

NOTES ON THE FORMALIN BLOOD TEST FOR SYPHILIS.

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THE value of this test lies in its simplicity. Blood is drawn in the usual manner as for a Wassermann test. In the following cases the blood was collected in a clean but not sterilised test-tube; the test-tube was stopped with cottonwool, and set in a rack for 24 hours at ordinary room temperature. The room used was not a heated laboratory, but either the consulting-room or the sitting-room. At the end of 24 hours the serum was decanted from the test-tube into another clean but not sterilised test-tube; a drop of ordinary commercial formalin was added, and the tube was plugged with cottonwool. (This, of course, could be done as soon as the serum had separated; 24 hours was merely a period dictated by convenience. Moreover, it is not absolutely necessary to decant the serum into another tube; the formalin can be added straight away to the supernatant serum.) The serum and formalin were then allowed to remain at ordinary room temperature as before for 24 hours, the period prescribed by Gaté and Pappacostas,¹ who discovered this method. At the end of this period observation was made as to the condition of the serum. Coagulated serum is a positive result; fluid serum is a negative result.

Part of the blood collected for the formalin test was received in a sterile test-tube and forwarded as a control to an independent well-recognised laboratory for the application of the Wassermann test. The following 11 cases were examined:—

CASE 1.—Female, aged about 30, of stunted growth, with no history of syphilis. X rays showed osteitis and periosteitis, and bowing of the tibiae. Wassermann reaction (W.R.) negative. Formalin negative.

CASE 2.—Male, circ. 50, with no history of syphilis, but with symptoms suggestive of early G.P.I. and tabes. W.R. negative. Formalin negative.

CASE 3.—Male, 44, with a history of syphilis contracted 22 years ago. Was then treated for two months at St. Thomas's Hospital. Had now got rheumatoid arthritis, with two nodules (? gummata), one periosteal and one subcutaneous, on each elbow. Aching pains all over. Five depressed circular scars on glans penis. Tachycardia. Depression of bridge of nose, alleged to be due to trauma. Was put on pot. iod. gr. v. t.d.s., and five days later blood was collected. W.R. negative. Formalin positive. It is highly probable that a mistake was made with the formalin specimen by confusion of this with the following specimen collected at the same time.

CASE 4.—Male, 48, with unilateral pains in left arm and leg. History of "shell shock" three years ago, while patient was testing guns. There was an explosion and he was buried in a mound of ashes. At another time he was struck by the recoil and had the occipital part of his scalp cut open. Now he had a tumour (? osteophyte) on the right index. Frequent gastric crises in the last six months. No dyspepsia. Left spermatic cord thickened. Sleep bad, not due to pain. Ankle-jerks absent, plantar reflex flexor, knee-jerks and pupils normal. Alleged gradual failure of eyesight. Heart and lungs normal. Alleged dyspnoea on exertion. Patient very garrulous. Dental caries and gingivitis, buccal leukoplakia. No history of venereal disease. W.R. + + + +. Formalin negative (or ? very slightly positive). See remarks under Case 3.

¹ C. R. Soc. Biologie, Nov. 20th, 1920.

(Continued from opposite page.)

4. Dürck, H.: Über fast totale Verkalkung einer Grosshirn-hemisphäre bei einem erwachsenen Individuum, Atti del 1° Congresso Internazionale dei Patologi, 1911.

5. Marchand, F.: Discussion following Dürck's paper.

6. Meier, E.: Ein Fall totaler Erweichung beider Gross-hirnhemisphären bei einem 5 Monate alten Kinde, Zeitsch. für Kinderheilk. und Phys. Erziehl., 1912, Bd. lxxvi., H. 5.

7. Sutherland and Paterson: Quart. Jour. of Med., vol. vii., 1913-14, p. 61.

CASE 5.—Male, 57. No history of venereal disease. Two months' history of present complaint. "Influenza" at onset, followed by synovitis of both knees, feet painful and cold. In bed three weeks. Now both knees hot and swollen with synovitis, œdema of legs, nothing else objective in joints; sleep bad on account of pain; tachycardia, systolic murmur at apex not conducted to left, cardiac sounds blurred and weak. Teeth all recently extracted; appetite good, bowels normal. W.R. negative. Formalin negative.

CASE 6.—Female, 41, with no history of venereal disease (she was not asked). Two months' history of present complaint. Pain began in tibiae, but now includes lumbar and right inguinal regions. Had "jumping pains" in legs for some weeks before pain in tibiae. Pleurisy five years ago; looks ill and is dark below the eyes. Sclerotics bluish. General pigmentation. Chronic ulcer of scalp and cranium, alleged due to trauma. Pain and swelling in left sterno-clavicular joint. Liver reaches umbilicus; tympanites elsewhere. Appetite poor; losing weight; teeth bad. Had "floodings" in the last two months. Six children ("health good"). One miscarriage ten years ago. W.R. + +. Formalin positive.

