STATED MEETING HELD APRIL 6, 1931

**The President, Dr. George P. Muller, in the Chair**

**Calvin M. Smyth, Jr., M.D., Recorder**

## ACUTE OSTEOMYELITIS IN AN INFANT

Dr. Frederick R. Robbins reported the case history of a white male child of ten months, who was admitted to the Children's Hospital August 22, 1930. The mother stated that he fell from his bed four days before admission. The next day he became very sick and cross and cried and coughed a great deal. The following day he was apathetic and on the day before admission he vomited three times and his cough continued. Previously the child had been healthy, weight at birth being seven and three-quarter pounds.

Examination revealed a child acutely ill, with a respiratory rate of 45 per minute. The patient's general state gave the impression of a right lobar pneumonia.

On the following day the entire right arm was greatly swollen, hot, painful and indurated, the swelling and tenderness being more marked in forearm and elbow. The left fourth finger also was swollen and tender. The patient was transferred to Doctor Lee's service, with the diagnosis of acute osteomyelitis of the right ulna and left fourth finger. At operation much pus was found under the periosteum of the lower end and in the marrow cavity of the right ulna. The soft tissues of the left fourth finger were also incised and pus obtained. Following the operation, the patient showed signs of severe shock.

On the eighth day the child's general condition was poor. The left upper arm and axilla were swollen and indurated. These were incised and pus obtained. On the eighteenth day the patient continued to lose weight and the wound in the left arm was enlarged. On the twenty-first day incisions were made for multiple abscesses of scalp. General condition was poor. On the twenty-fourth day the outer aspect of the left thigh was swollen and tender. This was incised and much pus evacuated. On the fifty-fourth day the diagnosis of bilateral otitis media was made. Both ears were incised followed by drainage of pus. On the fifty-fifth day the left ear was reincised. On the sixty-first day the right ear was reincised and a mastoidectomy was advised by the aurist but was not done because of the patient's condition.

From the sixty-third to the eighty-first day it was necessary to reincise the right forearm four times.

An X-ray of the entire right ulna now showed changes, typical of advanced osteomyelitis with sequestrum formation and marked involucrum formation; also osteomyelitis and pyogenic arthritis of the left fourth finger.

On the one hundred fourth day the X-ray showed infection of the right mastoid. On the one hundred fifth day the patient developed measles and was referred to the Municipal Hospital.

The laboratory findings showed very little secondary anæmia, probably on account of frequent blood transfusions. The leucocytes varied from

29,000 at onset to 6,900. The Wassermann was negative. Pus from all of the wounds showed streptococcus hæmolyticus, but no growth was obtained from blood culture. The pulse rose as high as 176; the respirations to 58; and temperature to 105°.

On the one hundred sixteenth day following the first admission, the patient was readmitted from the Municipal Hospital in the service of Doctor Speese, at which time there was slight drainage from the right arm and considerable drainage from both ears. The child was playful and happy. X-ray was suggestive of bilateral mastoid infection. On the one hundred twenty-seventh day the patient was discharged to the Ear Dispensary. Mastoidectomy was not done.

When the patient was discharged from the dispensary one hundred forty-five days after first admission, it weighed 20 pounds, 4 ounces and was in excellent condition.

Doctor Robbins remarked that it was unusual for one so young to have acute osteomyelitis and to recover in spite of so many foci of infection. Although the blood culture did not show it, there was evidently a blood-stream infection, for the same type of organism (streptococcus hæmolyticus) was recovered from each focus.

The child, at first, in spite of all treatment, including daily hypodermoclysis and frequent blood transfusions of the mother's immunized blood, rapidly lost weight and became more toxic, until one nurse took a particular interest in him, gave him special nursing and fed him all of his meals. It was remarkable how promptly the child responded to this personal and sympathetic treatment and from that time on he seemed happy, and rapidly improved and gained in weight. He felt confident that the recovery of this patient was due to the attention of the pupil nurse who took care of him.

