spermatozoa are accordingly not forthcoming." "The testicle remains in this state, at least we have no evidence that it undergoes further change." A fully-grown testis replaced in the abdomen undergoes retrograde changes until it becomes similar in structure. This structure is precisely similar to that found in imperfectly-descended testes. Therefore, from the point of view of procreation, no harm is at all likely to be done by returning the testis to the abdominal cavity, whilst its subsequent growth and the presence of apparently functional cells points to the probable value to the organism of its presence, as for the perfection of the secondary male characters.

Last, I have left the selection of cases which do not need operation. In primis, the extremely difficult task of excluding the co-existence of a hernia must be accomplished. Secondly, in our present state of knowledge it may be taken that the less imperfectly the organ is descended the more likely is it to develop satisfactorily at puberty. That is to say, those cases in which an orchidopexy seems most likely to be successful are the very ones in which the testis may be left alone, for if this operation is to be successful the testis will most probably be close to the scrotum. At the other extreme of the serial degrees of the descent or imperfect descent of the testis, that is, when it is abdominal, it should be left alone.

SUMMARY OF OPERATIVE PROCEDURES.

1. Orchidopexy is only applicable in mild cases of imperfectly-descended testis, and perhaps even then it may not often be called for.

2. Orchidectomy is only justifiable under special pathological conditions, for example, torsion, severe neuralgia, extreme atrophy and so forth, and in older cases, that is after the occurrence of puberty and a possible and problematical period of testicular activity and spermatogenesis has passed, say from 23 upwards.

3. Replacement in the abdomen is indicated in far the majority of cases, and should be always done before puberty and, perhaps, up to the age of 20 or thereabouts. It would appear that the earlier the operation is performed the better should be the result.

4. No operation may be called for in mild cases when the testis is close to the bottom of the scrotum, or when the testes are abdominally retained.

5. Operative interference is demanded in most cases on account of the secondary changes of an inflammatory and sclerotic nature in the testis, which the position of imperfect descent leads to. Again, there is the frequent coexistence of a hernia with this condition. And in cases where it does not often or has never previously come down, the narrow opening or neck of the sac may cause one of the most dangerous varieties of strangulation.

THE ACQUIRED IMPERFECTLY-DESCENDED TESTIS.

As an appendix to the foregoing part of this lecture, it seems advisable to attract attention to the various ways in which an imperfectly-descended condition of the testicle can be acquired. This is almost always the result of an operation for the radical cure of a hernia. Previous to that operation the testis was at the bottom of the scrotum. There are three ways in which this may be brought about. In the first, the testicle was originally imperfectly-descended, but owing to the propulsion of a hernia behind it, the organ has assumed a lower or more descended position. It therefore appears to be fully descended. When at the operation the hernia sac has been freed and divided, ligatured, etc., the testis is apt to resume its original position, so reproducing its imperfect descent. Secondly, if the hernia sac is not sufficiently freed from the cord, and after ligature the sac has been reduced into the abdomen, it will pull the testis up into a higher position. Thirdly, in bandaging up a case after an operation, as for instance the radical cure of a hernia, the organ may become adherent to the scar of the operation. By this is meant the internal rather than the external cicatrix. I do not believe that this last is anything like so frequent as the two former factors in the causation. Similarly the second factor can be excluded in the hands of competent surgeons. And one is led to look upon the first cause, original imperfect descent, as the most important. And also to a very general conclusion, namely, we recognize that imperfect descent of the testis is frequently accompanied by a hernia; and we may now recognize that a hernia may be accompanied by an imperfectly-descended testis, especially so in children and when the sac is a congenital one. A further generalization may be made. The proper closure of the

processus vaginalis that leads to the congenital discontinuity or separation of the tunica vaginalis and the peritoneum is dependent, wholly or in part, on a perfect descent of the testicle and that the failure of this procedure very likely represents one of the earliest and smallest developmental defects, which in a more severe form is recognized as an imperfectly-descended testis. The presence of a congenital sac should always place the surgeon on his guard for the presence of a testicular anomaly. The imperfect descent of the testis is merely an example of a series of degrees of developmental errors.

