HEADACHE FOLLOWING LUMBAR PUNCTURE

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The phrase "Post-punktioneller Meningismus" has been used in the German literature to describe the syndrome that may consist of headache, neck pains, giddiness, tinnitus, nausea, vomiting, and occasionally sphincter disturbances, following, with a certain latent period, lumbar puncture. The word "headache" will be used briefly to connote the above syndrome in this paper.

Historical

Von Quincke¹ introduced lumbar puncture in 1891, and it was soon recognized that headache was an occasional sequel and a definite drawback to its use. In cases of cerebral tumour headache might be succeeded by death, which was apparently the result of a low pressure in the spinal subarachnoid space allowing the high pressure in the cranial cavity to compress the medulla and cerebellum in the foramen magnum. Sicard,² in 1902, first assumed that these phenomena were due to leakage through the hole made in the spinal dura, and he found that rest in a bed with the foot raised obviated headache entirely.

Although the leakage theory is not generally accepted, it is supported by the experiments of Strecker,³ Ingvar,⁴ Weed,⁵ etc. It is well known that withdrawal of large quantities of cerebro-spinal fluid will in itself produce headache, and this, like post-lumbar puncture headache, can be relieved by injection of saline into the spinal canal (Jacobaeus and Frumerie⁶). The latent period before headache, together with an occasionally observed increase of cells in the fluid, have led some writers to postulate an aseptic meningitis at the puncture point. On either theory the use of a thin needle seems indicated, and a

FIG. 1.—Dattner needle ready for use. (Half size.)

FIG. 2.—Dattner needle. Inner cannula pressed forward; stylet of inner cannula removed.

double-cannula needle was advocated by Hoyt; it was first investigated by Antoni⁷ in Sweden, who took spinal fluid from thirty ambulant patients with no consequent headache. Dattner,⁸ using the same needle, found that out of 106 patients giving normal fluids only six suffered severe headache, while out of ninety-four with pathological fluids there were only two instances of it.

Investigation

On Colonel L. W. Harrison's suggestion the writer investigated, with the Dattner lumbar puncture needle, 127 cases of treated syphilis as regards the incidence of headache. This instrument consists of an outer cannula, diameter 1 mm., and an inner cannula, diameter 0.5 mm., the latter being provided with a stylet. The inner cannula may be fixed within the outer by means of a screw. It is of rustless steel, but platinum is possibly a better material for the inner needle. The instrument is made by Messrs. Down Bros.

So far as is known to the writer no similar investigation has hitherto been published in this country.

Note on Technique

The sitting or lateral lying position may be used. The advantage of the former is that, as the result of the higher pressure, the fluid flows relatively easily through the small-bored inner cannula, and thus quickly appears on the removal of the stylet when the subarachnoid space has been reached. A disadvantage is that syncope may interrupt the operation in the sitting position. In order to procure tranquillity in the patient during the entry of the needle local anaesthesia is recommended, but is not essential. The cutting end of the inner cannula should be orientated to separate rather than to transect the fibres of the dura or ligamenta flava.

The outer cannula enters to within a short distance of the dura, the screw fixing it is loosened, and the inner cannula is then pressed forward. If no fluid is obtained on withdrawing the stylet the inner cannula is brought back and the outer further advanced before another attempt is made to pierce the dura. When flow is established a syringe attached to the inner cannula expedites withdrawal of fluid. In cases of obesity, spinal curvature, calcification, or ossification of the ligaments, and where there is possibly some pathological change within the canal, it may be difficult or impossible to perform satisfactory puncture in one space while it is feasible in the space above.

Patients are rested face downwards for twenty minutes after the operation and given analgesics to be used in the unlikely event of headache supervening. In such a circumstance they are instructed to lie down if possible, or to come back to the hospital, where they may receive an injection of 40 c.cm. of distilled water intravenously, as recommended by Brain and Strauss.⁹

Results

The table below shows the results as regards headaches, contrasting two different methods of obtaining cerebro-spinal fluid. It may be noted here that the cell counts of fluid obtained with this needle are quite probably smaller than those obtained with larger-bored needles, for the inside of the inner cannula cannot be properly polished, and cells will tend to adhere to it.

Number of Cases	No Headache	Slight Headache	Severe Headache Causing Loss of Working Time
Using correct puncture with inner cannula:			
26 Pathological fluids... ..	22	3	1
90 Normal fluids	76	13	1
	98	16	2
Using incorrect puncture with outer cannula:			
1 Pathological fluid... ..	—	—	1
10 Normal fluids	5	1	4
			5
Total	103	17	7

Indications

The use of the Dattner needle is particularly indicated where fluid has to be obtained for qualitative examination from ambulant patients. Since it takes about ten minutes for fluid to fill the usual manometer, owing to the small bore of the inner cannula, pressure and its changes are not easily registered. The double-cannula needle is recommended by Dattner for cisternal puncture.

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