TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting Held December 4, 1922

The President, DR. JOHN H. JOPSON, in the Chair

ACTINOMYCOSIS TREATED WITH COPPER SULPHATE

DR. ROBERT H. IVY presented a female, aged twenty-eight, housewife, whose present trouble began in July, 1922, when she noticed soreness in the left lower molar region. The first and third lower left molars became loose and were extracted between the first and the tenth of July. This was followed by swelling of the tissues overlying the mandible on the left side and finally pus broke through the skin just beneath the left side of the chin.

Patient was first seen August 18, 1922, when there was a sinus discharging pus at the point mentioned. The whole left side of the face was considerably swollen, indurated, and painful, with marked trismus. Patient was admitted to the Polyclinic Hospital, Philadelphia, on August 24, 1922, with a diagnosis of periostitis of left body and ascending ramus of mandible, probably of dental origin. The radiographic examination was negative for any bone lesions. August 25, 1922, under gas-oxygen anæsthesia, an incision was made beneath left angle of mandible, some thick pus obtained near the periosteum, and a rubber drainage tube inserted. Culture from the pus revealed only a staphylococcus. The condition improved for a time, but induration and purplish discoloration of the skin remained. Another focus of suppuration gradually appeared in the region of the left zygomatic arch. September 8, 1922, a small incision above and parallel to the arch was made, thick pus escaping. A Carrel tube was passed down beneath the zygomatic arch and brought out of the old incision at the angle of the jaw. The opening just to the left of the chin had also again opened spontaneously. Smears from the pus showed no microörganisms. Irrigation with Dakin's solution was carried out for about a week with beneficial results, after which the rubber tube was removed. The temperature at no time had been above 101 degrees, and was generally below 100. General condition of the patient was good. September 22, 1922, the swelling and evidence of suppuration having again appeared near the lower openings, smears were carefully made from some small granular flakes in the pus, and branching rods, in some cases with clubbed ends, were found, identified as actinomyces. Repeated attempts at culture of the organisms from the pus, anaërobic and aerobic on various media, failed entirely. Complement fixation of patient's serum was negative, Doctor Kolmer using as antigen a stock culture of actinomyces bovis. Agglutination tests

with the same culture were also negative. The skin reaction was doubtfully positive. However, since the branched and clubbed rods were repeatedly found in smears made from the sulphur-like granules appearing in the pus, this was considered sufficient for diagnosis and the case was thereafter treated as actinomycosis.

September 27, 1922, following the suggestion of von Baracz (Zentralbl. fur Chir., May 6, 1922), under local anæsthesia, 15 c.c. of a 1 per cent. solution of copper sulphate was injected directly into the indurated tissues, particularly the parotid region. This was very painful and produced a marked temporary increase in the swelling, with œdema extending to the left eyelids. The sinuses at the same time were curetted and swabbed with tincture of iodine. This was followed after a few days by a marked increase in the flow of pus and the tissues became softer. The wounds were irrigated daily with 1 per cent. copper sulphate solution and swabbed with tincture of iodine. Ten days after the first injection, under gas-oxygen anæsthesia, 12 c.c. of 1 per cent. copper sulphate solution was injected into the most indurated part which was now about the left angle of the mandible. The inflammatory reaction was not as marked as after the first injection, and subsided more rapidly. On October 1st, internal administration of potassium iodide was also begun, with 5-grain doses three times a day, rapidly increased to a maximum of 30 grains three times a day, which was continued until November 1, when the amount was gradually reduced and finally discontinued.

The patient was discharged from the hospital on October 14, 1922, since which time there has been a gradual subsidence of the swelling. On November 13th, all sinuses had healed, induration was gradually disappearing, and the patient was able to open the mouth much better. There was a slight paresis of some of the muscles of expression about the mouth and eyelids. On November 27th, at the site of one of the old sinuses over the ascending ramus of the mandible, a small area of softening appeared and on opening into it a thin fluid with a few granules was obtained. Actinomyces were found in smears made from the granules. Although this new wound remained free from suppuration after opening, another parenchymatous injection of 5 c.c. of 1 per cent. copper sulphate solution was given on December 1st. While too recent to venture a definite opinion, the favorable influence of previous injections and the small size of the new lesion lead to the hope that a permanent cure will soon follow.

