

in the meantime having caused a free action of the bowels. The pain in the region of the heart much improved; the systolic bruit is still audible over the same area, without dulness on percussion. Can move the left arm with greater freedom. The pain in the head, which he has got bandaged, still very severe, and in other respects much the same as yesterday. Had slight delirium in the night. Temperature 101°; pulse 112, and rather small. To continue the salicin powders every three hours, and to have a tablespoonful of brandy in soda-water, which he prefers to potash, every four hours; opiate at bedtime as before. He was also ordered sixty grains of bicarbonate of soda in a pint of water; a lotion to be applied to the affected joints; diet as before; body to be frequently rubbed gently with a piece of dry flannel to remove the perspiration.

15th.—Considerable improvement since last report. Can move both arms freely, though still painful. The neck and knee-joints continue much in the same condition, the latter being less swollen. Slept better, and did not perspire so freely. Temperature 101°; pulse 104. Tongue still much furred; appetite greatly impaired; tenderness over the loins, but micturates freely. Pain in the heart almost gone, without change in the physical signs, probably owing to a permanent lesion produced by his former attack. To continue treatment as before. Ordered a lotion composed of an ounce of solution of acetate of ammonia, two drachms of rectified spirits of wine, in eight ounces of rose water; the lotion to be applied with a linen rag to the head when in pain or delirium.

16th.—Much improved this morning; pain in the head almost gone. Slept well, and can move the arms and legs without much pain. Can also turn in bed, and feels in every respect greatly relieved; swelling in the knees almost gone. Temperature 100°; pulse 98. Patient states that he did not perspire much last night, and is rather surprised at his sudden improvement, as he fully expected to be some weeks under treatment.

17th.—The same treatment having been pursued since yesterday, the alkaline medicine was stopped, as the patient expressed himself as quite well so far as the pains in the joints are concerned, and, though still weak, is quite free of pain except slight stiffness in the left arm. Temperature 98°; pulse 80, and rather weak. The systolic bruit is still audible, but in other respects he is quite convalescent. Able to sit up in bed, and to sup porridge and milk, though still a little thirsty. Ordered to continue the salicin for some days, and to keep his bed until completely cured.

20th.—Called on patient this morning, and found him sitting by the fire quite well, and only complaining of weakness, which has since passed away.

Called again on the 28th, and found he had resumed work again.

Commentary.—That this case was one of genuine rheumatic fever I have no doubt—there was no difficulty in the diagnosis; and that under ordinary circumstances it would have continued for some weeks is equally clear. Experience has taught us that these cases do not terminate spontaneously in a few days, even under the hitherto most approved methods of treatment; and that in this case its course was cut short by the salicin does not admit of doubt. How far the alkaline treatment may have influenced the result I am not prepared to say, but I have had sufficient experience in this disease to notice that, as a curative agent, the alkaline treatment in the early stages of rheumatic fever has no more effect upon the disease than so much ditch-water would have. It is therefore incumbent upon us all to give the treatment by salicin a fair and impartial trial. So far as I can judge from this case, I consider it a remedy of great value, if not, indeed, a specific; and, what is more, the case shows that heroic doses are not essential to the production of its specific effects.

Cupar, Fife.

ACUTE RHEUMATISM, FOLLOWED BY NECROSIS OF THE TIBLÆ AND LEFT RADIUS,

DURING TREATMENT BY SALICIN AND SALICYLIC ACID.

By G. HERBERT LILLEY, M.D., M.R.C.P.E.,

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I HAVE lately read with considerable interest a paper, by my friend Dr. E. Markham Skerritt, on the Treatment of Acute Rheumatism. Among the complications present in the cases which have come under his observation he only mentions those of the heart and lungs, which frequently accompany attacks of acute rheumatism, whether treated by salicin and the acid, or by the older remedies, bicarbonate of potash, perchloride of iron, &c. Dr. Skerritt's experience has led him, in summing up the merits of the many drugs employed in treating this formidable disease, to observe that salicin and salicylic acid "lessen the chance of complications in the same proportion as they shorten the disease." Doubtless there are many physicians who have given these comparatively new remedies for this disorder an extensive trial, and who speak favourably of the result of their treatment because on some points they have been found valuable, while the complications appearing during their administration would probably have been present under any circumstances. Now, in the case which I am about to mention, I cannot but think that the complication was introduced by the remedy employed, although it might have otherwise arisen. Periostitis is known to follow a course of scarlatina, or typhoid fever, or any acute febrile condition; though I cannot find rheumatic fever particularly mentioned as a starting point. Necrosis is a by no means uncommon sequel to periostitis; but necrosis setting in extensively in the early part of a course of acute rheumatism must certainly open the eyes of the physician in attendance, and justify an inquiry into the cause of its origin.