CASE 7.—Female, 11. No history of venereal disease (not asked for directly). Eight months ago had sudden pain in hips, knees, and left elbow, which were red but not swollen. Was feverish four months; in bed six months. Now left hip shows dorsal dislocation; neck of left femur thickened, appreciable manually. Hard glands below left sterno-mastoid. No signs of congenital syphilis. X rays show periosteitis of left femur. W.R. negative. Formalin negative.

CASE 8.—Male, about 25. History of recent gonorrhœa. Now has a small papule (? gonorrhœal wart) on glans penis, thinks it may be syphilitic, and asks for a blood test. W.R. negative. Formalin negative.

CASE 9.—Male, 42. No history of venereal disease. Four or five years ago he had sudden pain in back, knees, and ankles, while doing army drill in England. In hospital six weeks, of which three were spent in bed; went back to full duty. Pains on and off ever since. Altogether nine months in hospital before being discharged from the army two years later, having much improved. Present attack began six months ago, and he has been in bed on and off, but not for more than five days at a time. Pain worst in shoulders and knees; has done no work (as clerk) for six months; has 30 per cent. pension. Nothing of importance elicited in past history and family history. Shoulders and right elbow crepitate; nothing else objective in joints; pain in neck, periosteal node on left tibial crest, left foot gives Babinski's reaction; right plantar reflex flexor. Knee-jerks very sluggish, ankle-jerks absent; Argyll Robertson pupils; no Rombergism. Sleep bad, but not on account of pain; teeth ground down, gums fair. Flatulent dyspepsia. Appetite poor, bowels normal, heart and lungs normal; no cough. W.R. + + + +. Formalin negative.

CASE 10.—Male, 56. No history of venereal disease. Has had present complaint six years, much worse the last three years. "Shooting and stabbing" pains in both knees. Has not been confined to bed, and has not been off work; is now improving. Nothing of importance elicited in past history. Father had "chronic rheumatic gout." Nothing objective in joints. Sleeps badly on account of pain in knees. Knee-jerks and ankle-jerks absent; pupils inactive, right pupil "pin-point," left pupil larger; cardiac sounds impure, teeth poor; lingual leukoplakia. Appetite fair; dyspepsia and constipation; no cough. Pre-sternal seborrhœid rash. W.R. + + + +. Formalin positive.

CASE 11.—Male, 47. History of venereal disease denied. Six months ago there was gradual onset of pain in knees, and from left knee to left hallux. In bed two weeks, off work 13 weeks, now improved. Had "influenza" more than once; last occasion was four years ago; nothing else in past history. Mother had sciatica and two sisters were phthisical. Patient's left knee now much limited in movement with chronic synovitis. Genua vara, and tibiae curved outwards since the age of 16. Walks with a stick, sleeps badly on account of pain, which comes on just before midnight. Knee-jerks and pupils normal; cardiac sounds sharp; teeth foul; appetite very good and bowels regular; no cough, lungs normal. W.R. negative. Formalin negative.

Analysis of Results.

Out of 11 cases the blood tests agree in 8. Of the remaining 3 it is highly probable that two formalin tests were confused one with the other. These two gave results as shown in the following table.

Formalin Results of Two Cases.

Specimen.	W.R.	Formalin.	Syphilitic history.	Clinical evidence of syphilis.
Case 3 ..	Negative.	Positive.	Admitted.	Suggestive.
Case 4 ..	++++	Negative.*	Denied.	Very suggestive.

* Or ? very slightly positive.

In other words, it is highly probable that the formalin results of these two cases really agreed with the Wassermann test results, making the total agreements 10 out of 11, or over 90 per cent. Gaté and Pappacostas found 85 per cent. to agree, while Major J. Mackenzie² found 100 per cent. to agree in a series of 23 cases. On the other hand, A. Murray Stewart³ in a series of 25 tests got 14 positive Wassermann reactions but no positive formalin reactions.

I am aware that a series of 11 cases is not of much value, and would have preferred to collect more. Unfortunately, I have not now the opportunity of continuing this research, so have decided to put together the little already done, especially in view of the fact that there is as yet little published evidence of the importance of this easily applicable test.

My thanks are due to Dr. D. Macmillan for coöperation in my tests.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 11th, Sir WILLIAM LISTER occupying the chair.

Exhibition of Cases.

