PERITONEOSCOPY

BY

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My object in writing this brief article is to make a plea for the wider use of the peritoneoscope. Although the possibility of peritoneoscopy as a method of examination of the abdomen has been known for many years it has been used surprisingly little in this country. Indeed, it is remarkable that it has not become one of the standard endoscopic methods used in every hospital where general medical and surgical work is done. I have most frequently gained help from the peritoneoscope in the diagnosis of disease of the liver and in recognizing metastases in the abdomen. Clinically it is often difficult to distinguish between a malignant liver and cirrhosis; but by the comparatively simple procedure of peritoneoscopy the diagnosis is easily settled. By the same means metastases can readily be recognized in the omentum, intestines, parietal peritoneum, etc.

It is an everyday experience for the abdomen to be opened for exploration of a carcinoma and to find metastases in the liver or elsewhere. The surgeon has carried out an unnecessary operation and is as deserving of blame as if he had explored a bladder without first cystoscoping the patient. It is not so many years since I witnessed a surgeon (inexperienced in the use of the cystoscope) opening a bladder to remove what he from the radiographs thought was a stone, when really the case was a beautiful example of calcification in a uterine fibroid. The crime of opening the abdomen and finding the case inoperable owing to the presence of metastases is committed daily in this country by surgeons inexperienced in the use of the peritoneoscope.

I would urge most strongly, therefore, that surgeons should become as familiar with the use of the peritoneoscope as they are with the cystoscope. It is undoubtedly easier to interpret the view seen in a peritoneoscope than that seen in a cystoscope or gastroscope, yet it remains a most singular fact that extraordinarily little attention has been paid to peritoneoscopy.

History

Kelling in Germany in 1910, using a cystoscope, was the first to report an attempt at peritoneoscopy, the instrument carrying its own light—although Ott, a Russian, in 1901 was the first to look into the peritoneal cavity through a small opening, but he used a speculum and head-mirror. Various further makeshift peritoneoscopies were done, using cystoscopes, sigmoidoscopes, etc., but it was not until Ruddock, of Los Angeles, published his papers in 1934 and 1937 describing his peritoneoscope that a wider interest in the subject was aroused. Since then many papers have appeared in the American medical literature, but very little has been written on the subject in this country: the first to make an important communication were Prof. Milnes Walker, of Bristol, and Mr. Playfair in 1942. Peritoneoscopy was the main subject of the evening at a meeting of the Royal Society of Medicine in 1943, the opening speakers being Prof. Milnes Walker and Dr. Cooke, of Oxford, who clings to the name laparoscopy. I can find no article on peritoneoscopy in the *British Medical Journal*, except a brief note on the subject in 1925 by Rendle Short, who used the word "coelioscopy" and employed a cystoscope.

Technique

The procedure consists in distending the abdominal cavity with air, which is introduced through a cannula inserted with the help of a trocar a little distance above the pubes in the midline. The abdomen is fairly tightly distended so that the abdominal wall is firm. An incision about 1/4 in. (0.6 cm.) in length is then made a little distance below the umbilicus in the midline, and the peritoneoscope, held very firmly, is slowly pushed through into the peritoneal cavity. The air has lifted the abdominal wall away from the intestines and omentum so that these are not injured if reasonable care is taken. The introducing trocar of the peritoneoscope is then withdrawn from the sheath, and the telescope, which carries a light on its

end, is passed down the sheath, into which it fits with an airtight washer. The examination of the cavity then proceeds.

I have used a Ruddock peritoneoscope since 1938 on numerous occasions, about an equal number of examinations being done under local analgesia and general anaesthesia. Intravenous thiopentone is quite satisfactory as a general anaesthetic. Under procaine local analgesia many patients do not complain at all, though others resent the abdominal distension with air, and a few experience some pain when the instrument rubs against the parietal peritoneum as it is moved about inside the abdomen. When the examination is finished as much air as possible is let out through the sheath, which is then withdrawn, and the tiny opening is closed with one stitch. There is no need for the patient to remain in hospital.