In reply to a short letter of mine, published in December last, Dr. G. F. Duffey, of Dublin, kindly furnished me with the following memoranda. He says that Professor Koster, of Berlin (?), in the *Berliner Klin Wochenschrift* (July 3rd, 1876), has ascertained by experiment that both living and dead bone is destroyed when placed in a solution of salicylic acid; but that, while spongy bone becomes as soft as leather in a few days when placed in a half-per-cent. solution of this acid, compact bone is more slowly affected. This is shown by the fact that the enamel of the teeth is very slightly affected by it, but the dentine exposed by caries is rapidly destroyed. The effect of the acid on living bone is also shown by the increase of the salts of lime in the urine soon after salicylic acid has been taken. These facts, Dr. Duffey states, were published in the *New York Medical Record* of October 14th.

The history of the case which has somewhat shaken my confidence in the value of salicin as a remedy in acute rheumatism here follows.

W. H. G.—, aged thirteen years, employed as a carrier in the brick-fields, was working as usual on Oct. 25th, 1876, when, suffering from extreme heat and perspiration, he drank freely of cold water, and also plunged both legs into buckets of this liquid. He remained for a considerable time standing upright, and with his boots on, in the water, until he felt cooler, and then resumed his work. On the following day rheumatic symptoms set in, with a marked rigor, headache, anorexia, thirst, restlessness, and pain and tenderness all over the body and in the joints—more especially those of the lower extremities. At night the pain became greater, his skin hot, and his whole surface bathed in a profuse perspiration. These symptoms became daily more intensified,

MR. THOMAS DAVIES, of Machynlleth, has been presented with a handsome silver tea and coffee service by the inhabitants of Barmouth (his native town) and the neighbourhood on the occasion of his marriage. The following is a copy of the inscription:—"Presented to Thomas Davies, Esq., M.R.C.S., L.R.C.P., L.M., by his friends at Barmouth, on his marriage, September 12th, 1877."

and the legs below the knees were covered on the fourth day with urticarial wheals. On October 30th, the fifth day of the disease, he was admitted into the Coventry Hospital, under the care of Dr. A. W. Read, one of the senior surgeons on the staff, to whom I am indebted for permission to aid in treating the case and to make the following observations.

On admission the morning axillary temperature was 104°, pulse 140, and respiration 30 per minute. I prescribed thirty minims of solution of perchloride of iron with ten minims of tincture of digitalis every four hours, and ordered that the patient should be enveloped in a warm blanket to encourage free perspiration, and that half-grain doses of powdered opium be given occasionally if the joint pain should be very severe. His diet consisted of broth, milk, and lemonade to relieve thirst. In the evening the temperature fell to 102·8°. On the following morning it was 102°, but rose again in the evening to 104°, falling again on the third morning to 102·2°, and rising towards evening to 102·4°. On the next morning (Nov. 2nd) great joint pain was complained of, and the treatment was varied, salicin in ten-grain doses being given every three hours, instead of the previous mixture. This considerably relieved the pain, and at the end of four days this remedy was discontinued. During this period the evening temperature remained stationary, and the morning temperature only varied one degree. On the morning of the 2nd the temperature was 101°. On the morning of the 5th it was 100°, and in the evening 102°. Now salicylic acid in ten-grain doses, and dissolved in a solution of acetate of ammonia, was given every three hours in the place of salicin. On the following morning there was a marked fall of the temperature from 102° on the night before to 98°. This remedy was employed for three weeks, but at the end of this length of time it was abandoned for the following reasons. From the morning of the 6th till the evening of the 13th the temperature continued to rise until it reached 104°, corresponding to the temperature of the morning of admission. This unexpected rise was due to the presence of considerable swelling, redness, and tenderness over the right ankle, which was due to the formation of pus. These symptoms, accompanied by other indications of increased pyrexia, led to a change of remedy. The following table will show the somewhat regular rise and fall of temperature night and morning up to the evening of the 24th, when salicin was discontinued:—

