The patients presented bilateral ataxia of the fingers, together with paraplegia and loss of sphincter control. The unlikelihood of a bilateral cortical lesion is pointed out, and the authors accordingly place the lesion in the medulla or mid-brain.

W. JOHNSON.

[48] Syndrome of complete section of the dorsal region of the spinal cord (Syndrome de section complète de la moelle dorsale datant de 10 ans).—LHERMITTE and PAGNIEZ. Presse méd., 1922, xxx, 57.

The syndrome of transection of the spinal cord has been considerably elaborated and elucidated by the experience of neurologists during the war. In those instances where the cord below the level of the lesion remains intact, evidences of its vitality soon appear. The early stage of abolition of all reflexes gives place to one in which the cutaneous, deep, and visceral reflexes become re-established in orderly sequence and the muscles do not undergo atrophy. Where, on the other hand, the cord below the level of the lesion is severely damaged, the second stage is only partially, if at all, entered on, and wasting of the muscles is marked, whilst the condition of the bladder and rectum is that described under the term 'automatic'. The case the authors record is of the latter variety.

The patient, a boy, 13 years of age, when three years old sustained a spinal injury resulting in paralysis of both lower limbs. The highest level of the site of trauma, as judged by the sensory loss, is the sixth dorsal segment. A good clinical description is given, including observations on the blood-pressure and temperature of the paralyzed limbs, but the chief interest of the case lies in the observation regarding the growth of the bones in the paralyzed lower half of the body. The length of the bones in the legs is the same as that found in a normal child of the same age. X-ray examination revealed the diaphyses to be practically normal. Accordingly it must be conceded that skeletal growth occurs independently of the so-called trophic influence of the spinal cord. This is supported by the few cases of anencephalomyelitis which have been recorded. The fact that defective growth occurs in a limb suffering from acute anterior poliomyelitis, the authors would attribute to the inflammatory and toxic nature of the virus.

In conclusion, they suggest that the sympathetic nervous system and the centres for vascular tonus are the factors chiefly associated with the growth of the skeleton, at the same time admitting that too little is known on this subject for any definite opinion to be formed.

W. JOHNSON.

TREATMENT.


In an attempt to determine whether an increased amount of salt could be detected in the cerebrospinal fluid, following intravenous injections
of hypertonic solutions of sodium chloride, it was noted that within a short
time after the intravenous injection cerebrospinal fluid could not be
obtained when the subarachnoid space was entered. On attaching a
manometer, it was found that the pressure of the cerebrospinal fluid
could be altered very rapidly and very definitely by intravenous injections
of solutions of various concentrations. Intravenous injections of Ringer's
solution caused no lasting change in pressure. Distilled water given in a
similar manner caused a marked and sustained rise in cerebrospinal-fluid
pressure (an increase from 130 to 285 mm. of this fluid). Hypertonic
solutions of concentrated sodium chloride, sodium bicarbonate, sodium
sulphate, and glucose led to an initial rise in the pressure of the fluid,
followed immediately by marked fall in this pressure, often to below zero.

R. M. S.

[50] The effect of salt ingestion on cerebrospinal-fluid pressure and
Physiol., 1920, liii, 465.

An extension of the experiments of Weed and McKibben, who showed
that it is possible to reduce cerebrospinal-fluid pressure, and diminish the
bulk of the brain, by injecting hypertonic solutions into the blood-stream.
Using cats for their experiments, Foley and Putnam found that the intro-
duction of hypertonic salt solutions into the gastro-intestinal tract had a
similar effect; 20 to 30 c.c. of a 30 per cent sodium chloride solution
introduced into the duodenum or the rectum of an average-sized
cat produced a maximal fall of cerebrospinal-fluid pressure. Following
such doses the average fall of pressure in a large series of experiments was
250 mm. of water; larger doses added nothing to the extent of the fall.
Following the fall there was a gradual rise in pressure, and seventeen to
forty-eight hours after such injections four animals showed pressures
averaging 45 mm. less than that in the average animal. When sodium
chloride in only slightly hypertonic concentration was employed, a fall
in cerebrospinal-fluid pressure was still obtained, but larger doses were
required. Sodium sulphate, which is not absorbed from the gastro-
intestinal tract, produced qualitatively similar results, but less in extent,
and at a slower rate; with concentrated dextrose solutions the fall was
still less. The changes in cerebrospinal-fluid pressure were shown to be
independent of changes in arterial or venous blood-pressure, and were
accompanied by a decrease in the size of the brain.

The authors conclude that the pressure values obtained after salt
ingestion are not due solely to changes in brain volume and capacity of
the cerebrospinal-fluid spaces, but primarily represent new ratios between
secretion and absorption of cerebrospinal fluid.

R. M. S.

[51] Clinical uses of salt solution in conditions of increased intra-
cranial tension.—F. E. B. Foley. Surg. Gynecol. and Obst.,
1921, xxxiii, 126.

