to the scalp for another four weeks. The patient was advised not to wash the scalp for the first fortnight. At the beginning of the third week the scalp was washed with soap-and-water. This is the method recommended by Ingram, and it proved a very satisfactory one, though not superior to the vigorous local application of a 10 per cent. sulphur ointment recommended by Percival. In three cases we found that even a 2 per cent. solution of iodine proved too irritating to the children, and a 10 per cent. ung. sulphuris application was applied daily for three weeks instead.

The scalp was epilated in every case except two, and in the latter the full therapeutic dose was not prescribed on account of their state of health. One of our failures was an epileptic, and the other had a spinal curvature. In the former, the drug produced no ill effects, and has not increased the frequency of the fits. Falling of the hair was first noticed on the twenty-fifth day, and the scalp was never completely bald.

In the child with a spinal curvature epilation was never complete, and for many weeks after the administration of the drug and x rays the bald irregular patches on the scalp presented a curious appearance. On the fifth day following the administration of the drug a scarlatiniform rash was noticed on the child's neck and face. On the eighth day the rash had disappeared, and the child complained of itchiness of the skin and pain under the heels. The child was somewhat lethargic for a few days. A rash was observed in three children.

Toxic symptoms were observed in 43 per cent. of our cases, and, with the exception of one child, were of a mild pseudo-rheumatic character. The commonest symptoms were malaise, lethargy, weakness, and loss of muscular power and pains, particularly in the legs. The lower limbs seemed to be most commonly affected.

One case only in the series gave rise to anxiety. He was a boy of 5, and on the eighth day a diffuse rash was noticed on his legs. On the eleventh day the rash appeared all over his body. The face and neck were swollen, and the legs were oedematous. The temperature was normal, and a trace of albumin was found in the urine. The child remained in bed for a week, and made an uneventful recovery. He weighed 15.9 kilos, and 15.9 c.cm. of a solution containing 8.5 mg. of thallium acetate per c.cm. was administered.

CONCLUSIONS AND SUMMARY

It is claimed that older children are more liable to show toxic manifestations. We found that no particular age period was exempt, and only a few of the children exhibiting toxic manifestations were confined to bed. They all made a complete recovery. All the children, except two, responded well to treatment, and fulfilled the usual tests for a cure. X rays and thallium acetate administration are the only two satisfactory methods known for treating ringworm of the scalp. Both have their firm adherents. X rays have proved their value, and the expert has produced perfect results. It must be borne in mind, however, that in less experienced hands they cannot be used without danger, and many partially bald heads still linger as a monument to faulty x -ray therapy in early infancy. The superiority of thallium acetate treatment over x rays is most obvious when an epidemic of ringworm of the scalp has to be combated. In the treatment of the twenty children from the Cottage Homes we were able to stamp out the disease, with the aid of this drug, in eighty-five days. With x rays it would have taken us a much longer time, and it would have also entailed much more labour. According to Percival, the average duration of treatment at Edinburgh, from the time of administration of the x rays till the cure of the disease, was 135 days. It is impossible in the average skin clinic in the course of an epidemic of ringworm to treat every case immediately by x rays, whereas thallium acetate can be given at once to every child as soon as the diagnosis is made. The children at the institution have been carefully watched (by W. A. Ll.) for six months, and nothing unusual has

been noticed in their physical or mental development. Although the new method may prove a snare to the unwary and has been severely criticized, our results have been particularly satisfactory. The children are healthy, vigorous, and mentally alert.

To summarize. Thallium acetate is a dangerous drug, and therefore requires careful technique in its administration. Like lead it is a cumulative poison, and must not be repeated for at least four months. Toxic symptoms are rarely severe, and even the severe case encountered in our series recovered without any sequelae. When properly administered it can be used with ease and safety in the treatment of ringworm of the scalp.

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THE POSTERIOR FOSSA COMPRESSION SYNDROME

BY

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Having several times in the course of the past twelve years encountered a syndrome which, although it may occur from high generalized intracranial tension, appears to be particularly characteristic of rapidly increased intracranial pressure in the posterior cranial fossa below the tentorium cerebelli, I venture to draw attention to it in the hope that its more general recognition no lead to its effective treatment. If ineffectively treated the condition is fatal. The first case of which I had experience (when a house-surgeon) was due to a fracture of the base of the skull and ended fatally; others with a similar termination have also been related to me. Since recognizing the syndrome and its cause, I have been privileged to tide a patient through it.

THE SYNDROME

The patient collapses and respiration stops, while the heart continues to beat vigorously. If nothing is done the heart soon ceases to beat, the patient previously becoming more and more cyanosed. A failure of the respiratory centre evidently takes place; the cardiac centre being apparently less vulnerable to the effects of sudden compression, the heart action continues. Artificial respiration results in the diminution of the cyanosis, and patients have been kept alive for ten or twelve hours while artificial respiration has been kept up; but as soon as this has flagged the cyanosis has increased, the heart has slowed, and, when artificial respiration has finally ceased, the patient has died. Such a case was reported to me by Professor Sheen as having been met with in his

experience, and one occurring in my own experience and produced by haemorrhage from a fracture of the base of the skull running through the posterior fossa has already been mentioned.

The cause of the syndrome would appear to be the relative vulnerability to pressure of the respiratory as compared with the cardio-inhibitory centre. The compression may be produced by haemorrhage into the posterior fossa or by an intracranial tumour or abscess, and in the latter instances may result from oedema in association with the lesion. This was apparently the mechanism in the case which follows. Recognition of the syndrome enabled one to relieve the condition and subsequently deal with its cause, a cerebellar cystic glioma.