Nov. 14th.	—Morning temp.	100·6°	evening temp.	103·6°
„ 15th	„	100·6	„	103·3
„ 16th	„	101	„	102
„ 17th	„	102·2	„	103
„ 18th	„	101·6	„	103·8
„ 19th	„	99·8	„	103·8
„ 20th	„	100·2	„	103·6
„ 21st	„	101	„	104·4
„ 22nd	„	101·1	„	104·2
„ 23rd	„	100·8	„	103·6
„ 24th	„	101·5	„	104·2

Ordered thirty minims of a solution of perchloride of iron with five minims of tincture of digitalis three times a day.

The swelling over the ankle, which was first observed nearly a fortnight since, was now considerably increased and more painful. Poultices of linseed meal and yeast were applied; and a diet of meat, with an egg daily, were substituted for the milk and broth. In addition to this enlargement over the right ankle, one of a similar nature, though to a less extent, was now observed a little above and to the outer side of the left wrist, and the early indications of a similar condition along the front of the left tibia. The patient had been losing flesh considerably for some days past, though his appetite was fairly good. From the time his medicine was changed and the salicin discontinued there had been a total absence of joint pain, and no inconvenience was felt beyond that necessarily occasioned by change of applications to the affected parts. The urine up to the evening of the 24th had been excessively alkaline in reaction, with a specific gravity varying from 1030 to 1010, and an excess of phosphates present. The temperature from the evening of the 24th to the evening of the 29th showed very little encouragement, as the following table will indicate:—

Nov. 25th.	—Morning temp.	99·1°	evening temp.	103·4°
„ 26th	„	99·8	„	103·8
„ 27th	„	99·8	„	103·3
„ 28th	„	99·6	„	103·3
„ 29th	„	100·3	„	103·2

Ordered four ounces of port wine per day. A free incision was now made into the swelling over the right ankle, and a large quantity of pus escaped.

Nov. 30th.—Morning temp. 99·3°; evening temp. 103·6°. Ordered two pints of porter daily in addition to present allowances. Extreme pallor and feebleness, with increasing emaciation, were prominent symptoms, though the appetite had not lessened in the least. A lotion of five grains of sulphate of zinc in an ounce of water was used in the place of the poultices. Pain now had everywhere ceased.

Dec. 1st.	—Morning temp.	99·1°	evening temp.	102·8°
„ 2nd	„	99·7	„	103·4
„ 3rd	„	99·5	„	102
„ 4th	„	100	„	103
„ 5th	„	99·7	„	102·6
„ 6th	„	102·3	„	101·9
„ 7th	„	100·4	„	101·5
„ 8th	„	99·1	„	101·9
„ 9th	„	99·6	„	—

Ordered half an ounce of cod-liver oil twice a day, and twenty minims of solution of iron, one grain of sulphate of quinine, and one ounce of infusion of quassia three times a day.

There was nothing now worth noting in the temperature for some days. On Dec. 13th four separate centres of ulceration appeared along the front of the right tibia; pulse was now 104; breathing normal. On the 16th, the urine on examination was found strongly acid, sp. gr. 1015, no albumen present, or deposit of any kind. Ordered two grains of quinine three times a day in mixture. Morning temperature 100·6°. From this date up to January 4th—the seventy-first day of the fever—the morning and evening temperatures maintained the same regularity of interval, only falling slowly until they stood at 97·8° in the morning, and 99·2° in the evening. On Dec. 22nd a large fluctuating swelling was noticed above the left wrist, to which a poultice was applied, and similar treatment was adopted to the left leg. On Jan. 10th, a mitral regurgitant murmur was distinctly audible. On Jan. 18th, ordered two eggs daily, and an increase of wine from two to four ounces a day. Appetite good; bowels regular; total absence of pain; marked gain of flesh and strength. There was nothing more to observe in the temperature scale, for from this date up till April 18th, though the temperature was taken regularly night and morning, it never reached higher than 100°, and only twice during this period did it approach this standard. On Jan. 24th a piece of diseased bone, about an inch in length, came away from the left radius. On Feb. 3rd, I administered chloroform for Dr. Read, who removed a great quantity of sequestra from both tibiae, and a small scale or two of dead bone from the left wrist. On Feb. 13th the mitral murmur had entirely disappeared. On the 20th some more small pieces of bone were removed from the affected wrist. On March 16th another piece of bone was removed from the radius, of about two inches in length.