The work of Weed and McKibben on pressure changes in the cerebro-
spinal fluid following intravenous injection of hypertonic saline prompted
Foley to investigate the clinical use of this procedure in the human subject. It was found to possess a definite field of usefulness in cases exhibiting high grades of intracranial pressure, and the response which follows this line of treatment is conditioned by the size of the lesion which increases brain bulk and the amount of fluid available for absorption, the induced fall of cerebrospinal-fluid pressure being inversely proportionate to the former and directly proportionate to the latter. The most striking results are to be obtained in those cases in which cerebrospinal-fluid obstruction exists. Thus, in cases of internal hydrocephalus in which the cerebrospinal fluid is shut off in the ventricular system, marked benefit follows the administration of hypertonic saline, the fluid being actually absorbed within the ventricles. In the case of very extensive tumour growths the perivascular and other fluid-containing spaces of the brain are probably collapsed, and little can be expected from this line of treatment. Not only does the administration of salt give temporary freedom from pressure headaches, but it permits more exact clinical observations to be made, and by diminishing tension makes the work of the anaesthetist and operating surgeon less difficult.

R. M. S.


The somewhat contradictory facts provided by clinical and experimental observation in epilepsy may be brought together if one discards modern views. The author regards the disorder as a phenomenon of cerebral inhibition rather than of excitation. The essential factor in the epileptic seizure is the temporary loss of function in the highest brain level. The occurrence of rigidity, tonic and clonic spasms, exaggerated deep reflexes, and Babinski plantar reflex is evidence of the unchecked activity of the automatic centres in the lower brain levels (Hartenberg). The terminal convulsions in meningitis and asphyxia are probably due to a failure of cortical control. Ischaemia of the cerebral cortex is a recognized cause of fits. In animals where artificial fits have been produced, removal of the cortex does not lead to cessation of the attacks.

Wilson's work on decerebrate rigidity has shown that lesions in man which interfere with connections between the cortex and the mid-brain produce a position of opisthotonus similar to that produced by Sherrington in monkeys.

It appears therefore that the pallor of the faec and the spasm of the retinal arteries, which occur in epilepsy, should be regarded as a portion of a more general cerebral arterial spasm producing ischemia of the cortex—this being the cause of the epileptic attack. Local cerebral trauma produces a generalized fit as frequently as a pure Jacksonian attack. Such trauma acts as a local irritation; but underlying every case, it is submitted, there is the additional factor of general arterial spasm. Syphilis, lead, alcohol, ergot, and other poisons—not forgetting glandular and alimentary—may be the cause. The poisons of eclampsia and Bright's disease are
also powerful factors in the production of arteriospasm. The rôle which glandular disturbance may play is shown by the cases where fits disappear at puberty and re-appear at the menopause. In some cases of epilepsy the intoxication appears to be of the same nature as anaphylactic shock. The marked fall in the leucocyte count and the sudden drop in the blood-pressure before an attack suggest this. The substance to which the patient is sensitive may be exogenous (food) or endogenous (auto-intoxication). Tinel and Santenoiise have shown the existence in their patients of alternating periods of sensitiveness and immunity (or insensitivity). The sensitive period is one of sympatheticotonia. The beneficial action of luminal is probably due to the modification of the vagotonic state and to a tendency to production of the sympatheticotonic state.  

Some light is thrown on the treatment in epilepsy by these conceptions of cortical inhibition, arteriospasm, and anaphylaxis. Efforts to prevent or minimize vasoconstriction of the cerebral vessels (such as by extirpation of the cervical sympathetic or the suprarenal gland) have produced no definite results. The fact that the fits disappear during acute infectious illnesses, and after injection with such sera as antitiphtheritic and antirabie, or injections of tuberculin and antivenin, suggests that the more hopeful method may be by protein therapy. Some results have already been reported after injections of peptone and milk, but they have been inconstant and unreliable.

As regards drugs, gardenal acts by suppressing the vagotonic state, whilst the bromides and potassio-borico-tartrate act by lowering the excitability of nerve-cells. Hartenberg used large doses of strychnine in the hope of overcoming the state of cortical inhibition, but his results were only temporary. Doses of two to five minimis of liquor strychninæ, however, are said to be often beneficial in petit mal, and its use may be alternated with that of caffeine, which has a similar pharmacological action.

W. JOHNSON.

Psychopathology.

PSYCHOLOGY.


This is an analysis of a summary of last words of distinguished people. The author points out that three kinds of psychologic deaths should be differentiated: (1) Where there is little or no delirium, and intelligence perseveres, to the end becoming very acute; (2) When the mind is in a mixed state between reason and delirium; (3) Where there is loss of consciousness with delirium.

The general consensus of opinion appears to be that the dreadfulness of death and its physical pain are for the most part imaginative. The