HISTORY OF CASE

The patient, a single woman aged 30, was transferred to the surgical unit from another hospital with a diagnosis of cerebellar tumour. The signs and symptoms were typical of such a lesion, and there was a high degree of bilateral papilloedema. A ventricular estimation had been carried out, and she was in one of the unit wards awaiting operation when one morning I had an urgent message from the house-surgeon (Mr. J. F. Meredith), asking me if I would come and see her as she had suddenly collapsed. On reaching the ward I found him carrying out artificial respiration. The patient was unconscious, and as soon as the efforts at artificial respiration were relaxed she would become cyanosed, the pulse would slow and eventually stop, and she would be to all appearances dead; but with renewed artificial respiration the pulse would come back, the cyanosis pass off, and her colour improve.

With a knowledge of the outlook—namely, indefinitely prolonged artificial respiration and then death when exhaustion of the workers led to cessation of artificial respiration—it was realized that radical action was imperative. An oxygen cylinder and a gum-elastic catheter were sent for. By manipulation the catheter was placed through the glottis; on connecting it to the oxygen supply the colour of the patient was kept pink and the pulse remained good. She was taken at once to a theatre, and without any anaesthetic and with the assistance of my colleague Mr. R. V. Cooke and of Mr. Meredith a suboccipital decompression consisting of the removal of the greater part of the post-occipital bone back to the foramen magnum so as to remove its posterior margin, and a laminectomy of the atlas, were carried out. When the dura mater was opened the cerebellar tonsils bulged into the wound, and the medullary compression was evidently relieved. At this stage respiratory movements commenced; shortly afterwards the oxygen supply was turned off, and it was found that the catheter could be withdrawn from the trachea. The wound was closed and the patient returned to bed. She regained consciousness and recovered from her alarming experience with no untoward effects except for a small cerebrospinal fluid fistula, which, however, soon closed. The decompression relieved her symptoms to a great extent, and she was discharged to her home and was comparatively well for eight months. She was then readmitted and the cyst removed from the cerebellum, but unfortunately she contracted bronchopneumonia, from which sixteen days after operation she died. The interest in the case here, however, lies in the appearance of the posterior fossa compression syndrome and its treatment by emergency posterior fossa decompression.

COMMENT

By prompt radical treatment it may be possible to tide the sufferer from its effects through an otherwise fatal syndrome, and it would appear that, when in a case of raised intracranial tension—whether from haemorrhage, new growth, or abscess—respiratory failure occurs, prolonged efforts at artificial respiration should not be carried out, but with all possible dispatch relief of medullary compression should be secured by an emergency posterior fossa decompression. Oxygen administered through an intratracheal catheter, as in this case, may enable the operation to be undertaken; but, failing introduction of a catheter in this way, an emergency tracheotomy or

laryngotomy would appear to be advisable and the oxygen should be supplied by this route. It might be objected that, rather than the performance of such a radical procedure, a reduction of intracranial tension with relief of medullary compression might be brought about by ventricular tap or by intravenously administered hypertonic salt solution or glucose; but such means would appear less certain, and in any case would produce only transitory effects. In the posterior fossa compression syndrome, therefore, the indication would appear to be an extensive mechanical relief of pressure, as in the case to which reference has been made.

A CASE OF MALARIA DUE TO PLASMODIUM OVALE STEPHENS 1922

BY

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Stephens (1922) reported a new malaria parasite in a man coming from East Africa, and named it *Plasmodium ovale* on the basis of its morphological features in the asexual stage, pointing out that it resembled rather closely the quartan parasite, but that infected corpuscles were frequently oval in shape and showed Schüffner's dots. Later, Stephens and Owen (1927) described another instance of infection with *P. ovale* in a case from Nigeria; male and female gametocytes were on this occasion described which were indistinguishable from those of quartan except for the stippled, decolorized margin of the red cell; they concluded that the relationship, if any, of *P. ovale* to *P. malariae* remained to be demonstrated.

Warrington Yorke and Owen (1930) met with an infection with *P. ovale* in a hospital patient from Nigeria, and by means of direct blood inoculation passed it through a series of five general paralytics or tabetics. The parasites were morphologically indistinguishable from *P. malariae*, but the cycle of schizogony was completed in forty-eight hours, and the temperature charts were tertian in type. The infected red cells were moderately enlarged, and occasionally enormously so; they were pale, fragile, frequently oval in shape, having usually an irregular, raggy outline, and being heavily stippled, as described by Stephens.

James, Nicol, and Shute (1932) obtained blood containing *P. ovale* from a case of Professor Warrington Yorke's, passaged it through fourteen general paralytics, and studied the sexual form in the mosquito; the arrangement of pigment in young oocysts was found distinctive. The disease was also transmitted by the bite of experimentally infected mosquitos, *Anopheles maculipennis*, as well as by sporozoites obtained from the salivary glands and injected intravenously. Later the same authors (1933) reviewed the whole subject, and concluded that the nomenclature of *P. ovale* was correct.

Since 1922 only four naturally infected cases appear to have been diagnosed in this country, and for this reason the following case, which presents several features of interest, seems worth recording.

CASE RECORD

The patient, a male aged 28 years, was sent by his firm on August 8th, 1932, for examination regarding his suitability for the Tropics, and following a favourable report proceeded to West Africa, arriving at Lagos on September 19th, 1932, and leaving Freetown on February 9th, 1933, for England. During this period of 143 days he visited Nigeria, the Gold Coast, Gambia, and Sierra Leone in this order, and was quite well except at the end of October in Lagos, when he was severely bitten by sand-flies, and suffered from an attack of