tumid but rather retracted, and not tender to the touch, it was thought that the pus must be deepseated, and out of reach. The patient died of asæthia.

On *post-mortem* examination the peritoneum was found full of pus, most in the pelvis, into which it had gravitated. The intestines were adherent to each other and to the diaphragm, as well as to the liver and spleen. The adhesions were most dense near the stomach, and on opening that organ a large ulcer was found on the lesser curvature, nearly circular, and measuring three-quarters of an inch across. Its edges were rounded, and almost cartilaginous, the base was thickened and irregular, and formed of thickened omentum. The ulcer was adherent to the under surface of the liver, and lay in about the centre of the chief mass of fibrous adhesions described, but there was no communication with the peritoneum.² The liver was a little enlarged, and on section seemed to contain many abscesses, but these abscesses proved on examination to be branches of the portal vein distended with pus, suppurative pyelophlebitis. The main trunk of the portal vein contained an old suppurating clot, and the splenic vein, like the branches of the portal vein, were filled with pus. Neither the portal or the splenic vein contained any red blood or any recent clot. In this again, as in the last case, the cause of death was suppurative peritonitis, but the cause of the peritonitis lay in the old gastric ulceration.

CASE III. Chronic Ulcer of Stomach and Duodenum; Perforation of Duodenal Ulcer; Local Abscess opening into Transverse Colon.—The patient, a woman aged 43, a servant, had been in good health and active work until seized one day a month before admission with violent pain in the pit of the stomach. The pain at first was very severe, like cramp, and seemed to take away all her strength, but she did not vomit. She was taken to bed, where she remained for a fortnight, when she tried to get up, but had to go back again, and the doctor told her she had inflammation of the stomach. The pain increased, and a week later diarrhoea set in, and has continued more or less ever since. Throughout she has never vomited, but has been able to take food, both solid and liquid, though without appetite. She has lost flesh and strength rapidly, and during the last few days has been troubled with cough and perspirations, especially at night. The patient looked pale and somewhat dusky, and was bathed in perspiration. The pulse was 140, the respirations 60, and the temperature only 99°. There was considerable general bronchitis, and the heart sounds were feeble. The abdomen was distended and contained a little fluid. The right hypochondriac region was tender and slightly prominent, and the liver appeared to extend from the fifth rib to the umbilicus, but the lower part of this area was resonant. The feet were slightly swollen. Beyond that the patient was in a septic state, and probably had some clots in the lungs, no exact diagnosis appeared to me possible. The subsequent history threw no light upon the case, nor did any fresh symptoms develop, except that two days before death some dark blood was passed by the bowel. The patient rapidly sank and died of exhaustion four days after admission.

At the necropsy, on making the incision into the abdomen, a superficial abscess was opened, which lay immediately below the abdominal walls. The lower edge of this corresponded with what was thought to be the liver, and, as it contained air, accounted for this part being resonant. Otherwise the area ascribed to the liver was correct, for that organ extended from the upper border of the fifth rib to nearly the level of the umbilicus. The abscess described had two openings in its walls; the one of small size led into the transverse colon. It was obviously recent, and probably accounted for the hæmorrhage during the last few days of life. The second opening was of larger size and older date, and lay more posteriorly. It proved ultimately to be connected with the duodenum. On laying the stomach and duodenum open, two chronic ulcers were found, one in each, with thickened fibrous walls, and evidently of long standing. That in the stomach was seated on the lesser curvature, and was about the size of a five-shilling piece. It had made its way through the walls of the stomach, and its floor was formed by an excavation in the liver, but no communication existed between this ulcer and the abscess cavity. The duodenal ulcer was of smaller size, not quite so large as a shilling, and in its centre was the larger of the two openings described in the abscess walls. Besides that, both femorals were occluded by clot, which accounted for the œdema; there was nothing further of note in the rest of the body.

The *post-mortem* examination gives a full explanation of the clinical history of the case. The only diagnosis ventured upon during life was confirmed by the discovery of the air-containing abscess, and the cause of this was found in the perforation from the duodenal abscess. The hæmorrhage from the bowel was no doubt due to the bursting of the abscess into the colon. The gastric ulcer took no part in the production of symptoms, but the thickness of its walls, the excavation it had formed into the liver, and the induration round it were conclusive proofs of its long duration. The duodenal ulcer, though subsequent in formation to that in the stomach, must also, from the thickness of its walls, have been of some standing. Now it is remarkable that not only had these ulcers existed without symptoms until that in the duodenum perforated, but that even after the perforation there was not the slightest other symptom to suggest their existence.

