TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting Held April 4, 1927

The President, Dr. Charles F. Mitchell, in the Chair

FLAIL ARM FROM INFANTILE PARALYSIS

Dr. J. Torrance Rugh presented a man, twenty years of age, who at the age of one year had been left with a practically flail arm as the result of an attack of anterior polymyelitis. There was no power about the left shoulder-joint except in the pectoralis major; the head of the humerus could be moved in any position about the glenoid cavity; relaxation was very great; there was no life in any of the muscles from the shoulder to the elbow; below the elbow he had slight power in the flexors and in the extensors of the fingers and also in the extensor carpi radialis, but none in the ulnaris and in the carpal flexors. The hand was in a position of exaggerated radial deformity and was also pulled upward in extension. The arm hung limp at the side and if he wished to raise it, the assistance of the other hand was required.

On February 17, 1925, Doctor Rugh operated upon the shoulder-joint, doing an arthrodesis, removing the cartilage from the head of the humerus, from the surface of the glenoid and from the under surface of the acromion, and from the tip of the coracoid. The arm was placed in a position of sixty degrees of abduction and the head of the bone was held in contact with the acromion, glenoid and coracoid by a kangaroo tendon suture passed through the head and tied over the top of the acromion. An aviation splint was applied to hold the arm in place. Infection of the wound occurred and was quite acute for a few days, but in two weeks it was completely healed and union between the humerus and the scapula took place. After four months' time, the brace was gradually removed, but the union, which was fibrous, was not sufficiently strong to maintain sixty degrees of abduction and the arm sagged to about forty degrees, in which position it now remains.

April 14, 1926, the elbow-joint was operated upon; the external condyle of the humerus was removed with the attachments of the extensor muscles and a flap of periosteum and bone was lifted from the front of the humerus about two inches above the elbow-joint and the condyle attached at this point by heavy catgut sutures. The arm was dressed in position of complete flexion and maintained in this position for three months until the parts had grown solidly together and then manipulation was begun to gradually straighten the arm at the elbow. This transplantation allows the patient to flex his arm completely, even when it is hanging down at his side, as there is a pull of the muscles from above the joint.

November 20, 1926, an osteotome was introduced into the carpal area on the outer side of the hand, destroying the carpal bones and their articulations, together with the cartilage on the lower end of the radius and ulna

and the proximal ends of the metacarpal bones. The hand was placed in the ulnar position as far as could be done and set straight with the radius and ulna. A plaster splint for this part has been worn until to-day (April 4, 1927), and now he is able to open and close his hand perfectly well and to grasp objects and hold the same, a function which he had not since the onset of his paralysis.

Operative procedures have therefore succeeded in giving this boy the ability to raise the arm about forty degrees from the side and to lift it upward and forward through the action of the scapula muscles; also to flex and extend the arm at the elbow and to grasp and hold objects with his fingers, all of which functions have been heretofore absent. As the pronation and supination of the hand are gone and the hand is in a position of pronation, it will be allowed to remain there.

PLEURAL CAVITY AND BLOOD STREAM INFECTION WITH BACILLUS WELCHII

DR. HENRY P. BROWN and DR. D. W. KINGSLEY (by invitation) reported the history of a man who was admitted to the Presbyterian Hospital, December 13, 1926, in the service of Dr. Edward B. Hodge. He had been shot in the left chest about half an hour prior to admission. Examination revealed a penetrating wound, just beyond the lateral border of the scapula. No wound of exit could be demonstrated. The heart was displaced to the right about three cm. and there were dulness and a suggestion of a friction rub over the base of the left lung. X-ray examination showed the bullet in the left chest, at the level of the tenth rib lateral to the spine and anterior to the chest wall. Two days after admission, the temperature rose to 103 and there was a general increase in the physical and röntgenologic signs of fluid in the chest. The blood showed 16,800 leucocytes. During the next eight days there was virtually no change in the general condition; but the temperature had fallen to 101 and the leucocytes to 9700. On account of increasing respiratory embarrassment, thoracentesis was performed on December 21 and 22. The aspirated fluid was dark and watery, 920 c.c. and 7500 c.c., respectively, being removed. Culture of the first fluid was sterile, but that of the second grew a non-hæmolytic streptococcus. As the latter sample had been inadvertently placed in a non-sterile container, this was thought to be contamination. The withdrawal of fluid afforded marked relief of symptoms. On the fourteenth day, after admission, the temperature suddenly rose to 105 and the patient became very toxic. The wound in the chest wall showed nothing to account for this. The chest was again tapped and 400 c.c. of fluid withdrawn, which upon examination showed a growth of bacillus Welchii and streptococcus non-hæmolyticus. Upon the advice of Dr. John Jopson, a rib resection was performed, for the provision of better drainage, and 300 c.c. more of fluid was removed. The operation was followed by a rather sharp rise in temperature and an alarming fall in blood-pressure (78 S-5 OD). A blood culture taken on the same evening was later reported positive for bacillus Welchii. Antitoxin was administered during the next six days in amounts totalling 360 c.c., of which 50 c.c. was given intrathoracically and 310 c.c. intravenously. Following the first administration of serum, the temperature fell by lysis from 106 to 100, with a concomitant improvement in the patient's general condition. Subsequent blood cultures failed to show any growth; but bacillus Welchii continued to be obtained from the thorac-