Actinomycosis, in this part of the country, is decidedly rare, or at least is infrequently diagnosed. He believed, however, that these cases are more common than is ordinarily recognized. In the beginning, when it affects the region of the angle of the mandible, the disease cannot be distinguished from an ordinary subacute periostitis of the lower jaw of dental origin. There are soreness and loosening of the teeth, deep-seated swelling, induration and trismus. Later, areas of softening occur, with the appearance of chronic discharging sinuses. Actinomycosis, therefore, should always be

considered as a possibility in any long-standing case presenting these symptoms. Absolute diagnosis of course rests on the finding of the organism in the sulphur-like granules in the pus. Two years ago a case was seen with almost identical history and symptoms as the one reported here, and was treated for several weeks as an ordinary infection of dental origin, until finally the specific organism was found.

The employment of copper sulphate as a specific in actinomycosis was first suggested by Bevan (Jour. A. M. A., November 11, 1905). He used it internally as a substitute for potassium iodide in doses of from one-fourth to one-half a grain, increasing the dose if necessary to one grain, three times a day, and also employed a 1 per cent. solution for irrigation of the sinuses.

Von Baracz (Zentralblatt fur Chirurgie, May 6, 1922) reports that in nineteen years he has observed 36 cases of actinomycosis and successfully treated 35 of them by infiltrating the affected tissues with a weak solution of copper sulphate (one-half to one per cent.). From 10 to 40 c.c. of the solution are injected with a hypodermic syringe every ten days to two weeks, two, three or four injections being necessary according to the severity of the case. The injections are combined with opening, curettement and drainage of the lesions and irrigation of sinuses with the copper sulphate solution after swabbing with tincture of iodine. The favorable results in this large series of cases render this method of treatment at least worthy of extensive trial.

HELIOTHERAPY FOR TUBERCULOSIS OF BONES AND JOINTS

Dr. A. Bruce Gill, in order to demonstrate the results of this treatment, exhibited the following cases:

Case I.—The patient was admitted to the Widener Memorial School for Crippled Children in 1910, when seven years of age. She was suffering from tuberculosis of the left hip which had been present for more than three years. There was considerable thickening about the hip at that time but no abscess formation. A year after her admission abscess formed and opened spontaneously. During the next two years the sinus closed twice and remained healed for some months, but each time reopened. The patient had been steadily gaining weight and her general condition was good. In 1913 the sinus began to discharge profusely and the patient developed an irregular fever and steadily lost weight. By the early part of 1914 both the general and local conditions had become very bad. The soft tissues about the hip and the thigh were gradually absorbed until the base of the neck of the femur, the great trochanter, and two-thirds of the shaft were protruding from the wound. The edges of the wound were of a pale blue and unhealthy color. The wound kept enlarging steadily. She was running a septic temperature with daily variations of four to six degrees. She had been kept under the best of hygienic conditions, being exposed daily to the fresh air, and supplied with the best of food. Intensive dosage of X-ray had been employed without avail, and it seemed but a question of a short

time until she should die. About the first of April, 1914, we began to expose her naked to the sunshine as advised by Doctor Rollier. About the first of June she was taken to the summer branch of the Widener School at Longport, New Jersey, which is on the seashore, and her treatment by heliotherapy continued. By the first of September her temperature had fallen and was ranging then between 98 and 100 degrees. The wound had begun to show signs of healing. Heliotherapy was continued as far as weather conditions permit during the winter in Philadelphia, and during the summer at Longport. At the end of two years' time her wound was completely healed, her weight had gone from 37 to 61 pounds, her general condition was splendid and she was going daily to the schoolroom. By 1918 her weight was 104 pounds. The wound had remained entirely healed. There was no deformity at the hip-joint, which was ankylosed. In 1919, a skin plastic operation was done to cover over the exposed femur which was visible almost down to the knee-joint. She left the school several years ago and has been earning her living since her graduation. As you observe, the wound has remained entirely healed and the general condition of the patient is all that could be desired.