A great deal of harm may result to the individual from this oversight on the surgeon's part, on account of imperfect maturation of the gland, which becomes exposed to all the changes that result from its position. The condition should be recognized and treated *secundum artem* at the first operation, and it is merely necessary that attention should be called to it for this to be done. Clinical experience emphasizes this point. The consequent healing of the wound with matting of the cord may lead to interference with the blood supply and to impoverishment of the nutrition of the gland. Also the same process does bring about a more or less complete fixation of it, so that later operations for transplanting the organ to the scrotum or the abdomen cannot be carried out, and one is left with the choice of protecting or excising the gland. Recurrent attacks of pain and orchitis usually precipitate the latter procedure. Or the organ wastes and becomes practically a mass of fibrous tissue.

FOUR ABDOMINAL CASES.

By DAVID MACEWAN, M.D., C.M.,

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THE following cases which lately came under my care in the Dundee Royal Infirmary are of sufficient interest to make it desirable that they should be recorded:

CASE I.—*Hernia into the Ileo-caecal Fossa: Enterectomy.*

Mrs. F., aged 56, admitted December 3rd, 1903.

History.—Illness commenced five days before with abdominal pain and vomiting. The vomiting was incessant for twenty-four hours and then abated somewhat after a slight movement of the bowels. It only troubled her occasionally for the next three days and then again became very frequent, and continued so till her admission thirty hours later. There was no further movement of the bowels or passage of flatus.

State on Admission.—She was very exhausted; pulse weak; temperature 99°. Complained of abdominal pain, chiefly about umbilicus. Abdomen was distended and tympanitic all over. There was pain on palpation, but no localized tenderness. In the left groin at the femoral opening there was a small tumour of doughy consistence and without impulse on coughing. Soon after admission she had two attacks of faecal vomiting.

Operation.—An incision was made down to the tumour in the left groin to determine its nature. It was found to be, not a hernia but an enlarged gland, and was removed. The abdomen was then opened by a median incision below the umbilicus. The intestines were distended and congested. The obstruction was found to be due to the engagement of a loop of the small intestine into a peritoneal pouch, the mouth of which lay to the inner side of the caecum and appendix. The loop, which was about 4 in. in length, was so constricted that the mouth of the sac had to be incised in order to disengage it. It was distinctly gangrenous, particularly at the constricted parts, which were of an ashy-grey colour, and there was a perforation through which some faecal matter escaped. The sphacelated bowel was then withdrawn from the abdomen, enterectomy performed, and the ends brought together by means of a Murphy button. About 8 in. of bowel was removed. As the pulse was very weak at the end of the operation, 2 pints of saline solution were infused into the median cephalic vein, and a hypodermic injection of strychnine given. The patient made a satisfactory recovery, and the button was passed on January 17th, six weeks after the operation.

REMARKS.—I used a Murphy button in this case in preference to suture, on account of the very unequal size of the two openings, due to the dilated state of the bowel above the obstruction; and also because the exhausted state of the patient necessitated as speedy a termination of the operation as possible. Varied descriptions have been given of the peritoneal fossae in the region of the caecum. The three principal fossae are the ileo-colic, the ileo-caecal or ileo-appendicular, and the subcaecal or retro-colic. They are rarely the seats of hernia, and in the cases which have been recorded the condition has usually been discovered on *post-mortem* examination. Hernia into the ileo-colic fossa has not been observed. Moynihan in his work on retroperitoneal

herniae states that four cases of hernia into the ileo-caecal fossa have been published. Of the retrocolic form he has discovered eleven cases, but the majority of these he does not accept as authentic examples. Traves states that "about twelve cases in all of pericaecal hernia have been published." From the position and relations of the sac, the case which I have related evidently belonged to the ileo-caecal variety. There is no recorded instance in which that form of hernia has been treated by operation.