otomy wound. Inoculation of a rabbit proved the identity of the organism beyond question. The chest wound was treated by dakinization and recovery preceded normally, being complicated by the slipping of one of the tubes into the pleural cavity. Fortunately Doctor Brown was able to withdraw the tube and incidently the bullet, with the aid of the fluoroscope. The patient was discharged March 4, 1927, with the chest wound practically closed.

The unusual features presented by this case are:

1. The invasion of the blood stream by the bacillus Welchii which is said to occur very infrequently except immediately before death.
2. A low leucocyte count throughout the period of invasion.
3. The consistently low blood-pressure.
4. The beneficial effect of serum on an apparently hopeless case.

DR. HENRY P. BROWN, JR., said that the cause of the infection in the pleural cavity is not clear; if due to the bullet, he should have shown some infection of the muscles of the back but at no time was there evidence of such involvement. The organism was not recovered for fourteen days, at which time, communication between the pleural cavity and the chest wall had become sealed off.

DR. EDWARD B. HODGE remarked that when the patient was seen two days ago, the wound was solidly healed and he was entirely well. The speaker mentioned in this connection the recent observations of Dr. Urban Maes, who reported some cases which he was unable to trace to soil contamination and found that woolen clothing, even if clean, very frequently carries bacillus Welchii. This opens up a new field, as to the possible source of such contamination in wounds.

SPONTANEOUS RUPTURE OF GALL-BLADDER INTO DUODENUM

DR. HUBLEY R. OWEN presented a man, age forty-five, who was admitted to the Philadelphia General Hospital, February 1, 1926, with the chief complaint of vomiting blood. January 30, 1926, while in bed the patient was awakened with severe abdominal pain, which lasted about an hour. He then vomited a large amount of bright red blood. The vomitus also contained food taken the night before. This was followed by profound weakness and sweating. There was no history of any previous attack relative to the stomach with the exception of considerable gaseous and acid eructations for two or three weeks prior to admission. On the morning of admission the stools were black and tarry. There was no history of loss of weight. The past medical history was essentially negative. On admission the temperature was 98, pulse –90, respiration –20. He was able to be up and about the ward, and did not look acutely ill. Abdominal examination revealed the liver palpable below the costal margin. No masses were felt. No points of acute tenderness. Blood Wassermann was negative. The blood count showed a mild secondary anæmia, with 17,800 leucocytes. X-ray examination resulted in a tentative diagnosis of duodenal ulcer, but suggested the possibility of a fistulous communication between the gall-bladder and the duodenum. At operation, February 11, 1926, the second portion of the duodenum was found attached to the gall-bladder, and there was a fistulous opening between the

gall-bladder and duodenum, the former was, however, normal in size and color. About six inches from the pylorus there were several broad bands of adhesions running across the duodenum. These were ligated and severed. The head of the pancreas was hard and nodular and at that time was thought to be malignant. The conus of the duodenum was considerably distorted and bound down with adhesions, which prevented proper evacuation of the stomach contents through the pyloric ring. Posterior gastro-enterostomy was performed. The patient made an uneventful recovery and was discharged from the hospital February 24, 1926. X-ray examination nine months after operation showed the gastro-enterostomy functioning and the fistulous communication still present between the gall-bladder and the duodenum.

PERFORATING JEJUNAL ULCER

DR. E. L. ELIASON presented two patients illustrating the above condition.

