcer, apathy of the medical profession with regard to it, the economic aspect, intractability of the disease, and its etiology.

The prevalence of varicose ulcer is not fully appreciated because a very large number of sufferers seldom see a doctor. The reason for this is that both patient and doctor grow tired of ineffectual treatment and avoid each other. The patient either uses well-advertised remedies or is dealt with by the out-patient or district nurse. The cases will come out of hiding in large numbers if they are encouraged; as witness of this, I have treated and cured upwards of three hundred cases of indolent leg ulcer during the last two years.

* A paper read at a meeting of the Section of Surgery at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

This disease falls between the two stools of surgery and dermatology, and remains there by the mutual consent of the two specialties. This lack of interest I prefer to regard as due to a feeling, on the part of surgeons, that the disease is not curable except in the early cases. Even the advent of the injection treatment has not altered things very much.

Women are the chief sufferers, and in their case it is hard to assess in terms of hard cash the cost of an ulcer to the individual. One can only imagine the sufferings of the mother of a family compelled to carry on in spite of endless pain and sleepless nights. Truly, it has been said, not only she, but the whole household, suffers from varicose ulcer. But when we come to the male it is not a difficult matter to take a piece of paper and write down, item by item, the cost of an ulcer throughout its duration. Most astonishing figures will result. I have one case of an ulcer which cost over £5,000 in loss of wages, pension, treatment, insurance benefit, hospital charges, etc. This patient had spent seven years of his life in hospital at one time and another. This is an exceptional case, of course, but ulcers of a cost of £1,000 are by no means rare.

Many have come to regard permanent cure in long-standing ulcers as impossible of achievement; no more eloquent proof of this could be found than the multiplicity of remedies that have been devised for its cure. In an hour and a half I discovered one hundred remedies in the Surgeon-General's Index; they ranged from playing a stream of hot air or other gas on the ulcer to dusting it with castor sugar. Cestan struck an amusing note when he said that the only cure was a private income of £400 a year, and unlimited rest.

An almost forgotten British genius, Thomas Baynton, surgeon of Bristol, at the time of the French Revolution wrote as follows: "This disease is due to the unfavourable situation of the parts which are placed at a remote distance from the fountains of life and heat, and are obliged to return the venous blood and lymph to the heart under peculiarly unfavourable and disadvantageous circumstances." A simple experiment proves his contention. A needle, connected to a glass tube eight feet long, is inserted into any varicose vein; the blood rises instantly to the level of the clavicles. The patient holds his breath; the blood rises to the level of the ears. If he now lifts a heavy weight in both hands, the upper level rises far above his head, and the venous pressure is even greater than the arterial. All the sixteen complications of varicose veins are the direct result of this venous pressure. There is no need to invoke a stubborn bacterial infection to account for the chronicity of varicose ulcer; it is purely a matter of hydraulics. It is sometimes said that the large indurated ulcer is not due to varicose veins; the veins are certainly there, nevertheless, but lie deep in callous oedema.

Rationale of the Treatment.

Put the hydraulics right and the ulcer will take care of itself; this is the gist of the method. The oedema is harmful and the varicose circulation useless, so they should be squeezed out of existence by an adequate and uniform compression.

Then comes the question of dressing the ulcer. It seems the rankest heresy to recommend that the discharge of an ulcer should not be allowed to escape, but in practice it is found that almost all ulcers, if hermetically sealed with sticking plaster, will heal better than when treated with any antiseptic or stimulating dressing known. Baynton first discovered this 150 years ago, but his method has been almost forgotten, as have possibly other good things in the wave of antisepsis following the discoveries of Pasteur and Lister. Maybe the antiviral of Besredka, or the bacteriophage of d'Herelle, is thus allowed to fulfil its curative mission unhindered by well-intentioned but injurious interference.

TECHNIQUE OF THE TREATMENT.

1. *First Attendance.*—The highest visible varicose veins are injected with 5 per cent. sodium morrhuate; then, no matter how fetid and dirty the ulcer may be, the leg is firmly encased from foot to knee in a 3-inch spiral

bandage of elastoplast adhesive. The zinc oxide and rubber adhesive is spread upon a domett base in this type of bandage; it is comfortable, lies smoothly on the leg, and is very rapidly applied. To prevent any tendency for the bandage to "creep," two 9-inch longitudinal splints of the same material are laid on the sides of the leg above the ankle, and the spiral is applied over these. The patient is then instructed to walk home. She will notice while doing so that the bandage, most uncomfortably tight at first, soon adjusts itself to the leg, and she experiences comfort which has been unknown to her for years. A very gratifying feature is the improvement in sleeping which results. The patient is also instructed to work, to seek for work, or to take exercise. Discharge will seep through the bandage, and should be washed off with soap and cold water. It is explained to the patient that a free discharge is beneficial.