CASE II.—*Rupture of Gall Bladder, Laparotomy, and Choledochotomy.*

L. M., aged 35. Admitted January 18th, 1904.

History.—During the past eleven years he has had, at intervals of a year or more, attacks of epigastric pain and vomiting, sometimes beginning with a rigor, lasting for periods varying from a few hours to a fortnight, and terminating sometimes suddenly at other times gradually. Each attack was followed by more or less jaundice, which passed off after some days. The existing attack was the eighth. It commenced in the usual way nine days ago. The pain, which was very intense at first, commenced suddenly while he was lifting a heavy load. Dr. Watson, of Coupar Angus, who was called to see him two days afterwards, stated "that jaundice had then commenced, and that there was tenderness and dullness on percussion in the region of the gall bladder; he seemed exhausted and was slightly delirious: pulse was 120, temperature 102°; the fever continued, ranging from 101° to 103°, up till his admission into the infirmary, and he was delirious at night, and had mental wandering at times during the day."

State on Admission.—He was very prostrate and markedly jaundiced. In the epigastric and right hypochondriac regions there was bulging, tenderness, and muscular rigidity. The percussion note was dull nearly down to the umbilicus and into the right lumbar region. The urine contained bile. During the night he had a severe rigor, the temperature rose to 106.6° F., his pulse was very rapid, and he was restless and delirious.

Operation.—The abdomen was opened on the morning of January 19th by a vertical incision extending downwards from the tip of the tenth costal cartilage. The gall bladder was not visible, and the colon, omentum, and other adjacent structures were adherent to the visceral surface of the liver. Upon gently separating the adhesions there was a sudden gush of dark-coloured fluid. I arrested it temporarily by sponge pressure in order to shut off the general peritoneal cavity by the insertion of gauze compresses. On removing the pressure the fluid continued to flow for some time, and, towards the end, it had a greenish colour. I estimated its quantity at from two to three pints. Upon further examination I found that it had been confined in a space bounded by the under surface of the liver above, the adhering viscera below, and communicating with the lesser sac of the peritoneum. From the upper wall of the space I removed a small calculus which appeared to be embedded in the orifice of the cystic duct. Another small calculus lay free in the cavity. The wall of the gall bladder was undefinable. I then proceeded to examine the common duct, and in it there was a small movable calculus. I extracted the calculus, after incising the duct, and closed the opening by silk Lembert sutures. There was some distension of the intestines, but no evidence of any general peritonitis. A counter-opening was made in the lumbar region, and a drainage tube passed through it into the space below the liver. Another drain was inserted through the abdominal wound down to the seat of incision in the common duct. The wound was closed by interrupted sutures passed through the whole thickness of the wall. The patient rallied well after the operation, and made a satisfactory recovery. There was only a slight discharge of bile-stained fluid for a few days from the drainage tube in the loin, and the jaundice had disappeared two weeks after the operation. When the patient was discharged the wound was quite healed, and his general condition was excellent.

REMARKS.

The usual attacks to which this patient was subject were obviously due to obstruction of the common duct. His recent illness, however, judging from the intensity of the symptoms and the condition found at the operation probably did not begin as a gall-stone colic, but was due from the first to a ruptured gall bladder. The explanation of how this occurred appears to be, that there was distension of the bladder from obstruction of the cystic duct, and that the strain caused by the extra exertion which he mentioned, and which coincided with the onset of the symptoms was the determining cause of the rupture. Fortunately the extravasation was confined by adhesions; some of them probably of old formation from pericholecystitis.

Rupture of the gall bladder is not a lesion of very frequent occurrence. A few cases due to pure injury have been reported, and according to Bricka, as quoted by Moynihan, there have been 35 reported cases of spontaneous rupture—23 due to gall stones and 11 to typhoid fever. In the majority the extravasation was into the general peritoneal cavity.

CASE III.—*Cancer of Stomach: Gastrectomy.*

Mrs. R., aged 48. Admitted February 26th, 1904.