CASE IV. Malignant Ulceration of the Stomach; Perforation of the Colon.—The patient, a man, aged 40, was admitted into St. Bartholomew's Hospital with the diagnosis of chronic intestinal obstruction. He stated that he had been in good health and at work until three weeks before admission, and that then he was suddenly seized, while carrying a heavy weight, with severe pain in the epigastrium. He had taken his dinner about half an hour before, and had suffered no discomfort from it. The abdomen swelled soon after, and severe vomiting set in, which relieved the pain. Since that time he was laid up, and was more or less in bed. The pain returned after every meal, and continued until relieved by vomiting. He had not at any time brought up blood. The bowels were irregular, but never obstinately confined. A week after his first attack the vomit became foul smelling, and continued to be of the same character on and off, though at times a day or two would pass without its being offensive or consisting of anything but partly digested food.

On admission the patient did not look specially ill. The tongue was

slightly coated. The breathing was not free, because of pain in the epigastric region, caused by taking a deep inspiration. The abdominal pain was more or less constant, being usually of a gnawing character, but occasionally gripping. There was great hyperæsthesia, as well as tenderness on firm pressure, and considerable muscular resistance. The abdomen was not tumid, nor was there any distension of either small or large intestine. The temperature was normal, and the pulse and respirations only slightly accelerated.

The symptoms not appearing urgent, the patient was placed upon milk and lime water as diet, and bismuth and opium as medicine, and an enema administered. The diagnosis presented many difficulties. The intermittent symptoms, long duration, and the absence of abdominal distension, seemed to negative acute obstruction of either the large or the small intestine. The more chronic form could not be so definitely excluded, but the absence of abdominal distension rendered it unlikely. Impaction of feces was negated by rectal examination, and no growth or stricture could be felt within reach. Chronic peritonitis might explain the irregular vomiting and action of the bowels, but, if so, it would have to be localised. The most probable diagnosis was thought to be that of a communication between the stomach and colon, but against this was the absence of any previous history of mischief either in the stomach or colon. The age, especially, was opposed to malignant ulceration, which such a communication appeared to require. The diagnosis, it was concluded, must, however, be between gastro-colic fistula and a localised peritonitis.

On August 18th, three days after admission, the patient brought up suddenly a large amount of vomit, in colour and odour similar to a copious motion which was passed almost at the same time. On the 21st, 24th, 30th, and 31st similar attacks of fecal vomiting occurred. Although no further special symptoms developed, the patient all the time was rapidly losing ground, and by September 2nd it was obvious that if no relief could be given he would shortly die.

Under these circumstances the advice of my colleague, Mr. Cripps, was taken, and he advocated an exploratory incision into the abdomen. An incision was accordingly made into the left loin, but nothing abnormal could be found, and the wound was stitched up again. Two days later the patient died. At the *post-mortem* examination the transverse colon was found to be adherent to the greater curvature of the stomach and communicating with the stomach through a ragged hole three quarters of an inch in diameter. On opening the stomach this hole was found to be in the centre of a large ulcer, evidently malignant. The ulcer extended round the stomach transversely, except for 2 inches at the lower curvature, and was in its widest part 3 inches broad and nowhere less than 1 inch. With the exception of two small nodular masses in the adhesions between the stomach and colon, there were no secondary deposits. Nor was there elsewhere in the body any disease. Microscopical examination showed the tumour to be a medullary carcinoma.

During life the symptoms were most puzzling, for although on their merits they seemed to point to a gastro-colic fistula, still the difficulties of explaining the origin of such a lesion seemed insurmountable. In the first place, there had been no evidence whatever of stomach trouble previous to the supposed perforation, and, secondly, such perforations were generally due to malignant disease of either colon or stomach, and against the assumption of malignant disease was the age of the patient as well as the absence of symptoms. The *post-mortem* examination, however, made it clear, not only that ulceration existed, but that it was malignant. Moreover, the extent of the ulcer showed that it must have existed for some considerable time; while the history makes it equally certain that the ulceration continued without symptoms of any kind until perforation occurred.

ON CENTRAL BIRTH PALSY.¹

By THOMAS OLIVER, M.A., M.D., F.R.C.P.,
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At a previous meeting of this Branch I read a paper on paralysis occurring in children, accompanied by loss of speech, and due to meningitis. The boy whose case I now describe is suffering from the effects of a lesion developed at the time of his birth, to which the term "birth palsy" is applied.

CASE I. Difficult Parturition; Child Resuscitated with Difficulty; Convulsions; Atrophic Hemiplegia.—R. H. is 14 years of age. When he first came under my notice three years ago the following was the note taken: There is nothing of importance in the family history. His mother states that she had good health during the pregnancy which concerns our patient; that the labour was a severe one, the forceps requiring to be used. When the patient was born there were no signs of vitality in him; breathing was completely suspended, and it was some time before the infant could be sufficiently roused to utter a "cry." Very shortly after his birth convulsions developed and continued more or less for the next three days. Since then there has been complete freedom from convulsions; the patient's health has been remarkably good.

