case of disease not at the time attending the clinique is shown on the screen by the lantern. The exhibition of lantern slides is most useful also for illustrating eye diseases in groups, and of showing instances of interest either by their rarity or otherwise. Again, repeating by the lantern on the screen what has already been demonstrated on patients is found practically to be a most valuable means of impressing the facts on the mind of the student. In a few lectures on this plan the student can be shown points of all important diseases of the eye which will enable him to acquire a good, practical, working knowledge of eye work.

REFERENCES.

¹ *The Lancet*, vol. i, 1904, p. 1181. ² *Antiseptics in Cataract Extraction*, BRITISH MEDICAL JOURNAL, February 14th, 1880, p. 241.

ON RHYTHMICAL VARIATIONS IN CEREBRO-SPINAL PRESSURE.

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With a Note by FRANK EVE, M.D.

THE two cases here reported were under the care of Miss Murdoch, Senior Physician; in both lumbar puncture was performed in the course of what was apparently acute tuberculous meningitis. In the first case (a child, aged 7) the puncture was made in the third week of the illness, Dr. Eve's cerebro-spinal manometer* being used for measuring the pressure.

The pressure at first was only slightly raised (11 in. of water), but as usual in high pressure cases the pulse curve was clearly seen while the respiratory wave was almost absent. Then commenced the curious phenomenon which it is desired to record. The pressure gradually rose in waves of regular rhythm, rising slowly, pausing at the summit, and then rapidly dropping in the course of a few heart beats through a fall of 7 or 8 in. Each succeeding wave attained a higher level than the preceding, till at the end of about twenty minutes the pressure had risen step by step to the high level of 32 in. The ascent of each wave occupied about 50 heart beats (30 secs.), remained at the summit for about 100 or 150 heart beats, and then fell quickly in about 10 heart beats. The whole cycle occupied about a minute. The child being comatose, there was no movement or struggling when the needle was inserted or throughout the whole observation. Neither could alterations in the tension of the pulse be detected. The abdomen was repeatedly palpated and was always perfectly flaccid. The respirations were as peaceful as in sleep, so that the pressure variations appeared mysterious and unaccountable.

Seven drachms of cerebro-spinal fluid were withdrawn, the fluid escaping very slowly. Finally, the pressure was left at 5½ in., from which it showed no sign of rising. There was transient improvement after the spinal tapping, the child losing the rigidity of the limbs and becoming conscious enough to put out its tongue when requested. The following day lumbar puncture was repeated, and the pressure variations were accurately noted for a space of two and a half hours. There was again the gradual climb from 9 in. up to 24 in. in the course of twenty minutes,† but the rhythmical element was much less marked. The waves were only 1 to 2 in. high, and their ascent and descent were of equal rapidity. As before, the child was perfectly tranquil, with the exception of vomiting once and a little twitching of the face and limbs. The withdrawal of only 4 drachms was sufficient to reduce the pressure to 4 in. The fluid was clear (specific gravity 1004), and a large "spider-web" clot formed in it in twelve hours. A film showed lymphocytes predominating. Death occurred two days later, on the twelfth day of illness.

In Case II, also of acute tuberculous meningitis, in a boy aged 9, lumbar puncture was performed and the pressure observed for thirty minutes. Again there was a marked rise of pressure, from 16 in. at the beginning to 34 in. at the end. But the rise was not in this case marked by any

regular rhythm, though there were oscillations of from 2 to 6 in.

As in the last case, there was nothing in the pulse or respiration to account for the rise or variations in pressure, and the patient was tranquil throughout; 12½ drachms of clear fluid were withdrawn, reducing the pressure to 5 in. The fluid showed a "spider-web" clot after twelve hours. Its specific gravity was 1005, and a film showed abundant lymphocytes. No improvement was observed after spinal tapping, the child dying eleven days later.

Epitome of Cases.

CASE I.—Girl, aged 7. Eighteen days' history of gradually increasing drowsiness, with vomiting, and later with pyrexia. When punctured her condition was: Coma, dilated fixed pupils, fundi normal, knees drawn up, Kernig's sign positive, knee-jerks absent, limbs rigid. During the last two days Babinsky's sign developed, neck muscles became stiff, and there was incontinence. *Post-mortem* examination showed yellow lymph at base of brain, and extending along middle and posterior cerebri. No tubercles seen. Foramen of Magendie patent.

CASE II.—Boy, aged 9. Three weeks' cough, followed by slight squint, delirium, Kernig's sign, and finally coma, with stiff neck, increased deep reflexes, and incontinence. *Post-mortem* examination showed minute tubercles along middle cerebri, and the foramen of Magendie almost obliterated by lymph. Miliary tubercle in lungs also, and primary caseous focus at apex of right lung.