History.—For two or three years she had been troubled with attacks of sickness, unaccompanied by vomiting. With that exception her health was moderately good till five weeks ago, when her appetite began

to fail; since then she had been losing flesh and feeling weak, and had had uncomfortable dragging sensations in her abdomen. For two weeks there had also been abdominal pain, which had been much worse during the past few days. Two or three months ago the motions from the bowels were dark in colour for some days, and this happened again two days before admission.

State on Admission.—The patient was a pale, worn-looking woman. There was fullness of the abdomen, especially at the sides, and on palpation a very hard and tender tumour about the size of a hen's egg could be felt immediately to the left of the umbilicus. The tumour was movable, and could be displaced upwards under the left costal cartilages, but not downwards. It was the seat of constant pain, which radiated irregularly over the abdomen, and was increased by movement and full inspiration. The percussion note was tympanitic all over the abdomen except in the region of the tumour. There was no evident dilatation of the stomach. The liver and spleen were not enlarged. She had loss of appetite, occasional nausea, and a bad taste in the mouth, but there was no pain after food and no vomiting. Pulse 60, of small volume; temperature normal. A systolic murmur was audible in the mitral area, and the aortic and pulmonary second sounds were accentuated. There were some dry bronchitic rales in the lungs.

Operation.—On March 5th chloroform was administered and the abdomen opened by a vertical incision slightly to the left of the middle line, and extending from the ensiform cartilage to a little below the level of the umbilicus. The tumour, which was a carcinoma of the stomach, extended from the pylorus along two-thirds of the length of the greater curvature, and involved half the breadth of the posterior, and a small portion of the anterior wall. No enlarged gland could be felt, and the other viscera appeared to be healthy. The stomach was mobile, and not much dilated. I proceeded to perform gastrectomy. The curvatures were freed by tying off the small and large omenta at a suitable distance from the gastric borders. Two clamps were now placed on the first part of the duodenum, and it was divided between them. The stomach was then lifted up, and its separation completed by an incision between two clamps placed one on either side of its junction with the oesophagus. Bleeding points having been tied, the upper opening, which was slightly larger than that of the divided duodenum, was reduced to a corresponding size by the introduction of a few sutures. The two openings, which could be brought together without tension, were then united by two rows of sutures over a Robson bobbin—a continuous one through all the coats, and an outer interrupted Lembert through the serous and muscular coats. A stab opening was made in the left lumbar region, and a drainage introduced up to the seat of the operation. The abdominal wound was closed by interrupted sutures passed through the whole thickness of the wall. The pulse was never very good during the course of the operation, beating slowly, and irregular in force. A hypodermic injection of strychnine was given, and 5 pints of saline solution were infused into the median basilic vein. The operation lasted one hour and three-quarters.

After progress.—In the evening she had revived considerably—she was quite warm, the pulse was 80 and regular; there had been slight retching. For the first three days she was fed entirely by nutrient enemata, and had a saline enema once or twice daily. On the third day there was a good deal of retching with abdominal distension, but this passed off after movement of the bowels effected by a turpentine enema. She was then allowed to have chicken tea in frequently-repeated small quantities, beef-tea in two days afterwards, and in ten days she had peptonized milk in addition. Her scale of diet has been gradually extended, and at the present time—ten weeks after the operation—she has the following daily: Milk, bread and butter, porridge, beef-tea or soup, fish or chicken and potatoes, custard or rice pudding. She is fed every two or three hours. There are no digestive troubles, and her bowels move regularly.

REMARKS.

Professor Sutherland examined the stomach and reported that the tumour was a columnar-celled carcinoma. The patient has gained considerably in weight during the past two or three weeks, and is in a better state of health than she was on her admission into the hospital. She has passed the immediate dangers of the operation, but it has to be seen how long she will remain free from a recurrence of the disease. Sufficient time has not elapsed since gastrectomy became a recognized surgical procedure to form a proper estimate of its worth. Since the first successful case by Schlatter in 1897, 9 or 10 recoveries have been reported, and the cases have shown that digestion and nutrition can be carried on moderately well in the absence of the stomach. Early recurrence of the disease, however, seems to have been the rule.