The procedure is carried out in an operating theatre with full aseptic ritual, and it is of much convenience to have a table which tilts into the Trendelenburg and reverse Trendelenburg positions. The instrument is inserted below the umbilicus because this makes it easy to see both sides of the upper abdomen by passing it first on one side of the falciform ligament and then on the other. Adhesions may cause trouble in moving the peritoneoscope about. It is dangerous to insert the instrument into the abdomen close to a previous incision, as intestine may be adherent to the abdominal wall at this point and so be injured.

The information that can be derived from the view obtained is of course not by a considerable measure so great as that which can be got from a laparotomy. Only the anterior surface of the structures in the anterior part of the abdomen can be seen, though by inserting a slim straight metal rod through a separate puncture in the abdominal wall the edge of various structures can be raised and a view obtained under them. Information of the greatest value can, however, be obtained. It is possible to see nearly the whole of the liver, the fundus of the gall-bladder, the anterior wall of the stomach and most of the colon, the omentum, much of the small intestine, and the parietal peritoneum. The spleen is difficult to see unless it is enlarged; and only very seldom can the appendix be seen. In a steep Trendelenburg position one can often inspect the depths of the pelvis, though sometimes the small intestine will not come up out of the way.

Complications of peritoneoscopy are insignificant. The majority of patients have no after-effects whatever. A small area of surgical emphysema appears around the puncture site in an occasional case. In only one case was it at all extensive, spreading to most of the abdominal wall; in a few days it subsided without any untoward result.

When introducing the preliminary trocar and cannula for the pneumoperitoneum care has to be taken to make sure that it has gone through the parietal peritoneum as well as the linea alba. Sometimes the peritoneum is very loosely attached to the abdominal wall and gets pushed forward, with the result that when air is pumped in it strips the peritoneum up over a

1, Trocar and cannula for pneumoperitoneum. 2, Outside sheath of the peritoneoscope. 3, Trocar for introducing the sheath. 4, Telescope.

very wide area and causes an internal surgical emphysema: this makes further examination most difficult. No instance of injury to gut or viscera has occurred in any of my cases and in none has there been haemorrhage or sepsis.

Summary

A strong plea is made for more frequent use of the peritoneoscope. The technique and the application of peritoneoscopy are briefly outlined.

INTERNATIONAL CONGRESS OF PSYCHOLOGY MEETING IN EDINBURGH

The Twelfth International Congress of Psychology, originally planned for 1940, was held in Edinburgh from July 23 to 29, and was attended by over 600 members from most European countries, the United States, Canada, China, India, Chile, and elsewhere. The programme covered a wide range of subjects, with the main emphasis on cerebral function, social and industrial psychology, and child psychology. One of the striking features of the discussions was the high proportion of time devoted to the borderlands between physiology, neurology, and psychology. As Professor Adrian said, the neurologists, neurosurgeons, and physiologists were working on one side of a high wall and the psychologists on the other. It was clear, however, that determined efforts were being made in several countries to break this wall down and to link psychological concepts to neurological findings.

Professor SYDNEY SMITH, acting Vice-Chancellor of the University of Edinburgh, welcomed the members of the Congress on July 23, and expressed great regret that Professor Emeritus James Drever, president of the Congress, was unable to be present owing to illness. In his absence the inaugural address was read by his son, Professor JAMES DREVER, and took the form of an interesting historical survey of the development of philosophy, or introspective psychology, in Scotland during the past two centuries, from David Hume's treatise on *Human Nature* in 1739 to the present time.

Cerebral Function

Professor E. D. ADRIAN spoke on the physiological mechanisms of the brain. He said that, though neurologists and neurosurgeons had most to say about recent developments in the physiology of the nervous system, a description of some of the general reactions of nerve cells and the activity taking place in them was of interest to psychologists. Most important was the great amount of activity in the nerve cells that made up the higher levels of the nervous system. There was a constant cycle of physical changes, and the mechanism of rhythmic discharge was highly developed with a wide range of frequency. The stimulus of the sensory endings caused instability sufficient to give a continuous discharge of low frequency. In the brain constant activity was the rule. Although greatly reduced by an anaesthetic or sleep, it could be brought back by a single stimulus. (This was demonstrated by amplified recordings from the olfactory bulb of a fully anaesthetized rabbit). There was some evidence to show that consciousness (behaviour) depended on the cells of the brain having some degree of instability, which made them of constantly changing receptivity. The cells of the cortex had a spontaneous constant changing activity. At a lower level, in the spinal cord, there was less evidence of changing activity—reflex centres must behave with complete obedience to orders. The cells of the brain were not so obedient, conscious activity being less predictable.

