Abstracts.

Neurology.

NEUROPATHOLOGY.


An important paper, based on the investigation of some forty or more guinea-pigs and rabbits injected intravenously, intracardially, intraperitoneally, or subcutaneously, with varying amounts of cerebrospinal fluid from four typical human cases of the disease. In a number of instances the passage of the postulated virus was continued from one animal to another, in series up to as many as ten, by injection of liver, brain, and other emulsions, oxalated blood, etc. Full details are given in the protocols.

In not a single one of any of the experimental animals were spirochaetes found in central nervous system, blood, or viscera, notwithstanding repeated daily examinations by approved methods; and the authors therefore have every right to criticize adversely the conclusions of Kuhn and Steiner and other experimentalists, and to hold that in the cases of the latter there was an accidental parasitic contamination. The great majority of the animals experimented on by the authors succumbed either to coccidiosis or tuberculosis. It is admitted that the injection of blood or fluid from a case of disseminated sclerosis into a guinea-pig or rabbit has a harmful result (seven out of eleven died), but, on the other hand, from careful examination of the tissues for the cause of death, all that can be said is that either an infective agent, a micro-organism, or a toxic albumin reaction might be incriminated, and there is no pathological evidence to favour one rather than another. No specific changes of any sort whatever could be found.

Thus the experimental evidence for the spirochaetal origin of disseminated sclerosis is materially weakened, if not actually negatived.

S. A. K. W.


This paper is based on the examination of some twenty cases of pernicious anæmia, of which ten had more or less widespread spinal lesions; two...
were instances of 'funicular myelitis' or 'funicular spinal disease'—an expression of German origin supposedly superior to 'anemic spinal disease'. There is no mention either in text or bibliography of the English work on subacute combined degeneration of the spinal cord.

The author shows that the local lesions of 'funicular spinal disease' consist of a special 'neurolytic' swelling of the axones, with a glial reaction both of a proliferative and a regressive nature. Increase of the cells of the vascular intima is very common, but it cannot be regarded as the cause of the parenchymatous changes. Lymphoeytic infiltration is rare, and of no significance from the causative viewpoint. In the brain, lipoid degeneration of the cells is a usual feature, and diffuse progressive glial alterations, though there is little actual neuronophagia. These changes appear to be most marked in cases which have been associated during life with the development of a psychosis. The author has not found in the brain lesions strictly similar to those of the spinal cord. In pernicious anæmia, hæmorrhages and 'ring-like' lesions round vessels occur, and they are to be distinguished from the specific lesions of the spinal cord above referred to; they, too, have no etiological import.

S. A. K. W.


The author estimates that 10 per cent of the white and 30 per cent of the coloured population of the United States suffer from hereditary or acquired syphilis, and that this disease accounts for practically all the degeneracy. Hereditary syphilis may be very hard to detect in the absence of stigmata, though the cerebrospinal fluid will usually show a positive Wassermann. Syphilis in the parents will affect the offspring in three ways: (1) By direct infection of the germ-cell with the Spirochaeta pallida. He points out the occurrence of late hereditary syphilis which may show no signs till adult life is reached. (2) By chemical or molecular changes in the germ-cell produced by toxins derived from the spirochaete. These may lead to arrest of development both mental and physical, but of course the tissue fluids of the child will not give a positive Wassermann. (3) The author suggests that the abiotrophies in the second and third decades may be due to affection of the germ-cell by the spirochaete or its toxins. He would put down all severe hysterias, psychasthenias, and neurasthenias to the presence of lues in the father. Degeneracy is a misnomer, as it is often found that so-called degenerates are superior rather than inferior to their forebears, at any rate in some respects; therefore it would be better to substitute the word deviation to imply that they differ from the normal.

The author would attribute most crime, mental arrest and deterioration to the effects of syphilis; but he brings no proof of this assumption except some figures of Atwood's, which do not much favour the thesis, and which he regards as inconclusive. This speculation is probably largely true, but cannot be of real value unless supported by clinical facts.
A case of cerebral porosis, with a histopathologic report.—

GEORGE B. HASSIN. Arch. of Neurol. and Psychiat., 1920, iv, 645.