CASE IV.—*Intestinal Obstruction Due to an Adherent Appendix Vermiformis.*

Mrs. B., aged 28, admitted on March 15th, 1904.

History.—Six months ago began to be troubled with diarrhoea, which continued for four months. For the past two months she had been constipated and had had pain in the stomach, usually coming on about two hours after food. Vomiting commenced six days before admission and had continued intermittently since. There had been no movement of the bowels or passage of flatus since the vomiting began. She had never had any previous serious illness.

State on Admission.—She had a pinched and anxious expression. Pulse 140, weak; temperature 97.6° F. Complained of frequent paroxysmal pain above and to the right of the umbilicus, extending

round to the back. The abdomen was moderately distended and showed marked bulging in the iliac regions. It became tense during the attacks of pain and peristalsis was visible. There was tenderness on deep palpation, but no tumour could be detected. After admission large enemata were tried, but without result.

Operation.—On March 17th the abdomen was opened by a mesial incision below the umbilicus, the intestines were distended and congested, and in the right iliac region a loop of bowel was found to be snared under the appendix vermiformis, which was firmly adherent by its free extremity to the mesentery, close to the ileum, and about 3 in. from the lower end of the latter. There were no signs of recent inflammation of the appendix. The implicated portion of bowel was easily liberated and the appendix was then removed. The latter was above the average length, and for about an inch at its extremity it was imperious and cord-like. On the evening after the operation the bowels moved several times and the patient made an uninterrupted recovery.

REMARKS.

Although there was no distinct history of appendicitis the adhesion was evidently the result of some previous inflammatory condition. Such an adhesion of the appendix is a recognized but extremely rare cause of intestinal obstruction.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

ATMOSPHERIC PRESSURE AND APOPLEXY.

ON page 835 of the BRITISH MEDICAL JOURNAL for April 9th, Dr. Walter suggests that atmospheric pressure plays an important part in determining attacks of cerebral haemorrhage. It is worth while to consider how far this theory is correct. His argument is as follows:

1. At certain times cases of cerebral haemorrhage are in excess of the average.
2. These occurrences are coincident with a marked rise in the barometer, showing increased atmospheric pressure.
3. Therefore the increased atmospheric pressure is probably the cause of the excessive number of cases of cerebral haemorrhage.

Most medical men will, I feel sure, agree with the first two of these statements, and will also go further and say that at the same time many cases of cardiac and renal disease tend to become aggravated.

It is with the third statement that I venture to differ. Without going into meteorological statistics, which any one can ascertain for himself, in the British Isles a cyclonic disturbance with a low barometer is coincident with a warm, moist south-west wind. With a rising or high barometer the wind will always veer to the north-west, north, north-east, or east, with less humidity and a lower temperature. The cold and comparative dryness of the atmosphere cause contraction of the peripheral vessels, and a larger amount of blood is driven into the internal circulation, so causing greater strain on the heart, and the blood pressure is raised in all the internal arterial system. Hence the efficacy of Dr. Walter's suggestion as to treatment by suitable purgatives, that is bleeding, as a relief.

Sidmouth, Devon.

G. A. LEON.

I have frequently noticed the same thing as that to which Dr. Hensleigh Walter referred in the BRITISH MEDICAL JOURNAL of April 9th, and quite expect to be called to a case of cerebral haemorrhage when the barometer has risen high and become anticyclonic. This high pressure is known to cause a feeling of exaltation, similar to what is frequently noticed (after the event) when an old man or woman has a stroke. How frequently one is told that the patient was never better in his or her life than just before the occurrence. Let the man of 65 to 70 with degenerate vessels be cautious, as Dr. Walter suggests, when the glass rises sharply to a high point.

I have often thought that very little attention is paid to atmospheric conditions as possible causes of various ailments such as rheumatism, asthma, croup, etc. How often it happens that all asthmatics are bad at the same time, and worse on certain evenings, notably still, damp evenings before rain.