On April 18th patient was discharged from the wards, and was so far improved that he was able to attend as an out-patient. In the course of a few weeks he was able to take short walks by the aid of two sticks, and when he called to see me early in June his wrist was perfectly well. I hear he is still under Dr. Read's care, and has undergone several more operations for necrosis since I last saw him. There is yet considerable bone disease going on, which will require further surgical interference when sufficiently advanced.

Before concluding, it is perhaps fair to mention one or two facts in connexion with the boy's history, which should have been noted earlier. He is of a strumous family; his father was a great drinker, and the poor lad, the eldest of six children, was compelled to support by hard work his mother and five younger brothers and sisters. One of the younger brothers is suffering at the present time from strumous arthritis. However, the patient was in perfect health up to the day when he exposed himself to the sudden chill. It may be difficult to say whether any disease might not have been the means of inducing necrosis in a subject of such a

temperament as his; but Prof. Koster's experiments, coupled with the rarity of this as a sequel to acute rheumatism, and the date of the appearance of the complication during the course of treatment by salicin and salicylic acid, render it by no means improbable to my mind that the bone disease was an artificial rather than a natural production.

Hatton, Warwick.

TREATMENT BY SALICYLIC ACID.

By D. R. JONES, L.S.A.

THE following case is within my experience a peculiar one, and in looking through THE LANCET for the past twelve months for records of treatment by salicin, salicylic acid, and salicylates, I find it to correspond very nearly with the two cases in the Radcliffe Infirmary, Oxford, reported by Dr. Tuckwell in THE LANCET (vol. ii. 1876, p. 681), and with none others.

W. T.—, aged about thirty-five, a man of weak intellect, was first seen by me on Sept. 5th, 1877, about 5 P.M. He had come home from his work quite disabled two or three hours before, but had complained of pain in the back for some days. Now the pain in the back and in the ankles was excruciating. He had felt chilly, and was now bathed in acid-odoured perspiration, with a temperature close to 104°. His tongue was coated with a white fur. I live five miles away from him, but I insisted that the medicine should be sent for at once. Accordingly he began the following mixture in two or three hours from the time I saw him: two drachms and a half of salicylic acid, and three drachms of acetate of potassium, in sixteen ounces of water; one ounce to be taken every three hours.

Sept. 7th.—About 5 P.M., had been very restless and was slightly delirious. Still complained of the back, but not of ankles or of other joints. Temperature 104.2°. To continue mixture.

8th.—More delirious and restless; said he was quite well. Temperature 102°. To continue mixture.

9th.—Still equally delirious; handled all his limbs in his delirium. Temperature 100.2°; pulse slightly intermittent. Heart-sounds normal. Mixture had been finished in the night, and he had been without for some eight or ten hours. Was thought by the attendant to be more quiet since he had resumed it.

10th.—Temperature 99°; pulse slow, but intermittent; utterly unconscious of persons and objects around; respiration loud and sighing; very restless; involuntary evacuation of urine. Mixture to be discontinued.

11th.—Still very delirious, but was able to recognise me. Temperature normal; pulse still slightly intermittent; urine sometimes passed involuntarily.

12th.—Met Mr. Powell in consultation, who concurred with my treatment. Pulse and temperature normal; urine and fæces had been passed involuntarily since yesterday.