REMARKS BY DR. EVE.

Miss Murdoch being away, I was fortunate enough to see both these cases, and was present during the whole of the first lumbar puncture; so that I can fully endorse Miss Kensington's interesting observations.

The explanation of the rhythm is not obvious; presumably it must be due either to alterations of general blood pressure or to the existence of a centre for the control of the cerebro-spinal pressure. The rhythm resembled in many ways Traube-Hering curves of general blood pressure; but it might be argued that a rise of blood pressure so great as to treble the cerebro-spinal pressure should be perceptible to the finger on the pulse or in the complexion. But blood pressure in children is, I believe, always hard to estimate, and no instrument to measure it was available.

In health the cerebro-spinal pressure lies near the venous pressure, but it seems scarcely possible that this should be so in disease, as in the 2 cases now under discussion. Case I also shows that reliance must not be placed upon the rate of flow from the needle as a rough guide to the cerebro-spinal pressure. In spite of the high pressure the fluid emerged very slowly on this occasion.

A CASE OF ATROPHY OF THE PHALANGES OF THE HANDS WITH JOINT LESIONS

SEQUENTIAL TO MULTIPLE TUMOURS OF THE SKIN.

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THE case here recorded was recently admitted under my care into the Yorkshire Hospital for Incurable and Chronic Diseases, Harrogate, and shown by me at the last annual meeting of the Yorkshire Branch of the British Medical Association held in that place.

Both the past and present condition of the patient betray such unusual features that I have deemed it worthy of record, especially because, as will be presently seen, the early facts of it have already been published and the case exhibited on a former occasion.

A. K., aged 47, formerly a clerk in the City of London, had enjoyed good health up to the beginning of 1896. Some years previous to that, however, he had gonorrhoea, but he does not admit syphilis. His family history is good. Soon after the commencement of his present breakdown he became affected by multiple tumours covering nearly the whole body, for which he came under the care of Dr. Radcliffe Crocker, in whose work will be found the following interesting report of his case:—

"A remarkable case, with myriads of tumours with 'myeloid cell' structure, was shown by me at the Dermatological Congress in London in 1896. The

* Made by Messrs. Allen and Hanbury, London. See *Lancet*, April, 1905.

† This gradual rise is probably due to the reaccumulation of the small amount of fluid absorbed into the manometer.

Radiogram of fully extended fingers (palm side).

tumours developed soon after an attack diagnosed as acute rheumatism in a man aged 39. They appeared first on the hips on March 3rd, then about the elbows, then all over the back, and then on the legs. On March 6th there were a few on the face. When I saw him with Mr. Sworn on April 29th there were congeries of coalesced tumours on each elbow forming a nodular mass some 2 in. in diameter; near this mass were isolated tumours, from a hemp seed to a filbert in size, but

purplish-red tint made up of myriads of small tumours. On the trunk, in front, there were only a few tumours, but there was a purplish infiltration like that of the back at the lower part of the abdomen. There were very numerous tumours at the lower part of the buttocks, a moderate number at the back of the thighs, and scarcely any below the popliteal spaces. There were only a few small tumours in front and inside the thighs, but some were like those on the elbows and knees.

Photograph of hands.

the majority were roundish, very distinctly raised, of a brownish-red colour, and of firm consistence, but quite painless and not tender. Over the buttocks and hips there were many scores of similar growths, a few of them $\frac{1}{2}$ in. in diameter; near the anal cleft there was a uniform brick red infiltration, in which tumours were not traceable. Nearly the whole of the back below the spines of the scapulae was a mass of nodular infiltration, of a

"There was effusion of fluid into the sheaths of the tendons at the wrists, knees, and tuberosity of the tibia. His wife said there were a few lumps in the scalp as far back as July, 1895, and that they had increased in size and number since. A tumour evolved quite suddenly in a night, enlarged to a pea or bean, and sometimes involuted again, leaving brown spots. The patient was not cachectic, but as he had much pain in his joints, salicin

in 15-gr. doses three times a day was prescribed. In a week it was noticed that many tumours had become smaller, and in a week or two more scores of them had disappeared and many others were in process of absorption, and cavities could be felt in the larger ones. The infiltration in the back diminished greatly, and when shown at the Congress a very large part of the disease had disappeared. Unfortunately he has been lost sight of since."

The tumours described by Dr. Radcliffe Crocker persisted until 1898, when at about the time of their disappearance the patient was one day seized with violent pains in the shoulders and hips. The affection of the hands, shortly to be described, has developed gradually since.