In cerebral porosis the brain tissue contains a large number of cavities combined with minute holes generally described as ‘état criblé’. The condition is usually regarded as an artefact, due either to cadaveric changes or to the chemical agents used in fixation and hardening. In the present report evidence is adduced to show that cerebral porosis possesses certain essential pathological features which are due to intra-vitam changes.

A woman, 24 years old, died on the fourteenth day of her illness with symptoms of haemolytic jaundice. A necropsy was performed fifteen hours after death, the body having been kept in a refrigerating room. Bacillus aerogenes capsulatus was isolated in pure culture from the heart’s blood, and practically all the organs of the body showed a gas-bacillus infection. The brain contained an enormous number of cavities, most numerous in the basal ganglia, cerebral white matter, cerebellum, and brain-stem; the cerebral cortex, although macroscopically normal, also showed much smaller cavities, causing a sieve-like appearance of the section. In addition to cavity formation there was a widespread bacularly thrombosis of the pial and cerebral veins, as well as a breaking-up of the glia and brain tissue proper. A formation of fat-like substances and a marked cellular reaction in the pia-arachnoid were also noted. Such changes afforded evidence of a premortal gas-bacillus infection. Hassin therefore assumes that cerebral porosis is a distinct pathological entity with histopathological features not to be found in any other infection of the central nervous system.

R. M. S.

Pupil rigidity and the ciliary ganglion (Rigidità pupillare e ganglio ciliare).—CRISTOFORO RIZZO. Riv. di Patol. Nerv. e Ment., 1920, xxv, 325.

An important paper, based on the minute histopathological examination of no less than 22 ciliary ganglia: 9 from normal individuals; 8 from cases of general paralysis, and 1 from tabes, all with Argyll Robertson pupils; 2 from general paralysis with absolute pupil rigidity, 1 from the same disease in which the pupil reactions were normal, and 1 also of the same disease in which the reactions were but slight.

In the normal ciliary ganglion there are two groups of cells, small and large; the former are round the periphery, and are some four or five times smaller than the others. Their cytoplasm stains badly, but they are always recognizable by their nucleus and by the pigment they contain. There are two varieties of pigment. One is contained in the small cells and does not tend to increase in amount, and its reactions are like those of the pigment in the substantia nigra. The other is the familiar pigment found in the large cells, which increases with the progress of disease in the ganglion.

The nerve fibres for the intrinsic muscles of the eye are much smaller than those for the extrinsic muscles, and morphologically different.

Rizzo’s most important conclusion is that in no one of the ganglia coming from cases with fixed or with Argyll Robertson pupils has he been
able to detect any change of the slightest significance; any alterations, in only a few cells, of the nature of chromatolysis, have been of a somewhat acute nature, and are to be assigned to the terminal affection which has led to the patient's death.

Thus, the ciliary ganglion theory of the origin of the Argyll Robertson phenomenon, always more than unsatisfactory on clinical grounds, is definitely and finally disproved by painstaking pathological examination in a sufficiently impressive number and variety of cases.

S. A. K. W.


This is a review of mishaps attending lumbar puncture, reported for the most part by continental observers. Quieneke introduced the procedure in 1891, and in 1914 he summarized his experience and laid down its indications as follows: (1) Where increased intracranial pressure threatening life may be due to increased output of fluid. (2) In similar circumstances where mental impairment and vomiting may be relieved. (3) In acute cases of serous transudation where it may produce great improvement. (4) When relapse occurs in these last cases puncture should be repeated daily at first, then with increasing intervals. (5) In these repetitions the clinician must be guided by the general course of symptoms and by the results of previous punctures. (6) On each occasion the initial and end pressure must be noted, also the quantity of fluid removed, and the patient must be treated carefully afterwards. (7) Purulent bacillary meningitis may be cured by repeated puncture, and the same favourable result occasionally occurs in tuberculous meningitis. (8) Cerebral tumours are no contra-indication, provided that prudence is employed. Good results often follow, and the optic neuritis may even clear up.