## DIAGNOSIS OF BREAST DISEASES BY X-RAY

Dr. Paul S. Seabold, by invitation, remarked that a study of the female breast has been made by a röntgenographic method whereby it is possible to demonstrate the changes in architecture of the breast as seen in the normal organ during the cycles of both menstruation and pregnancy. In the pathologic breast a differential diagnosis may be made in benign and malignant tumors, particularly malignant tumors with metastasis. There is no doubt but that this method is quite helpful in early border-line cases where malignancy is suspected. A paper giving the full details of this study is now in press. To illustrate his remarks, the speaker demonstrated röntgenograms as follows:

Case I.—Normal breast. Aged twenty-five, sixteen days following menstruation; duration of period, five days; no children; no miscarriages; not married. This case demonstrated the normal triangle of the breast with its apex at the nipple and base at the pectoral fascia. This triangle is made up of linear striations all converging to the nipple with fringed lacelike waves lying at right angles giving a surflike appearance. It is the disarrangement of this linear architecture that gives us our aid in diagnosis of the various pathologic conditions of the breast.

CASE II.—Normal breast during the menstrual cycle. Aged thirty-one, seven days before and seven days after the onset of the menstrual flow; duration of period, four days; one child 1½ years, twins two months; not lactating at the present time. Radiographic examination shows the normal breast is at its height of epithelial hyperplasia seven days before the onset of the menstrual flow and at its lowest ebb seven days after the onset of flow. The increase in the opacity of the surflike appearance is parallel with the hyperplastic function.

CASE III.—Normal breast during pregnancy. Aged twenty-one, films made seven day before delivery and fourteen months after delivery; two children; no miscarriages; not lactating at present. The normal breast during pregnancy shows the same changes in architecture as are seen in the menstrual cycle, only to a far greater degree, for the actual histologic changes are the same as those seen during the menstrual cycle.

CASE IV.—Aged twenty-eight, ten days following menstruation, duration four days; no children; no miscarriages; not married. The films made on this patient show a circumscribed, localized opacity with a definitely defined border. The opacity appears to be crowding the linear striations to the side as well as the surrounding breast tissues. This is entirely different from the carcinomatous extention, which is by invasion instead of crowding. *Radiographic diagnosis.*—Benign tumor. *Pathologic Diagnosis.*—Fibro-adenoma.

CASE V.—Benign tumor in a male breast. Aged sixty-seven; no history of trauma. This case clearly demonstrates a sharply defined opacity bordered by a fine line parallel with its circumference, which, no doubt, represents the capsule of the tumor. There is also a general tendency to the crowding of the linear striations. Axillary and pectoral areas are free from metastatic opacities. *Radiographic diagnosis.*—Benign encapsulated tumor. *Pathologic diagnosis.*—Encapsulated fibro-adenoma.

CASE VI.—Carcinoma with metastasis. Aged fifty-eight, two children; no miscarriages; menopause five years ago. The radiographic examination of this patient shows the penetrating process of invasion which is so typically noted in malignant tumors, particularly carcinoma. There are also a number of small irregular areas of opacity in the vicinity of the pectoral and axillary lymph-nodes. These are metastatic malignant nodes.

CASE VII.—Carcinoma superimposed on abnormal involution with metastasis. Aged fifty-three, one child, no miscarriages, menopause one year ago. These films show a general irregular appearance throughout both breasts, which is dotted in character. These characteristic dotted opacities are typically found in abnormal involution. Superimposed on this condition there is also noted an invading opacity in the deeper portion of the breast. There are also distinctly localized opacities in the axillary lymph-node area suggesting malignant metastasis. *Radiographic diagnosis.*—(1) Carcinoma with metastasis. (2) Abnormal involution both breasts. *Pathologic diagnosis.*—(1) Scirrhous carcinoma. (2) Abnormal involution.

CASE VIII.—Calcified axillary lymph-nodes. Aged thirty-seven, no children, no miscarriages, not married. The lymph-nodes shown in these films are distinctly well defined and intensely opaque, while those of malignant metastasis are very faint and ill defined. *Radiographic diagnosis.*—Calcified lymph-nodes of tuberculosis.

DR. J. STEWART RODMAN said that any attempt to make diagnosis more exact is certainly praiseworthy. Being a surgeon, however, he is not sure but that sometimes X-ray men have somewhat vivid imaginations. He does believe, however, that he could follow some of these conditions outlined on the plates by Doctor Seabold. The clinical diagnosis of carcinoma of the breast and chronic cystic mastitis is not ordinarily difficult, and therefore until we have X-ray evidence of more positive value we had best go a little slow in accepting evidence which is contrary to clinical findings. The most

important field for such help is to decide between the physiologic and pathologic changes in the mammary gland. If this method can be developed to the point that the evidence will tell the difference between these two conditions with reasonable certainty, then it will be a great step in advance.