2. *Interval between Attendances.*—The period before returning varies according to (1) the amount of oedema, (2) the size of the ulcer, and (3) the position of the ulcer. (1) Where the oedema is great the bandage becomes loose rapidly; it may have to be renewed within three days to keep pace with the expulsion of oedema. (2) When the ulcer is very large, the profuse discharge will at first necessitate renewal twice weekly of the bandage. Healing is so rapid that the intervals can soon be increased. (3) When the ulcer lies over the malleoli the movements of the ankle loosen the bandage, and more frequent renewals are required in these cases. The interval between the first two attendances, and also between the successive visits, varies from two days to two months, according to these three factors, the usual time being two weeks.

3. *Second Attendance.*—When the second attendance is made the patient removes the bandage. This is painless, because alopecia precedes ulceration in cases of varicose veins, and because the discharge has lifted the bandage from the surface of the ulcer; thus no damage is done to new epithelium or granulations, and there is no bleeding. At the routine inspection more varicose veins will be seen or felt, because of the reduction in the oedema, and these are injected. If the ulcer is large, skin grafting is performed. In order to keep the treatment ambulatory, the grafts are buried under the granulations as small inserts, or darned in the form of skin threads, or injected in the form of mince. The ulcer is then covered with adhesive in exactly the same manner as before, and the grafts "take" with monotonous regularity. The grafts are always autogenous, and are removed from the arm as a rule, the wound caused by their removal being carefully sutured. On this occasion, as on all others, the ulcer is measured by means of a squared celluloid transparency, and the area is plotted on a chart. This stimulates both the surgeon and the patient. The healing changes in the ulcer are noticed within a week, the raised edges are flattened out, the healthiest of granulations appear, and the leg rapidly resumes its original size and symmetry.

4. *Subsequent Supervision.*—When healing is complete the support is continued in a modified form by means of one of the ready impregnated Unna's bandages, many of which are on the market now. This support is kept up for three months, and then the patient is given the following instructions: (1) to report every three months so that any fresh veins may be injected; (2) if possible, to wear boots instead of shoes; (3) to cover any small abrasions of the leg with adhesive; and (4) if the ulcer is due to "white leg" an elastic support, such as the "Bourgeaud," should be worn continuously.

Two illustrative cases will show the effects of treatment.

CASE I.

A woman, aged 64, had been a sufferer from varicose veins for forty years, and from ulcer for twelve years. In spite of assiduous hospital attendance during those twelve years the ulcer had steadily increased to the size of 21 square inches. The leg was elephantoid, the ulcer lying more than half an inch below skin level. Under compression treatment there was complete relief from pain and insomnia, weight was gained, and the haemoglobin figure improved by 30 per cent. Seven weeks from the first attendance the ulcer was firmly healed, and the volume of the leg became 7 pints as compared with the original 10½. Varicose veins, invisible at first, soon came to the surface, and were dealt

with by morrhuate injections. During the whole period of treatment the patient had complete freedom from the pain which for twelve years had made her life a misery.

CASE II.

A man, aged 52, developed typhoid fever complicated by femoral thrombosis thirty years ago in the Boer war. An ulcer appeared as soon as he got about. Since then this never healed, but slowly grew to encircle the leg and measure 31 square inches in area. His total hospitalization over the thirty years amounted to seven and a half years. Every treatment, including skin grafting, was tried; amputation had been repeatedly refused, and the pensions committee had awarded him a lifelong pension of £2 per week. A most conservative estimate of the cost of this ulcer to the patient and State gave a figure of over £5,000! With twenty-one weeks of the treatment outlined previously he was completely cured. During the whole period of treatment he followed the most unfavourable of occupations, that of a house painter, earning £4 to £5 per week. He stated that during the treatment he had less pain than at any time in the course of the disease. There were no varicose veins at all in this case, so the patient is now wearing an elastic support to prevent recurrence.

These two illustrative cases, by no means the most severe, are taken from a series of 324 cured patients (478 ulcers) with a total area of 1,480 square inches, or rather more than 10 square feet of ulcer surface. The average rate of healing was 1 square inch in 5.1 days. In two years I have only traced three patients who did not continue treatment, and only one who did not respond to it—a woman who died shortly after from an abdominal malignancy. Of these 324 patients no fewer than 33 had refused amputation at some time or other; it is thus seen that we can, with this method, retrieve some of these derelicts from what Mayo has described as the "surgical dust heap."

CHRONIC ULCER OF THE LEG TREATED BY THE METHOD OF DICKSON WRIGHT.

BY

J. H. TWISTON DAVIES, M.B.,

HONORARY DERMATOLOGIST TO THE ROYAL SUSSEX COUNTY HOSPITAL;
AND

A. E. DRYNAN, M.B.,

HONORARY CLINICAL ASSISTANT IN THE DERMATOLOGICAL DEPARTMENT,
ROYAL SUSSEX COUNTY HOSPITAL.