It is now known that mishaps are comparatively rare. Monar finds that in a series of 523 cases he has noted cited by different authors, only one death was reported. Death following lumbar puncture nearly always occurs in cases with cerebral tumour, particularly if situated in the posterior cerebral fossa. Eskuchen suggested, as precautions against mishap, that the minimal quantity of fluid necessary should be withdrawn as slowly as possible, and forty-eight hours' rest in bed enforced afterwards; normal saline should replace the fluid withdrawn when the tumour was in the the posterior cerebral fossa. Schönbeck's precautions were more stringent for cases of tumour: rest in bed before and after puncture, avoidance of alcohol and excitement, and gradual resumption of the upright posture. Death has followed rupture of an aneurysm of a cerebral or spinal vessel.

Unpleasant sequelae in healthy persons were reported by Missl to consist in headache, malaise, nausea, vomiting, sometimes a passing ill-health. These lasted from one to eight days, and were exaggerated by movement. Local symptoms were rare, and lesions of the cauda equina practically unknown. Probably in most cases more fluid is removed than is actually required, and twenty-four hours' rest in bed afterwards is to be recommended.
Lumbar puncture in tabetics occasionally exaggerates the ataxia. Respiratory failure after puncture in eclampsia was ascribed by Pollack to pre-existing irreparable damage of nervous tissues. Von Lewark reported aggravation of paralyzes in two cases of tumour of the spinal cord, in one of which no fluid was withdrawn. Szmurlo, Sterling, Wolff, and Hubner have drawn attention to paralyzes of ocular muscles that seem to have been related to lumbar puncture performed in acute inflammatory conditions. Förster reported resumption of menstruation in one case following puncture; another patient aborted during the night succeeding it. Nonne found unpleasant sequelæ in 5 to 10 per cent of 3000 cases of lumbar puncture, among them occasionally severe meningismus. Such sequelæ were rare where organic nervous disease, apart from puncture, was present. Hysterical symptoms of all kinds may lead to claims for compensation.

Numerous observers have shown that blood-pressure falls and pulse-rate quickens after puncture, and these seem indications of improvement in cerebrospinal meningitis. All writers agree in emphasizing the care that should be taken in lumbar puncture, and the necessity for a period of rest in the horizontal position following it.

H. W. Hills.


A long and somewhat elaborately technical paper on the goldsol test leads to the following general conclusions: (1) Theoretical: The reaction (G.R.) indicates with peculiar sensitiveness a pathological, colloidal change in the albumins and analogous substances, and it is practically certain this alteration in a colloidal direction is the basis of the positive results in Wassermann, Sachs-Georgi, and Meinecke tests. (2) Technical: The author employs and recommends the use of a gold solution reduced by grape sugar according to the method of Eicke and others. The success of the goldsol preparation depends on the degree of neutralization: too slight ‘alkalescence’ is the chief cause of poor results. Absolute cleanliness, pure chemicals, temperature, and grape-sugar solution, are in reality of secondary importance, nor is fresh redistillation of the water indispensable. (3) Clinical: Slight change of coloration in the first three or four tubes is simply a negative reaction. A positive reaction consists in a definite transition of the purple-red solution to blue, blue-white, and white. Two general types of reaction may be usefuly distinguished: (1) Maximum in the 1–40 and 1–80 dilutions (neurosyphilis and disseminated sclerosis); (2) Maximum in the 1–640 and 1–1280 dilutions (non-syphilitic meningitis and cases where the fluid is contaminated with blood). The G.R. does not enable the observer to distinguish between cases, general paralysis, and cerebrospinal syphilis, and positive results are sometimes seen in inflammatory nervous diseases and in tumours. One of its valuable features is its usefulness in showing the existence of neurosyphilis earlier than the Wassermann test, and in practically 100 per cent of cases. It is independent of the state of the blood serum.

S. A. K. W.

The authors describe in rather a sketchy way a series of cases (8 of thoracic, 1 of cervical, and 1 of lumbar spinal tumour, and 4 of spinal caries—2 thoracic, 2 cervical) in which the syndrome of compression in the fluid was well developed, viz., increase of albumin content and absence of cellular elements: apparently only in one was actual xanthochromia observed. In 9 of the 14 cases (4 spinal caries, 4 thoracic and 1 cervical spinal tumour) was Queckenstedt's sign definitely positive. It consists in absence, or in notable slowness of development, of that momentary increase of the pressure of the spinal fluid which can readily be demonstrated in the normal individual when the veins of the neck are compressed during a lumbar puncture. In one case it was the sole pathological sign, the fluid being normal. Unfortunately, the authors do not enter on any discussion of its pathogenesis.