When the patient first came under my observation (September, 1905) there was a mobile subcutaneous tumour of the size of a marble on the chest wall, immediately below the right axilla. Another tumour, of about the same size, was present over the upper part of the sacrum. The overlying skin was not in any way discoloured, and in the course of a few weeks the tumours completely vanished, leaving no trace.

The feature of the case which I believe renders it unique is the condition of the hands, which will be better appreciated by an examination of the accompanying illustrations than by any verbal description. The skiagraph shows that the phalanges of both hands have been almost completely absorbed. The fingers, in consequence, have materially shortened, and, as the skin surface has not appreciably lessened in extent, a peculiar appearance is presented, which may be compared to a kind of "telescoping" of the digits. On the dorsum of each wrist there is a large firm swelling, which is not so opaque as to show in the skiagraph. The skin of the hands, in common

with the rest of the body, is somewhat bronzed. The power to move the fingers is lost, and there is considerable limitation of the movement of the wrists also. The patient thinks this condition of the hands has been stationary for the past two years.

The knees are almost completely fixed in the semi-flexed position, and, when moved to the smallest extent that is possible, crepitation can be felt; the shape of the joints is not, however, greatly affected, and no osteophytes are perceptible. The feet are in no way affected, nor are any other joints involved. The patient thinks there has been some shortening of the face in its long axis. The head is not increased in size, and there is no enlargement of the tongue.

The skin of the scalp is thickened, and covered with clusters of brown warts (*verruca plana*). There is no loss of hair. The patient's general health is not affected, and his chief trouble is his inability to walk owing to the fixation of the knee joints. Dr. Gruner has kindly examined the blood and the urine for me at the Yorkshire Pathological Laboratory, Leeds, and I append his report:

Blood.—Examination of the films has given the following differential count of the leucocytes:

Polymorphonuclear, 41 per cent.
Lymphocytes, 25 per cent.
Transitional forms, 15 per cent.
Large mononuclears, 4 per cent.
Eosinophiles, 15 per cent.

This shows a remarkable increase in the eosinophilous cells. There are no evident changes in the erythrocytes. Blood platelets are not conspicuous.

Urine.—250 c.cm. have been found to contain 0.199 gram of metallic calcium. The percentage is thus 0.008, which is rather less than normal.

REFERENCE.

¹ *Diseases of the Skin*, vol. ii, p. 958.

DEFORMITY OF LOWER LIMBS.

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THE Hindu of whom photographs are here given has the appearance of being about 32 years of age, is in sound health and of good muscular development as regards the upper part of the body. Owing to his curious congenital deformity he has been able to live in comfort by following the occupation of a beggar.

The whole of the body above the umbilicus is perfectly natural except that the liver is small. The upper border of the hepatic dullness is at the upper edge of the seventh rib at its junction with the costal cartilage, while the lower limit of dullness does not quite reach the lower margin of the costal cartilages. In the line of the anterior axillary fold the lower border of liver dullness commences $\frac{1}{2}$ in. above the lower margin of the ribs, and extends upwards for 1 in. only. No hepatic dullness can be made out posteriorly.

The circumference of the neck is $13\frac{1}{2}$ in.; of the thorax, $31\frac{1}{2}$ to 33 in.; of the abdomen, 22 in. The length of each arm from the acromial spine to the external humeral condyle is $11\frac{1}{4}$ in.; of the radius, $9\frac{3}{4}$ in. The upper margin of the

tibia can be palpated easily from the front as well as from the outer side, and can be felt to be in contact with what appears to be a perfectly normal lower femoral end, the knee-joint being maintained in a state of flexion, even when the patient is lying on his back. The patella is very small, and cannot be moved from the femoral intercondylar recess. What appears to be a great trochanter can be felt $1\frac{1}{2}$ in. below the right iliac crest. There is no

mobility of the head of the femur on the ilium. The tuber ischii is normal. What exists of the shaft of the femur appears to be a short thick stump.

The above description applies to the right side; the left is similar, but the deficient length of the left lower extremity below the knee causes a tilting upwards of the right side of the pelvis when the man is standing. The fold of the buttock commences at the upper part of the popliteal space.

The right fibula is quite natural, and so is the right foot. The length of the right tibia from the upper margin of the head to the tip of the internal malleolus is $13\frac{1}{4}$ in.; that of the left tibia is $11\frac{1}{4}$ in.

The length of the right foot is $8\frac{1}{4}$ in., of the left foot $7\frac{3}{4}$ in. The arch of the right foot is normal; the left foot has no longitudinal arch. The left os calcis is naturally shaped but small