CASE I.—A man, age thirty-three, who in July, 1925, first began to have attacks of epigastric pain of a dull aching character which came on from thirty minutes to two hours after taking food. These pains were so distressing as to keep him from working, and would wake the patient from sleep about 2 A.M. when he would have to get up and take soda as these pains were relieved by taking food or by soda. March 8, 1926, the patient entered the University Hospital with the diagnosis of duodenal ulcer. He was operated upon March 29, by the reporter, at which time gastro-enterostomy and appendectomy were done. The ulcer was found and oversewed. The patient felt very well for about three months after the operation, during which time he gained weight and was free from symptoms. Then severe pain in the side radiating to the back and to the testicle developed. These pains had no relation to meals, were colicky in character and came on any time during the day and night. In August, 1926, the attacks became so severe that the patient was obliged to stop work. December 3, 1926, he again entered the University Hospital and was discharged on the 15th. At this time gastro-intestinal X-ray study was made and reported negative. Urinalysis revealed red blood corpuscles on two occasions. While in the hospital he felt better. On January 14, 1927, he was readmitted. Cystoscopic examination was negative for calculus. Patient was discharged ten days later, feeling better. On February 4, 1927, he had a sudden attack of pain in the abdomen, sharp, stabbing in character, localizing a little to the left of the umbilicus. This pain continued until the afternoon of the following day. Pressure on the abdomen as by leaning over a banister or chair gave some relief. He states that while doing this he suddenly felt something "pop" inside his abdomen, after which he had immediate relief. That night he felt weak and restless. The stools were tar-like in appearance. Fluoroscopic examination of the stomach revealed a normally functioning stoma. The opaque meal entered the jejunum but after progressing about two inches would stop and regurgitate into the stomach. A diagnosis of jejunal ulcer was made. Examination of the abdomen revealed slight but definite rigidity of the upper left rectus muscle. No tenderness noted. Peristalsis was slightly exaggerated. At operation the gastro-jejunostomy was delivered partially and with the finger inverting the anterior wall of the stomach, the stoma could easily be palpated. About two inches below the gastro-enterostomy an ulcer of the jejunum was found which was adherent at its outer side to the transverse mesocolon. By putting the jejunum on tension, it could be separated by blunt dissection

from the meso-colon until the ulcer was reached, at which site the erosion made an opening into the gut. It had eroded a small vessel in the transverse meso-colon from which the hemorrhage occurred. The meso-colon was dissected away enough to allow about one-half inch of jejunum distal to the enterostomy opening so that the opening could be inverted and oversewed. After a stormy convalescence the patient recovered and left the hospital in good condition, with no symptoms of a gastro-intestinal nature. Six weeks following the last operation, the patient was admitted to the hospital because of a hemorrhage from the bowel. This was bright red and probably came from near the anus. Sigmoidoscopic examination showed its possible origin to be hemorrhoidal.

CASE II.—M. M., male, age twenty-nine, first admitted to the Howard Hospital complaining of severe pain in the abdomen, associated with vomiting and weakness. His family physician had diagnosed the condition as due to a perforating duodenal ulcer. A laparotomy by the reporter disclosed a subacute perforation of a large indurated duodenal ulcer with a small abscess at the site. The ulcer was burned out with the cautery and a posterior gastro-jejunostomy of the anti-peristaltic short-loop type performed on May 27, 1922. The infection from the abscess resulted in a breaking down of the laparotomy wound which finally healed with a wide but solid scar. There followed sixteen months of freedom from symptoms when the patient was again admitted in Doctor Eliason's service suffering with the symptoms of a left abdominal catastrophe, having been seized three hours previously with severe knife-like pain in the left side of the abdomen just opposite the umbilicus. He was not nauseated nor did he vomit. On admission his temperature was 100, pulse 120, respiration 22. The abdomen showed board-like rigidity and was tender. The leucocyte count was 16,000. A diagnosis of ruptured jejunal ulcer was made and operation advised. At operation there was revealed a diffuse acute chemical peritonitis and a perforated ulcer in the jejunum opposite the mesentery two or three inches below the gastro-jejunostomy. The ulcer was cauterized and closed with tier sutures. The pylorus was occluded by double ligating with No. 3 kangaroo tendon. The patient recovered and left the hospital in good condition. From then until the present his health has been good and his gastro-intestinal tract has been kept practically normal by the regular use of alkalies. Examination last month revealed a normally acting stoma and a closed pylorus.