CASE II.—This child was admitted to the Widener School in 1918, suffering with tuberculosis of the hip. At the time of admission she had fourteen discharging sinuses about the hip. All the structures were boggy and exuding pus. Under heliotherapy her sinuses completely healed in two years and have remained healed since. The soft tissues about the hip and the thigh are firm to the touch and the skin of her entire body, as you observe, is thoroughly browned.

CASE III.—This boy was admitted to the Widener School with a number of discharging sinuses at the hip. He became healed by heliotherapy during the first summer at Longport.

CASE IV.—This boy was admitted to the school last spring. He had numerous sinuses, with profuse discharge, and his hip was very painful. He was practically healed during the summer at Longport.

These few children are presented from among many to serve as object lessons to show how the most severe cases may be cured by heliotherapy within a comparatively short period. There is no question in the minds of many who have employed this method of cure that it is of the greatest value. Apparently hopeless cases have been completely cured within a period of two years, while milder cases are cured within a few months. This method of cure of surgical tuberculosis is largely due to the work and the writings of Rollier. Koffman, of Odessa, some years ago reported very favorable results of heliotherapy as practiced on the shores of the Black Sea, and American orthopædic surgeons have employed it with success both on the seashore and in the interior. Other writers have noted cures on the shores of the North Sea. Rollier's work, as you are aware, has been done in the French Alps, at an altitude of 3500 to 4000 feet.

It has been found that the treatment during the summer months at the seashore is worth very much more than the treatment during the eight or nine

other months of the year in Philadelphia. Rollier's dictum is that the progress of the cure is measured by the extent of the tanning of the skin. This appears to be true and all are aware how much more readily the skin becomes browned at the seashore or on the water than it does inland. Unquestionably the greatest value from this method of treatment can be obtained in climates where the sun is warm and where there are few cloudy days. Unfortunately in this climate, except in the summer, there are many cloudy days, and in the neighborhood of cities the effect of the sunshine is lessened by the smoke and dust in the atmosphere. At the same time surgeons in whatever locality and climate would do well to employ heliotherapy to the largest possible extent in cases of tuberculosis of bones and joints. Sinuses under this treatment discharge more profusely for a time, but in time the discharge becomes more and more serous and then lessens until finally the sinus heals. Painful joints soon become painless, the appetite of the patient becomes better and his general health markedly improves. Long after the sinuses have closed it is wise to continue the heliotherapy for a period of months and years, as has been done in these cases.

DR. GEORGE M. DORRANCE remarked that he had lately visited Rollier at Lysen and saw there 1200 cases of surgical tuberculosis under treatment. He insists upon rest with moderate extension and gradual active and passive motion. No massage is employed. There were cases that from X-ray examination looked like bony ankylosis in whom he had obtained limited motion. He does not believe in the Albee operation. All plaster cases are removed when the children come to him. He believes that altitude, heliotherapy, rest, and food is the solution of the treatment of bone and joint tuberculosis.