Professor O. L. ZANGWILL (Oxford) dealt with the subject of visual orientation in relation to cerebral dominance. It had long been known that lesions involving the parieto-occipital region of the cerebral cortex were liable to provoke marked and characteristic disturbances of visual space perception. The principal types of disability hitherto described were (a) visual disorientation, which might be complete or incomplete according to whether the responsible lesion was bilateral or unilateral; (b) disturbances in visuo-spatial articulation and in the appre-

ciation of high-grade spatial relations in the visual field; and (c) distortion of the main co-ordinates of visual space. Disorders of the second and third type were particularly common in cases with right-sided parieto-occipital lesions, and he tentatively suggested that some mechanism of special significance for visual space perception was located in the minor hemisphere. Preliminary evidence in support of this view, based on the comparative psychological study of cases with right-sided and those with left-sided parieto-occipital lesions, was discussed in some detail. The relation of visual object-agnosia to lesions of the dominant hemisphere, and of topographical memory loss to lesions of the minor hemisphere, was also briefly considered. In the light of the available evidence Professor Zangwill concluded that object and colour recognition, and the simultaneous grasp of a complex perceptual field, appeared closely bound up with the activity of the dominant hemisphere, whereas the general framework of spatial relationships seemed to depend to a much greater extent on the contribution of the minor hemisphere. It appeared, therefore, that the principle of cerebral dominance applied to some at least of the processes subserving visual cognition in general.

Electroencephalography

Dr. T. C. BARNES (Philadelphia) described the physiological and psychological factors in electroencephalography. There were many physical, chemical, and psychological conditions that affected brain-waves. It was probable that the electrical activity of the brain was produced by phase-boundary potentials generated by acetylcholine at the interface between brain lipoid and tissue fluid. This cholinergic theory suggested that parasympathetic activity might be associated with increased electrical activity of the brain, and, conversely, that signs of sympathetic activity might accompany decreased activity. Also, the vasodilatation of cerebral vessels produced by acetylcholine might promote bio-electrical potential. Evidence for this theory was found in the following investigations. In a group of normal persons whose E.E.G. became abnormal on hyperventilation the skin temperature of the hand fell an average of 1.6° C., and pulse rate rose 35 beats, compared with an average fall in skin temperature of only 0.6° C. and pulse rise of 23 beats in normal persons whose E.E.G. was unaltered by hyperventilation. These results supported the theory of parasympathetic control of the encephalogram. In addition to physiological studies it had been found that psychological tests also aided in the interpretation of the E.E.G., and it was useless to record brain-waves without careful study of all possible cholinergic and psychogenic elements. (Throughout the reading of this paper many of the points were strikingly illustrated by a volunteer who was connected to an electroencephalograph, the resulting record being circulated as a continuous tape among the audience.)

Prefrontal Leucotomy

In a symposium on this subject a paper by Professor G. JEFFERSON (Manchester) was read by a deputy. After a review of the beneficial effects of lobectomy in lesions of the frontal lobe, and a discussion of frontal lobe function, the effects of leucotomy were considered. Bilateral frontal lobe damage, whether caused by tumours, injury, or lobectomy, gave rise to certain faults such as lack of initiative, lack of normal inhibition in emotional behaviour, and inability to learn new tasks. These faults were also liable to occur after leucotomy, but fortunately the changes were not so apparent in the majority of cases as to make a deep impression on either the patient or his relatives, who in favourable cases are so much impressed by his greater tractability that faults are minimized or overlooked. It was impossible to give a clear-cut account of what happened after leucotomy, owing to the fact that each patient was an "individual," behaving according to his own personality and his own environmental and genetic history, but observations on a series of 70 cases had shown that those patients did best who, before they became mentally deranged to a point requiring active treatment, had had time to acquire distinct personalities. Thus, patients suffering from depressive states, and those developing delusions or paranoia late in life, would be more likely to improve after leucotomy than the schizophrenics. One tiresome sequel to leucotomy (commonly