S. A. K. W.

[57] Phenolsulphonephthalein absorption from the subarachnoid space in paresis and dementia praecox.—P. G. Weston. *Arch. of Neurol. and Psychiat.*, 1921, v, 58.

The injection of phenolsulphonephthalein into the lumbar subarachnoid space is followed by its appearance in the urine after an interval of from four to ten minutes. Diseases of the nervous system, especially those which involve the meninges, produce a lengthening of the appearance time, which is as much as seventy minutes in some cases. The writer studied the appearance of the dye in the urine of twenty-eight cases of catatonic dementia praecox and seventeen cases of general paresis. Age, duration of the psychosis, and physical and mental condition had no constant effect on the appearance time. In all cases the appearance of the dye in the urine was delayed, the time varying from 12 to 68 minutes in the case of paresis and from 25 to 104 minutes in the case of catatonic dementia praecox. The dye was not found in fluid drawn from the cisterna magna at any time up to five hours after it had been injected into the lumbar subarachnoid space. Its absorption took place from the lumbar region.

R. M. S.

[58] Puncture of the cisterna magna.—James B. Ayer. *Arch. of Neurol. and Psychiat.*, 1920, iv, 529.

The author describes a method of obtaining cerebrospinal fluid from the base of the brain by puncture of the cisterna magna. In his hands the procedure has been found almost always easy, and no alarming symptoms have been observed, either at the time of puncture or subsequently. Nevertheless, he cautions the reader that cisterna puncture should only be attempted after preliminary practice on the cadaver. The patient is placed on one side, as if for lumbar puncture, with neck moderately flexed. The needle is inserted in the mid-line just above the spine of the axis, and
is gradually forced forward and upward in line with the external auditory meatus and glabella until the dura is pierced. In an ordinary-sized adult the needle penetrates to a depth of from 4 to 5 cm. before piercing the dura, and in this position there is usually a distance of from 2.5 to 3.0 cm. between dura and medulla. The conclusions of the author are based on forty-three punctures performed in twenty cases. The procedure was found to be of value in the diagnosis of postmeningitic subarachnoid block, and was also employed in the treatment of a selected group of cases of cerebral syphilis and in one case of epidemic meningitis. Used in conjunction with lumbar puncture it proved of value in the diagnosis of cord compression; where there is an obstruction to the free passage of fluid in the spinal subarachnoid space by tumour, Pott's disease, etc., fluids taken from above and below the site of compression may show marked chemical differences.

R. M. S.

SENSORIMOTOR NEUROLOGY.

[59] The coincidence of cervical ribs and syringomyelia.—Peter Bassoe. Arch. of Neurol. and Psychiat., 1920, iv, 542.

The frequent association of syringomyelia and scoliosis is well known, but the co-existence of cervical ribs with that disease has not attracted much attention, although a number of cases have been recorded in the literature. The author gives the clinical histories of three patients in whom this combination was found. Operative treatment, although successful from the surgical point of view, does not always lead to disappearance of local symptoms, and may be followed by severe hypochondriasis. Cases of cervical rib must be regarded with suspicion, and the patients accepted as possessed of well-balanced minds and structurally normal nervous systems only after close scrutiny.

R. M. S.


In this remarkable case the heart was dilated, its rate was slow, and electrocardiographic tracings showed an increase of the As-Vs interval in all three leads. In a footnote the authors state that they have since found the same changes in two more cases. This is apparently an entirely new observation, with important bearings on the problem of the relation between the duetless glands and the functions of the heart.

W. J. Adie.


In this paper the author gives a clear and succinct account of the somewhat confusing syndromes which may arise from extracranial lesions of the last four cranial nerves, and contributes notes on three cases which came under his observation. The number of syndromes appears to be limited only by the possible combinations of complete or incomplete paralyses of these several cranial nerves, and the descriptive ability of the various observers.

R. M. S.