## CANCER OF THE UTERUS

DR. JOHN B. DEAVER read a paper with the above title for which see page 381.

DR. FLOYD E. KEENE said that the treatment of carcinoma of the cervix can be readily subdivided under three headings, namely, prophylactic, palliative and curative. It is a well-accepted fact that carcinoma usually develops in a cervix which has been traumatized by childbirth or has been the seat of a chronic inflammation. Such being the case, it is undoubtedly true that the incidence of cervical carcinoma can be very decidedly lessened by measures taken to the cure of these lesions.

Pemberton reports 5,962 cases in whom the cervix had been repaired or cauterized and only five subsequently developed carcinoma. Huggins reported 2,985 cases subjected to excision by the endothermic knife and in none of these did carcinoma develop. In a series of 300 consecutive cases of carcinoma of the cervix, Farrar reports that 288 had had either full term or premature pregnancies and in only nine had a cervical repair been done.

In spite of extensive propaganda against cancer, malignancy of the cervix is rarely seen during the early stages, and in the majority of cases by the time the patient presents herself for treatment the lesion has passed beyond the stage of cure, by either operation or irradiation.

In this large group of cases there is no method which offers as much in the way of palliation as radium. By its use, local healing will follow in 60 to 65 per cent. of cases, as a result of which there is at least a temporary cessation of bleeding and foul discharge, and not infrequently there is a temporary relief of pain. It is a mistake to use radium in cases where the involvement is very extensive. Under such circumstances irradiation is of no benefit and, not infrequently, it may aggrevate the suffering. Difference of opinion still exists as to whether irradiation or operation is the preferable procedure in the treatment of stage I and possibly the stage II cases. Statistics are available which would seem to favor either one of these methods. For example, Sir Victor Bonney reports a 54.3 per cent. five-year cure in stage I, gland-free cases. Weibel reports a 40 per cent. five-year cure in cases of early lesions. When glandular involvement was present at the time of operation, only 10 per cent. were alive and well after five years.

In an extensive study, based upon the results obtained in the various European clinics, Heymann gives the following data: In twenty clinics, operation had been performed on 5,024 cases, and in seventeen clinics, irradiation had been employed in 3,512 cases. The total salvage from operation was 18 per cent. and from irradiation 16.3 per cent. The five-year

cures in the operable and border-line cases were 35.6 per cent. from operation and 34.9 per cent. from irradiation. There was a primary operative mortality of 17.2 per cent. and an irradiation mortality of 2 per cent.

The best results that have been reported in this country from the use of irradiation are those of Ward, who obtained a total salvage of 23.1 per cent. with five-year cures of cases of stages I and II in 53.1 per cent. Heymann with similar treatment reports a total salvage of 22.4 per cent. and in stages I and II, 44.4 per cent. In his own clinic, cautery excision and radium have given a five-year cure in 42.9 per cent., with a total salvage of 13.7 per cent.

DR. CHARLES F. NASSAU said that he believed that the use of X-rays across the abdominal cavity is frequently productive of damage. Certainly in the hands of an expert the rays can be directed toward the prostate so that a recurrence can be taken care of but on at least two occasions the speaker has seen extensive adhesions of the bowel following this treatment in cancer of the uterus. In operations for obstruction of the bowels after X-ray treatment of the uterus it is practically impossible to separate the adherent coils of intestine. One patient recently operated upon in this city went to a röntgenologist of her own volition. She was having bleeding from the uterus and it was supposed that she had cancer; perhaps she did. Later she came to Philadelphia and went to another who continued the treatments. She was finally operated upon for obstruction and the surgeon spent two hours trying to relieve the adhesions and did not succeed.

DR. JOHN B. DEAVER remarked that the important point is to get the cases early and particularly those with laceration and erosion of the cervix, *etc.* The treatment is too often determined by the röntgenologist and the family doctor, rather than by the experienced surgeon or the gynecologist, who should be much better able to decide the question of surgery or radiation. Even surgeons of long experience find difficulties sometimes in determining the line of treatment to pursue. The general impression held by the laity that radium and X-ray will cure carcinoma is wrong. Only certain types of carcinoma are amenable to radium and X-ray and the truth should be given the laity. However, enthusiasm is sometimes not tinctured with the best judgment.

## CHOLECYSTOSTOMY, ITS INDICATIONS AND RESULTS

DR. E. L. ELIASON and (by invitation) DR. L. K. FERGUSON read a paper with the above title for which see page 370.