I feel sure that if time could be spared from the modern rush for new things, some useful lessons might still be learnt from Nature, did we but try to understand her moods.

Cirencester.

CHARLES P. HOOKER, L.R.C.P. Edin.

Like Dr. Hensleigh Walter, I have for many years looked upon sudden changes in the weather as very likely to produce cerebral or other haemorrhages in persons otherwise predisposed thereto. My feeling, however, has always been to look to a rapid rise of temperature after a long continuance of cold weather as the more common exciting cause. This, of necessity, applies to the winter time.

On the other hand, I can call to mind epidemics of minor haemorrhages like epistaxis or haemorrhoids when keen cold weather supervenes on great heat. Sudden changes in temperature are sure to be accompanied or preceded by rapid changes in barometric pressure. Changes of temperature must involve great differences in blood pressure on account of the large surfaces of skin and mucous membranes affected thereby; and in those who have diseased blood vessels it is this sudden alteration in pressure which causes the rupture. I think it quite likely that the barometric pressure may affect arterial pressure more than the venous or capillary vessels; also that great changes in temperature affect more these latter.

It is very evident that two independent observers have noticed the connexion between sudden changes of weather and cerebral haemorrhage. What is required is a little more extended study of physiological physics to explain the exact details of the changes in the various parts of the vascular system that may be expected to take place when there is rapid change in temperature and of atmospheric pressure.

London, S.W.

J. KINGSTON BARTON.

NON-PERFORATING WOUNDS OF THE ANTERIOR CAPSULE OF THE LENS.

I CANNOT help thinking that, contrary to the views of some ophthalmic surgeons, the anterior capsule of the lens (although a bloodless but not a serumless structure) can be wounded (not perforated) without traumatic cataract resulting. I have just seen a case bearing this out, the injury having occurred to his eye twelve months before, for which he was also under my care. A year ago the cornea was perforated by a blunt piece of sheet-iron which was thrown by another boy, and a bead of lymph appeared on the front of the lens corresponding in position with the corneal perforation.

No traumatic cataract appeared, though the lenticular capsule was wounded and now, twelve months after the accident, the lens is present and is not damaged, though a posterior synechia is present at what was the bead of lymph. From this I conclude that the anterior capsule covering a soft and slightly moveable (very) lens was wounded but not perforated. And this, I take it, is the cause of some cases of so-called pyramidal cataract. The theory putting pyramidal cataract down to corneal ulcer (which has perforated and so led to collapse of the anterior chamber) or inflamed cornea does not explain all cases of pyramidal cataract which are not congenital and is unsatisfactory. Some pyramidal cataracts are, I believe, due to wound of the anterior capsule itself.

Forest Gate.

ALBERT CORNER.

PULMONARY HYDATID.¹

ON February 2nd a girl, aged 7, was brought to my consulting-room from the country. She had a hectic appearance, frequent short "unsatisfactory" cough, and was very emaciated. I diagnosed empyema before examining her. On examination I found the right side of the chest quite dull, no expansion, no vocal fremitus, no breath sounds; the apex was displaced to the left; no medical man had seen her.

The condition had come on gradually with dyspnoea, great wasting and sweats, etc. The previous day she had coughed up phlegm with great fetor. There had never been any pleuritic pains. I sent her into a nursing home and operated on her at 5 p.m. the same day under chloroform. I introduced a hypodermic needle and drew out pus. I made an incision far back and pus came freely, then shreds of hydatid membrane, and finally several large sheets of adventitious membrane as big as large sheets of notepaper. The fetor was horrible. When I opened the pleura the trachea became flooded with pus, and she was nearly asphyxiated by it. There was not much haemorrhage as frequently happens in operations on pulmonary hydatid. The patient vomited a little blood when back in bed. Judging from the amount of adventitious membrane I extracted and which came out quite easily the cyst must have been a large one and evidently communicated with the bronchial tubes.

¹ From notes of cases read before the Canterbury (New Zealand) Section of the New Zealand Branch of the British Medical Association.