Mr. HUMPHREY NEAME showed a case of cyst of Krause's gland, and also a lad, aged 16, with papular formations in the lid. A third case was that of a boy with tuberculosis of the conjunctiva. He cycled from London to Southend for a holiday, arriving very exhausted. After his return to work, while stooping down, he felt something give way in his left eye, and since then he noted a progressive failure of sight in that eye, and in six weeks he could only perceive with it fingers held fairly close. In September last year there were swellings in the neck, and in March this year a cough started, with watering of the right (the sounder) eye. At a hospital his condition was diagnosed as Hodgkin's disease; no signs of tuberculosis were elicited in the chest, and the sputum showed no tubercle bacilli. During the past year he had lost a stone in weight, but during the last three months his weight had remained constant. Four months ago the left eye was removed for irido-cyclitis. The cornea was hazy, and the anterior chamber was filled with a whitish substance. Mr. Neame exhibited sections of this eye on the screen, showing cellular and fibrous material in the anterior chamber, and destruction of iris and ciliary body. A small portion of conjunctiva excised from the right eye a month ago showed fairly typical tubercle formation.

Mr. LINDSAY REA showed a patient on whom he had successfully performed a Poulard operation for ptosis. He also showed a case of angioma of the retina.

Mr. P. G. DOYNE presented a patient with congenital malformation of the iris and anterior chamber. There was an absence of anterior layers of the iris in many places, and a hole in each eye through which the red reflex could be seen. The angle of the anterior chamber was malformed and seemed to be filled by a whitish substance, while strands could be seen running from the posterior surface of the sclero-corneal junction to the anterior surface of the iris.

Sir WILLIAM LISTER recalled a case of a man who had nine pupils, one fairly central, the remaining eight being ranged peripherally round it. Eventually the man developed glaucoma, probably due to a developmental defect at the angle of the anterior chamber.

Mr. M. S. MAYOU and Mr. TREACHER COLLINS discussed the probable causation of coloboma with a bridge.

Mr. C. F. HARFORD read a paper on

The New Psychology in Relation to Problems of Vision, demonstrating a number of schematic diagrams. He said that the attention of the psychologist had hitherto been mainly directed to the anatomical and physiological aspects of the problems associated with vision. Parsons, in his "Diseases of the Eye," after tracing the processes of vision from the impressions derived from external objects to the cortex, had used these words: "Here the nervous impulse is transformed into a psychic impulse, which is not, and probably never can be, understood." Mr. Harford contended that psychology could render important help in supplementing physiology, and that psychoanalysis had thrown new light on human thought. The mechanism of what Mr. Harford termed "The Psyche" he subdivided into cognition, affection (the emotional result of cognition) leading to action. One diagram represented the "store-chambers of the Psyche," which Mr. Harford classified as results of careful observation, results of casual observation, amnesia of common life, pathological repressions, infantile impressions, and instinctive and hereditary factors. He laid particular stress on the emotional factor of the Psyche—i.e., the activator of each mental concept, which Bergson had named the "énergie spirituelle." Mr. Harford went on to discuss repression, association, dissociation, and apperception. The vision of the infant was only gradually evolved, not because of any organic defect in the structures concerned with vision, but because the awakening of the intelligence was a gradual process.

Thrombosis of Retinal Vein, with Hole and Star at the Macula.

Mr. ARNOLD WILLIAMSON read a paper on Two Cases of Thrombosis of a Retinal Vein, one showing a Hole, the other a Star at the Macula. He first referred to the careful paper on holes in the macula published by the late G. Coats, in which were summarised the various theories of causation. Monteith Ogilvie considered there were two factors concerned: the fact that the retina is thinnest at the fovea, and thicker around it than elsewhere, and the fact that waves of disturbance passing through the eye meet at the posterior pole and tear the fovea by "contre-coup." Fuchs attributed the appearance in traumatic cases to mild traumatic retinitis, the slight serous exudate rupturing the membrana limitans externa, and so causing the appearance of a macular hole. Coats believed cedema was the underlying cause, stating that a hole had never appeared less than 60 hours after the injury; also that opacity in the retina had been observed after injury in a case in which a hole subsequently developed. In 1908, however, Kipp and Alt had published, in the *American Journal of Ophthalmology*, a case in which a shot passed through the orbit, tearing the optic nerve and its sheath and entering the skull. On the following day the retina was whitish and vessels narrow, except for a vein passing from macula to disc. At the macula was a red deep round spot, one-third D; two days later the retina was more opaque. Four days later the eye was excised, and there was a large hole at the macula, surrounded by swollen retinal tissue. There was evidence of cedema everywhere. Kipp and Alt considered that the retina at the macula could be torn by contre-coup. Mr. Williamson showed slides of his own case because they made clear the dependence of the formation of a hole in the macula on the occurrence of sub-retinal cedema, associated with thrombosis of the central retinal vein.

² Brit. Med. Jour., 1921, i., 854. ³ Ibid., 1921, ii., 263.