On the night of the 12th he had a draught of chloral hydrate and bromide of potassium, of each thirty grains, divided into three oft-repeated doses. Slept for short intervals. Since then his intellect has regained its normal strength, and he has long ago returned to his care of the kennel.

I have omitted to say that he continued to perspire profusely till after leaving off the medicine, and that his urine, which was throughout remarkably free from sediment, was for some days of a greenish tint.

Dr. Tuckwell, in a subsequent number, in reply to Dr. Havilland Hall, tells us that an appreciable quantity of carbolic acid was detected in the salicylic acid he used. I used two different samples in this case. The first sample was used in several other cases with the happiest results. The second was also used simultaneously in two other cases, without these symptoms; in one of them with extremely happy results. This patient had had three previous attacks, very prolonged. The fourth came in very severely, but at once subsided with the salicylic acid. I may further remark that the acid was in this case only given in ten-grain doses every three hours. Dr. Tuckwell had been giving double that amount.

Llandyssul,

IS YELLOW FEVER INFECTIOUS?

By JASPER CARGILL, L.R.C.P. LOND.

IF this question were submitted to a large number of medical men, I am sure their answers would preponderate in the negative; indeed, I know that the question is very much a vexed one, and for this reason I venture to offer a few remarks thereon, which I hope may not be thought altogether unworthy of attention, inasmuch as the belief, more especially by laymen, that yellow fever is *not* infectious, may lead to disastrous results. I open the question in order to court criticism, without which matters of doubt are often left unsolved. I shall proceed at once to state two cases. While at Linstead, St. Thomas-in-the-Vale, in 1868, I was called to see a coloured man (almost black), a native of Jamaica, who resided at Rio Magna. I must here remark that Rio Magna is one of the cool hill districts about thirty-eight miles from Kingston, and at a considerable elevation above the level of the sea. On arriving at the house of my patient, I found him in the last stage of yellow fever. He had been ill altogether five days, and I came just in time to see him throw up a basinful of black vomit. There was suppression of urine, but I managed to draw off a few drachms of highly albuminous urine with a catheter. There was epistaxis and jaundice. The man died a few hours after I saw him. His wife, a brown woman, who was pregnant at the time, took the disease six days after the death of her husband, and died in four days. There was more hæmorrhage in her case, and her symptoms were, if possible, more virulent than her husband's. I was naturally struck with the peculiarity of these cases, as there was no fever of any kind whatever prevailing in the district at the time, and on making inquiries I was informed that the man, a small shopkeeper, had gone to Kingston a week before he got ill to receive some goods which he had imported, and that he, while in Kingston, had slept for two nights on board the ship; that at the time there were several cases of yellow fever in Kingston, chiefly confined to the merchant shipping, and that from this ship a few cases had been sent to the public hospital. This, of course, fully explained the matter; but it might be said that in the man's case the infection originated in the ship itself, making the cause a local one; but this explanation cannot be urged in the wife's case. The condition of pregnancy, of course, rendered her more liable to contract disease than otherwise; but it is so very unusual for natives to get yellow fever, even during epidemics, that I was induced to attach more than usual importance to the evidence of direct infection in these cases; and it is because these patients were coloured natives, who had never been off the island, that I select their cases as a foundation for the argument in favour of infection in yellow fever. Other cases, equally pointing to infection, have occurred in my practice, and to my knowledge in the practice of others, but these have all been among Europeans, and on this account not quite so conclusive as in the Rio Magna cases. I mentioned the facts to the late Dr. Alexander Geddes, an experienced and able practitioner, then practising in Kingston, and he told me that he had seen one instance during the whole of his experience of a *black* man being attacked with yellow fever, and in that case it was clearly in his opinion traced to direct infection, the man being a coal carrier, working at the time between a wharf in Kingston and a steamer in which there were cases of yellow fever. There is no doubt that the man from Rio Magna, residing as he did in the cool country district, was, on that account, more susceptible to the disease than the inhabitants of the lowlands, more especially the seaports; hence it is evident that European settlers, whose duties require them to be frequently in the towns should certainly not reside in the hills. The mere residence in the country parts of Jamaica, especially the cold mountains, prevents to a certain extent the process of acclimatisation, and new comers who reside