He is somewhat deformed, and when standing or walking he leans rather to the right side, with his left foot slightly drawn up. His left arm is flexed at the elbow and is held forwards, so that when walking the left arm is dangled in front of him and is observed to be the seat of tremor. His mouth is always half open, and, though this gives him rather a "weak look," there is no mental defect; far from it, the lad is above the average in ability; he is prompt and exact in his replies to questions addressed to him at school and elsewhere. This is a point of great interest, for his speech is slow and drawing, and it is in these cases where articulation is defective that there is generally noticed some intel-

¹ Read at a meeting of the North of England Branch of the British Medical Association.

² Specimen and condition described in *Path. Soc. Trans.*, xli., 146.

lectual deficiency. The patient is undersized for his years. His face, which is pale, is unequal on the two sides; the left half is smaller than the right. He cannot close his mouth properly nor approximate his lips as in the act of whistling. The left angle of the mouth is gaping, and there is considerable flattening of the left cheek. Over the upper part of the brow and slightly to the left of the middle line is an elongated mark with depression. This, the mother maintains, is the impression left by the blade of the forceps. It is said never to have disappeared from the day on which the patient was born. Beyond simply stating that in shape and size the mark is not unlike that which might be caused by the forceps, I offer no opinion upon this point.

In speaking the right side of the face is active and full of expression compared to the left. The left arm is not only thinner but shorter than the right by $\frac{1}{2}$ inch. Part of this may be explained by the arm being kept in a state of flexion. The proximal phalanges of the fingers are extended, whilst the others are flexed towards the palm. He cannot hold out his left hand steadily; when it is unsupported it is the seat of choreiform movements, and by the fingers of this hand delicate movements, such as picking up a pin, are more or less impossible; this is accomplished by a grabbing movement. He is not only unable to control these choreiform movements, but when asked to move certain fingers only he cannot do so, the whole of the fingers are then thrown into a state of irregular flexion and extension. Sensation is perfectly normal. Right arm over biceps measures $\frac{5}{8}$ inches and left 6 inches. There is a slight drooping of the left upper eyelid; the pupils are normal; the discs are healthy. The upper teeth are large and irregular. Heart, lungs, liver, and spleen are healthy. The left leg remains in a condition of spastic rigidity; the heel is drawn up; the toes are pointed as in talipes equinus, the big toe being kept in a state of extension. The muscles of the left leg are less developed than those of the right, and the knee-jerk is excessive on both sides. Ankle clonus is not obtainable, but it is observed that the left leg exhibits a series of recurrent small tremors, akin to clonus, without provocation. The above was the condition of the patient three years ago; since then he has altered very little. He is taller, but his growth has not been equal to that of another boy of his own age. The knee jerks are not so excessive as they were.

The history of a severe labour, followed shortly afterwards by convulsions in the infant, the weakness and maldevelopment of the left side of the face, left arm and leg, and the irregular, almost athetoid movements exhibited, lead me to believe that the symptoms in our patient can only be explained by conditions which came into existence during the process of his being born. Gowers*, in his article on Infantile Meningeal Hæmorrhage, gives a very graphic description of cases such as this. He also states, as the result of his own experience and that of Drs. Little and Sarah McNutt, that meningeal hæmorrhage occurring during parturition inflicts such an injury upon the brain that complete recovery becomes a matter of difficulty. In most of his cases the presentation was unnatural; the head was born last. "Mechanical congestion accompanied the compression, hence the occurrence of hæmorrhage is easy to understand." Whether the child came head or breech foremost there seems to have been in almost every case some difficulty in the process of parturition, and also some difficulty in eliciting signs of life in the child immediately after its birth. Where the forceps has been used and birth palsy has followed, we are scarcely warranted in assuming that the disease is to be attributed to their employment, for the conditions which necessitated their being used were in all probability sufficient to cause the compression upon which we believe the hæmorrhage depends.

Considering the large number of children born that have to be resuscitated by artificial respiration, it is but very few after all who suffer from birth palsy, and in this matter I exclude those cases of facial paralysis in the newly-born infant, which disappear a few days after birth, and which are caused by the pressure of the forceps upon the nerve itself. Given the case of an infant born under circumstances where great compressing influences have been in operation, that child may from the first have convulsions and exhibit rigidity and paralysis, or it may be that for the first few days or weeks nothing is noticed which attracts attention.