PERFORATED MECKEL'S DIVERTICULUM

DR. DAMON B. PFEIFFER showed a girl, aged five years, who was admitted to the Abington Memorial Hospital, August 14, 1922, complaining of severe pain in the abdomen. There was no history of indigestion or of abdominal pains. At midnight, prior to admission, she was seized with severe pain in the lower abdomen and vomited three times. The abdominal pain continued, severe and constant. There had been no action of the bowels since onset. On admission at 3 P.M., the pain had abated. She was quiet, her face was pale and slightly pinched, the sensorium unaffected. Temperature, 99.6°; pulse, 120; respiration, 32. Physical examination: The abdomen was moderately distended and tympanitic. Almost board-like rigidity was present. Tenderness was general, but most marked in the right lower quadrant. Faint peristalsis could be heard at long intervals. No peculiarity of the umbilicus was noted. The urine was normal, hæmoglobin was 79 per cent. (Dare), leucocytes 9800. She had been sent to us with the diagnosis of appendicitis, and was operated upon for this condition, the rapidity of onset and extreme rigidity suggesting perforation.

The abdomen was opened by a McBurney incision. On incising the peritoneum there was a gush of thin blood-stained fluid. The possibil-

ity of intussusception was at once considered, and two fingers introduced for exploration, encountered a movable mass about the size of a walnut. This was withdrawn through the incision, and found to be a loop of ileum with a grayish-yellow rounded mass intimately incorporated with the side of the intestinal wall and the adjacent mesentery. There was a small perforation near its attachment to the bowel, through which a small amount of clear fluid was escaping. From the edges of the perforation there was a slight bloody ooze. The intestines were intensely congested, slightly distended and a few patches of fibrin were seen on the surface. The mesentery was studded with lymph-nodes varying up to 1.5 cm. in diameter. The appearance was that of tuberculous mesenteric nodes, and the larger mass, above noted, seemed to be an unusually large node which had perforated acutely. It was evident that the perforation could not be repaired, and it was therefore determined to make a resection and end-to-end anastomosis, which was done. The appendix was inspected and found to be bound down by adhesions. It was removed. In the belief that the underlying process was tuberculous, drainage was omitted and the abdomen closed in layers.

Convalescence was stormy for the following two days, temperature reaching as high as 103.3 and pulse 156. Distention was extreme. All symptoms then abated rapidly, and on the seventh day her temperature, pulse and general condition reached normal.

Pathological examination of the specimen showed the mass to be a Meckel's diverticulum, greatly thickened, curved upon itself, covered with adhesions and rotated until it seemed to lie within the convexity of the mesenteric border. Evidently a chronic process had existed for a considerable period without exciting localizing abdominal symptoms. The enlarged glands of the mesentery were the local result of absorption.

MULTIPLE FRACTURES OF THE PELVIS

DR. H. A. MCKNIGHT presented a patient C. L., who was admitted to the Medico-Chirurgical Hospital, February 8, 1922, with a history that she had fallen from a third-story window, landing on the pavement on the buttocks. The patient who was very obese was suffering from acute alcoholism, and was badly shocked; pulse absent at the wrist, skin cold and clammy and temperature 96°.

On examination a separation of the symphysis pubis of over two inches was discovered, another fracture was found on the left horizontal ramus of the pubis, and there was undue mobility of the iliac crest. An X-ray showed: (1) Complete transverse fracture through the left side of the sacrum with displacement upwards of approximately 4 cm. of the fractured fragment of the sacrum. The relations of the fractured fragment to the left sacro-iliac joint were not altered, except that the left side of the bony pelvis was displaced upward. (2) Complete separation of the bones of the symphysis pubis 4 cm. (3) Complete transverse fracture through the os pubis. (4) Comminuted fracture at the junction of the ischium and ascending ramus. (5) Fracture of the descending ramus of the pubis left side, but the line of fracture was not

clearly and distinctly shown. (6) Tuberosity of the ischium crushed upward, almost obliterating the obturator foramen.