We have thought it worth while to publish our first results in the treatment of chronic ulcer of the leg by this method. The number of ulcers having an area of more than five square centimetres bears a small proportion to the total number of ulcers treated. In nearly every case, however, the healing of the ulcer was a relatively minor episode in the restoration of comfortable function to the affected limb. We have only recently devised an apparatus for measuring the reduction in size of the swollen and brawny legs on which ulcers and chronic dermatitis occur, and so we are not in a position to produce numerical evidence of the improvement we have been able to obtain in what formed the bulk of our material. As regards the restoration of painless function, we can only say that our patients have been unanimous in their appreciation of what this treatment has done for them; the comfortable theory which we used to hold, in view of our failure to relieve—that such patients preferred to enjoy their disability—has been almost completely abandoned. There seems to be little doubt that the results previously obtained in out-patient work have always been inferior to those obtained by the individual doctor. Whenever we have discussed this method with our colleagues in general practice we have generally found the latter fairly well satisfied with their own results, and unwilling to regard our present results as worth the very little extra trouble that they involve.

It is, of course, probable that with rest in bed many of these ulcers would have healed, but, as already stated, by the Dickson Wright technique an important further

advance is made in that the leg is reduced to its normal size, cured of its tendency to swell, and in many cases, we believe, secured from the possibility of further trouble. Moreover, with this method the patients are able, and are indeed encouraged, to go about their work during the whole of the treatment. Pain disappears during the first forty-eight hours; with treatment by rest in bed it is generally aggravated. Healing of the ulcer can practically be guaranteed, and the duration of treatment, for this part only of the cure, can accurately be calculated by the formula:

$$\frac{\text{Area of ulcer in square centimetres}}{5} + 3 = \text{time in weeks.}$$

As regards the cost of the treatment, one case may be quoted:

Attendance at out-patient department, including roll of lint, 4 oz. ointment, 1/2 lb. wool, and two open-weave bandages every week for six years	£52 10 0
In-patient treatment—five months at £2 per week	£40 0 0
	£92 10 0

This contrasts with treatment by us:

Twelve special adhesive bandages at 2s. 3d.	£1 7 6
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We understand that under the "panel" the provision of these special bandages is refused on account of expense.

We do not describe our technique in detail, because we have found that in cases where this procedure has been attempted on the strength of a bare description—perhaps imperfectly understood—the results have been poor. We have had many visitors, however, and, so far as we can learn, results quite as good as ours have been obtained subsequently by those who have actually seen the method demonstrated practically. Briefly, however, the principles are as follows.

Any morbid condition which occurs exclusively on the lower extremity is produced wholly or partly by stagnation in the venous circulation, and the exchange of tissue fluids, due to the dependent position of the limb, and/or the varicosity of the superficial veins. We take this broad view on account of the remarkable results we have had with diseases other than chronic ulcer—namely, eczema, lichen planus verrucosus, Bazin's disease, and chronic dermatitis in every clinical variety. The object, therefore, is twofold. In the first place the limb is emptied of its oedema fluid, the dilated tissue spaces being kept closed until they shrink to their normal capacity. Secondly, the centripetal flow of venous blood is restored, at first by the action of the muscles on the deep veins, and later by blocking the varicose superficial veins. Our procedure is roughly as follows.

The ulcer is measured by means of a piece of celluloid (an old x-ray film) ruled into squares, and the figure recorded on a chart. The girth of the limb may be taken with a tape measure, or its volume may be measured by the displacement of water in a tank we have had constructed for the purpose.

If any varicose superficial veins are accessible they are injected at once with 5 per cent. sodium morrhuate, beginning at the highest point. The bandage is then wound on the leg, starting at the metatarso-phalangeal joints and ending just below the knee. This bandage, which is a proprietary article manufactured in England, is made of an elastic fabric, and is coated with an adhesive material similar to that on ordinary strapping. It is three yards long and three inches wide. The tension is varied according to the amount of oedema present, and in extreme cases may be great enough to endanger the continuity of the bandage. It has been found convenient to wind it from without inwards—that is, in the reverse direction to the normal. It is then dusted over with talc powder to prevent it adhering to the stocking, and the patient is instructed to walk home. It is replaced in a week's time. The patient is also instructed to do as much walking as could possibly be done if the leg were healthy.

No fear need be entertained as to the danger of imprisoning the septic secretions of the foulest ulcer. It has invariably been found, on removing the bandage after a week, that such an ulcer is no longer foul, but has become a clean bright carpet of healthy granulations, surrounded by the pale-bluish margin of advancing epithelium. *There is no real danger of putting the bandage*