At operation both cases presented a much dilated, congested and thickened jejunum; both cases had a perforated ulcer in the distal loop and normally functioning stomata.

DOCTOR ELIASON added that ulceration at the line of suture or in the jejunum close thereto occurs almost exclusively after operation for simple disease, that is, ulcer in contra-distinction to carcinoma. In only one case in the literature (Axel Key) was the anastomosis performed for carcinoma. According to Moynihan the ulcer may be single or multiple, usually situated at the opening; it may be in the proximal jejunal loop but is usually in the distal loop. Jejunal ulcer may occur following any type of gastro-jejunostomy or it may occur primarily in the absence of any gastro-enterostomy, as was the case in a patient reported in the ANNALS OF SURGERY, 1926, by Barber. Barber's patient had had a gastric ulcer perforate twice before a

jejunal ulcer perforated. Van Roojen found it three times as frequent in the anterior type of anastomosis as in the posterior type. The frequency of occurrence in all cases as found by Deaver in a series of 3869 cases was 0.75 per cent. The vast majority of the cases reported up to 1921 showed the first symptoms between six and eighteen months, but three cases occurred within three days (Van Roojen). Leiblein in his study of seventy-nine jejunal ulcers found 30 per cent. perforated. Of the 70 per cent. chronic cases, fifty-five in number, eighteen required two or more operations. Moynihan reports a case that perforated five times. A review of 148 cases of gastro-jejunostomy for duodenal ulcer admitted to the Medical Service of the University of Pennsylvania Hospital, reveals three cases of supposed jejunal ulcer. Examination, however, found none proven.

MULTIPLE GIANT-CELL TUMORS

DR. EMORY G. ALEXANDER and DR. W. H. CRAWFORD (by invitation) read a paper with the above title, for which see p. 362.

DR. RALPH BROMER showed slides which illustrated the usual type of bone cyst, chronic cystic osteitis and giant-cell tumor. He considered Doctor Alexander's case as unusual in that it has a peculiar moth-eaten appearance of the bones and so is unlike the usual type of chronic cystic osteitis. Giant-cell tumors of the shaft are rare. One case, reported two years ago as a giant-cell tumor of the middle of the shaft was so classified by two pathologists who first saw the pathological sections but when sent to the Bone Sarcoma Registry, it was there classified as a bone cyst.

DOCTOR EWING has said that this region is more productive of unusual types of bone tumors than any other. Dr. C. Y. White diagnosed this tumor as chronic cystic osteitis with giant-cells. The tumor has a narrow transverse diameter as compared with its length. The number of epulis type of foreign body giant-cells in the sections was greater than usual in cases of chronic cystic osteitis, but scarcely sufficient to warrant a diagnosis of giant-cell tumor.

At the International Radiological Congress in London, 1925, Kienböck, in a paper on the classification of bone tumors, drew attention to the so-called Engel-Von Recklinghausen type, otherwise known as osteitis fibrosa tumerosa cystica generalisata. In this type multiple giant-cell tumors occur with the usual changes of chronic cystic osteitis. It is also characterized by clubbing of the fingers and a marked translucent appearance of the phalanges of the hands. It seems that this case might be of this type.

The speaker asked Doctor Crawford, whether in reviewing the literature on this subject he had found anywhere a report of the occurrence of multiple giant-cell tumors with absolutely normal bone elsewhere than at the sites of the lesions. He could find none and Doctor Brower believes that Codman is right when he says that he is skeptical of the existence of multiple giant-cell tumors. Bloodgood thinks they occur in the proportion of about one in

25,000 cases. This case should probably be classified as one of chronic cystic osteitis with multiple giant-cells, probably an advanced stage of the usual chronic cystic osteitis or osteitis fibrosa cystica.

OBSTETRICS BEFORE AND AFTER LISTER

DR. GEORGE M. BOYD, by invitation, read a paper with the above title. This paper was read in connection with the centennial of Lord Lister and consisted of a comparison between the pre- and post-Listerian eras in obstetrics. The essayist recalled that at one time it was a matter for serious consideration that all lying-in hospitals be closed, as the mortality from puerperal sepsis was so high that a woman going to such an institution to be confined, stood less than an even chance of surviving. The introduction of antiseptic methods into obstetric practise was followed almost at once by a reduction in the number of such cases to the point where " child bed fever " is to-day regarded in most instances as a direct reflection on the obstetrician. Doctor Boyd's presentation was profusely illustrated with lantern slides.