Reduction under ether anæsthesia. The ilium was grasped and pulled downward, one hand in the vagina manipulated the bone of the lateral wall of the pelvis and the patient was placed in a sling. On April 4 another X-ray was taken. Apposition and alignment of fragments of sacrum, ischium and pubis good. Transverse process of fifth lumbar vertebra left side shows upward tilting. The symphysis separation was markedly improved over last examination. There was still separation of approximately 3.5 cm. Examination on discharge from hospital: Ensiform to internal condyle 49 inches on right side. Ensiform to internal condyle 48¾ inches left side. Full motion of the hip on the right side, musculature on right flabby. Muscles of left thigh flabby; patient complains of pain in left thigh on flexion of the leg though the left moves equally with the right. Complains severely without physical cause, except disuse and inaction. Pubic arch nearly closed and not more than ¼ inch separation. No pain on concussion over left iliac area, no mobility nor tenderness at former points of pain. Vaginal examination: No mobility of pubic bones. There is slight impinging of the pubic bones on the pelvic space. Walks with slight limp.

FRACTURE OF THE SKULL

DR. H. A. MCKNIGHT showed a second case of a patient, M. E., age twenty-four, who was admitted to the Polyclinic Hospital, September 27, 1921, suffering from multiple lacerations of the scalp, stab wounds of the neck, a punctured left eyeball and a fractured skull. The lesions were produced by the blows of a hammer. On admission the patient was semiconscious, the left temporal and parietal regions of the skull were depressed, and on palpation over this area a sensation was transmitted to the fingers as if one were handling a bag of marbles. Brain substance was issuing from the lacerations in the scalp and the left eyeball was collapsed.

Operation was performed at once. A large fronto-temporal flap was made extending to and beyond the sagittal suture; from this lateral extensions were cut to the right along the coronal suture and posteriorly. On raising this flap it was seen that the temporal and a large part of the anterior part of the left parietal bone was comminuted and driven into the brain substance. These bones resembled a tesselated pavement, each mosaic of which had been separated and lying free. The frontal bone was also fractured and the fragments were driven into the frontal lobe. The roof of the orbit was fractured and driven upward, and the nasal bone was crushed and driven upward and backward. The frontal lobe was torn and lacerated.

The bone fragments were removed, the lacerations in the dura closed, after extracting the fragments of bone from the brain, the left eyeball was enucleated and the scalp wound closed with drainage. On October 8th, a neurological examination, a slight weakness in the right grip, a suggestion of a Babinski on the right. There is some confusion and

memory loss of the time of the accident and the time immediately following. Memory for details of the exact present is incorrect. This is no more than is to be expected from the site of the injury. Patient had an uneventful recovery. The wound healed by first intention and she was discharged from the hospital October 17th. At this time there seemed to be no mental nor motor disturbances.

SUBACUTE MASSIVE PROCTITIS

DR. E. L. ELIASON, not having been able to find any description of a similar condition, presented the following case:

Case No. 8535, Mrs. J. P., age thirty, had been sick for five weeks, being seized in the beginning with cramp-like pains in the lower abdomen, associated with backache. A diagnosis of extra-uterine pregnancy was made, but operation was refused. Four weeks later she was again seized with pain in the lower abdomen, most marked on the right side, associated with vomiting and constipation, temperature of 100 to 101.

The patient was somewhat jaundiced at time of examination and was found to have a distended, tender abdomen, with some rigidity and especial tenderness in right iliac fossa. Palpation found a mass here, just under the rectus muscle, and extending to its outer border. It was hard, smooth, fixed, and somewhat tender. Vaginal examination revealed a very high-placed uterus, the cervix being barely within reach of the finger. The uterus was freely movable and the appendages showed no evidence of pathology. Posterior to the uterus was a marked massive induration bridging over the rectum and extending down on each side almost to the anal canal. Rectal examination revealed an indurated, rigid rectal wall constricting the lumen so that it admitted only the examining finger. A diagnosis of pelvic abscess secondary to a ruptured appendix was made. Leucocytes, 17,000. Wassermann, negative.