CASE II. *Precipitate Labour; Meningeal Hæmorrhage; Death.*—In one of my own cases seen with Dr. Wilson, of Wallend, the labour was, comparatively speaking, easy. It was, perhaps, rather precipitate, and therefore the compression would be sudden, for the whole period of labour scarcely lasted an hour and a-half. The baby was born with very severe pains before the arrival of the doctor. The child was extremely feeble from the time of its birth. It was a head presentation, and the child had in no way been injured after its escape from the vulva. From the first the child's respiration was extremely feeble, and the beat of its heart weak. The child was so prostrate and lifeless that it could scarcely swallow a few drops of liquid. It died on the third day from what appeared to be sheer exhaustion. At the post-mortem examination several hæmorrhages were found under the skin of the occipital region, under the dura mater, over the vertex of brain, and under the tentorium cerebelli. Other portions of the membrane of the cerebellum were extremely hyperæmic; the brain and cerebellum were healthy, and there was no effusion into either of the lateral ventricles. In addition, there were numerous small hæmorrhages, varying in size from a pin's head to a pea.

* Diseases of Nervous System.

The vessels in the pia mater were distended; some had ampullar dilations upon them, whilst others could be traced into the effusions of blood. Both lungs were engorged, were firm to the touch, and were studded here and there with reddish-black dots of pulmonary apoplexy. These conditions, not unlike those of the early stages of pneumonia, are to be explained by atelectasis due to insufficient respiratory force. The other organs of the body were healthy.

Here, then, was a case where meningeal hæmorrhage occurred during parturition without the forceps having been employed, and apparently where no long-continued compressing influences had been at work; and if the child had lived, in addition to mal-development, there would undoubtedly have been the characteristic symptoms of birth palsy.

It is hæmorrhages, such as the one I have described, spread over the vertex and posterior part of the brain that have been found by Gowers and others in cases where convulsions, rigidity, and paralysis were present either at birth or shortly after it. Meningeal hæmorrhage occurring under these circumstances upon the vertex either compresses the convolutions of the brain, or it tears the cerebral tissue, or the blood is poured out at the base in the posterior fossa, and surrounds the medulla and cerebellum. Basal hæmorrhage is regarded by McNutt as that most likely to arise when there has been a head presentation, whilst the effusion of blood upon the vertex, on the other hand, is regarded as more likely to develop when it has been a foot presentation. Without accepting this as absolutely true, it is no doubt what would be most likely to happen. In a breech presentation, for example, where all but the head is born, the neck of the child is caught more or less by the muscular ring at the exit of the uterus and the base of the skull being also more or less compressed, there would be impeded escape of blood from the brain, and the vessels at the vertex, thereby inordinately distended, might easily rupture, and the result would be an extravasation of blood upon the surface of the brain. Necropsies made upon infants that have died shortly after birth have demonstrated the existence of this form of meningeal hæmorrhage, and in the case of children that have survived this disaster and died years afterwards, having exhibited during life the characteristic symptoms of birth palsy, post-mortem examination has shown the lesion to have been one of atrophy of the convolutions of the motor area. The appearances presented could only be explained by the supposition of there having been a hæmorrhage which had inflicted injury upon the brain, the blood having been slowly absorbed; leaving, however, considerable damage done to the cortex. The seat of the hæmorrhage, generally upon the vertex, explains the symptoms, namely, paresis of the muscles of the legs and arms. The effusion may extend lower down upon the ascending frontal convolution, and destroy the centres for the muscles of the face, whilst the excessive knee-jerks and rigidity in all cases would be due to descending degeneration of motor tracts, and the spontaneous movements to the persistence of damaged nerve cells in the cortex. In R. H. the disease is unilateral but in many it is bilateral, and where this is the case the paralysis is more marked on one side of the body than the other, the two limbs most affected being always on the same side.

CASE III. *Spastic Paraplegia.*—A short while ago I saw a boy, aged 5 years, in whom the disease had assumed the characters of "spastic paraplegia." Both legs were the seat of clasp-knife rigidity that he could not stand unless supported. Both feet were in a condition of talipes equinus. The foot and leg of one side, owing to the action of the adductor muscles of the thigh, were thrown in front of the other, almost at right angles to it, so that it was impossible for him to stand alone or walk. The legs were fairly well developed as regards length, but the muscles were imperfect, and were rigid. There was spasmodic contraction of the muscles of the calves; knee-jerks were excessive. There was no ankle clonus; sensation was normal. Beyond slight incoordination nothing was noticed in the arms.

ON PERIPHERAL BIRTH PALSY.

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FACIAL PALSY.

THE simplest form of peripheral birth palsy is that which affects the seventh cranial nerve. It is generally the result of forceps operation, but is sometimes present after a protracted, though otherwise normal, labour. The general tendency of such cases is to get rapidly well in the course of a