Patient was operated at Howard Hospital through right rectus incision. The abdomen contained a quantity of bile-stained fluid. The gall-bladder, appendix and Fallopian tubes were normal. Further examination revealed a rigid, indurated and markedly enlarged œdematous rectum and lower two inches of sigmoid. The condition evidently had existed some time, for the tissues pitted only with continued firm pressure. The rectum could not be compressed or moved the slightest. It presented a yellowish, smooth semi-translucent appearance, due to the bile-stained œdema. No fecal impaction existed. Left inguinal colostomy was performed. One week later, under hot rectal irrigations, twice daily, examination showed decided local improvement. Three weeks after colostomy patient began having bowel movements per anum. Examination found œdema and induration entirely gone. Four weeks after operation the colostomy was closed by excision and end-to-end anastomosis. Pelvic examination through the abdominal wound demonstrated a normal sigmoid and rectum. Patient to-day is perfectly well; has gained forty pounds. Bowels are regular with use of paraffin oil occasionally.

DR. GEORGE P. MULLER recalled a case operated for carcinoma of the rectum in which he noted a tremendous thickening of the wall and narrowing of the lumen for six or seven inches. Recently in a patient with diverticula of the colon, in addition to many small diverticula there were three local processes, one below the splenic flexure, one at the beginning of the sigmoid, and another at the rectum. He could feel a mass low down in the pelvic colon near the bottom of the peritoneal reflexion. It was distinct and felt like the one Doctor Eliason described. The case might have been one of small diverticula surrounded by exudate, as one rarely sees the diverticulum and yet the peritoneal diverticulum may be behind. In 1910 in *Surgery, Gynæcology and Obstetrics* a case was reported where the lower sigmoid was surrounded by a mass of tissue obliterating the lumen. Braun reported a case of tumor of the sigmoid and says that this condition is entirely distinct from malignant disease.

DR. DAMON B. PFEIFFER said he had never encountered an exactly similar condition, but had seen some cases which probably fell into the same group. The interstitial inflammations which affect the rectum and large intestine are not as yet thoroughly understood. Inflammation and pathologic changes, consequent upon infection by the amœba, the various strains of dysentery bacilli, by tuberculosis, syphilis, and occasional rarer types of infection, are well known, but there remains a residuum of cases of severe and even fatal proctitis and colitis, the etiology of which is unknown. Such cases occur sporadically throughout the entire United States, and in the aggregate there is an enormous number of them, but as yet insufficient attention has been accorded them by the profession. Many of these cases present a symptom-complex so similar that it seems probable that they represent a distinct clinical entity; though as yet, no satisfactory designation has been given to them. Probably the most common term is chronic ulcerative colitis. This is unsatisfactory, because in the early stages the condition is simply a diffuse inflammation of the wall of the bowel, with a characteristically thick, opaque, red, friable and bleeding mucous membrane. Also in the latter stages, ulceration may have been largely or entirely overcome, leaving scarring, contraction, more or less absence of haustration, and frequently polyp formation.

It must be noted that all these more serious manifestations are interstitial inflammations and the thickening of the bowel wall may be extreme. Frequently, the entire large intestine and rectum are involved, but at times only a localized segment is affected. The rectum almost always participates. By analogy, it seems reasonable to infer that all these processes are infective in origin. Culturally, many varieties of pathogenic bacteria have been obtained, but it is difficult in the presence of the intestinal flora to be certain as to the rôle played by each. It seems probable that the pathogenic micrococci can produce a diffuse inflammatory condition of the large intestine, but the conditions which predispose to such infection are unknown. Of course, one could not rule out the possibility of infection by some organism or organ-

isms as yet undiscovered. It seems to me that Doctor Eliason's case would fall into the group of non-specific interstitial infection of the rectum and colon. It is remarkable in its degree and its localization.

DOCTOR ELIASON, in closing, remarked that he had seen a condition similar to the case cited by Doctor Muller, from whom he had removed the appendix and who six days later developed an intestinal obstruction. Upon opening the abdomen, no cause could be found for the obstruction; the gut was distended down into the pelvis; here the hand felt the rectum similar to the one just described. It was probably an interstitial proctitis.