VOL. II THURSDAY, JUNE 4, 1931 NO. 33

GENERAL STAFF MEETING
UNIVERSITY HOSPITALS
UNIVERSITY OF MINNESOTA

CONTENTS

PUBLICATION FINANCED BY CITIZENS AID SOCIETY

ANNOUNCEMENTS

1. Last Meeting - of fiscal year (July 1, 1930 to June 30, 1931) will be held Thursday, June 11th at usual time. Clinical Pathological Conference and Tumor Conference will, also be discontinued during summer months. If at any time, unusual opportunity presents itself, a called meeting of Staff will be held during summer months to hear distinguished visitor, other reasons. Final announcement next week.

2. Mortality report May 1931.

I. Malignant

A. Examined

Carcinoma of breast	f 55
Carcinoma of cervix uteri	f 40
Carcinoma of cervix uteri	f 54
Carcinoma of corpus uteri	f 61
Carcinoma of oesophagus	f 61
Carcinoma of ovary	f 70
Carcinoma of head of pancreas	m 63
Carcinoma of prostate	m 63
Carcinoma of prostate	m 76
Carcinoma of stomach	m 60
Carcinoma of stomach	m 71
Carcinoma of stomach	m 66
Malignant melanoma of orbit	m 47
Probable primary tumor 9th thoracic vertebrae	m 51

B. Not Examined

Carcinoma of cervix uteri	f 69

II. Non-Malignant

A. Examined

Benign hypertrophy of prostate	m 67
Brain abscess & meningitis	m 36
Coroner's case; multiple fractures	m 18
Coroner's case; traumatis subdural hemorrhage	m 1
Coronary sclerosis	m 67
Diverticulitis; rupture of diverticulum	f 43
Hydrocephalus; cyst of cerebral hemisphere	m 3 mo.
Leukemia, lymphatic	m 67
Leukemia, myelogenous	m 29
Meningitis; sphenoid sinusitis	f 13
Mitral stenosis	f 48
Nephritis, chronic glomerular	m 55
Pemphigus, acute bullous	m 54
Peritonitis, fibor-purulent	f 46
Premature	mlda.
Pyelonephritis, suppurative	f 54
Rupture of uterus	f 22
Rupture of uterus	f 42
Ulcerative colitis, chronic	f 11
Trigeminal neuralgia	m 81

B. Not Examined

Hypertension	m 58
Hodgkin's Disease	m 30
Infectious myelitis	f 29
Poliomyelitis, acute anterior	m 30
Premature	flda.
Premature	flda.
Puerperal sepsis; premature delivery	f 36
Still-born, premature	m 0
Still-born, transverse position	f 0

44 deaths
34 posts
77.2%

(11 deaths within 24 hrs. after admission.)

Note: This is first time during present fiscal year number of deaths has exceeded forty. Previous high December 1930--39 deaths. From July 1, 1930 to May 31, 1931 347 deaths and 272 autopsies. Previous high for autopsies for entire year was (1929-30) 229 examinations. Last year, percentage was 74.3%. Hope to make it 78.4% this year. To date the percentage is 78.1%. Your assistance in putting it over top, will be greatly appreciated. (Percentage only).

3. Miracles of Medicine

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(A) Bacteriophage cures boils. Bacteriophage discovered by Frederick William Twort, London (Brown Institution) before war. French-Canadian, d'Herelle, found it later and called it bacteriophage (microbe eater). Andre Gratia (Rockefeller Institute) and co-worker, Jaumain used it in boils. Larkum, of State Board of Health, sends it to Michigan doctors. Bacteriophage cures folks whose perpetual boils and carbuncles have resisted other forms of treatment and its use will surely spread.

(b) Electrical Fever. Wagner-Jauregg, Vienna, (1887), noticed insane folks became clear-headed after accidental fevers, like typhoid, erysipelas. Thirty years later, injected general paralytics with malaria. Many died but more were cured. General Electric Research Laboratory (Schenectady) found short radio waves shooting out invisibly from antennae of high-frequency radio transmitter, in cool room caused occupants to become queerly hot; rats in glass jars between two plates did same thing. Fever now controlled by simple electric switch. Rabbits inoculated with spirochetes of syphilis protected by electric fever. Other animals with rabies, contagious-abortion microbes are being treated with radiothermy. Note: Excellent results in last J.A.M.A. (5-30-31) from diathermy.

(c) Swingle-Pfiffner, after eighty years of discouragement (since Addison) find active principle of adrenal-gland capable of sustaining life in absence of glands in animals and in treatment of patients with Addison's disease. At great Northwestern clinic sad dark-skinned farmer, in collapse, with heart hardly able to keep up blood pressure, too nauseated to keep water on stomach hears roar of air-mail, package arrives from Princeton. Thirty-six hours later, ate double order of beef-steak instead of hot dogs and sauerkraut. (Couldn't get favorite dish, substitute very good).

(d) Lobar Pneumonia, Type I. In United States, more than hundred thousand people every year are hit by lobar pneumonia, Type I. Doctors try to be cheerful at bedsides. Their families are told to be brave and wait. The doctor watches feverish patient turning a sinister tinge of blud white awaiting mathematical crisis. Cecil (1924) Bellevue Hospital, New York City types pneumococci, Numbered all Type I patients even and odd numbers. To even numbers gave Felton pneumonia serum. Odd-numbered folks left without serum of any kind.

Felton's serum is great improvement over German Neufeld's contribution because of concentration and absence of sickness producing proteins.

Cecil (1930) examined records, found out of hundreds of untreated odd-numbered cases, 26.8% Type I died. Of even-numbered cases given Felton's serum, 11.7% passed away, (for folks getting to hospital within three days of onset of pneumonia. Brilliant young Doctor Sabin invented short-cut for typing pneumococci (four hours). A short time ago young Bellevue Hospital doctor came down with lobar pneumonia Type I. Parents in Texas notified. Patient given Felton's serum. Next day, six days ahead of crisis (which nature would produce) patient was well on way to recovery. Parents arrived when he was well. Used in time, no specific in all medicine is more striking. Today in our country, more than 30,000 people die every year from lobar pneumonia, Type I - (about the same number as motor accidents.) Last year, of hundred thousand threatened with death from this type of disease, less than 3% had serum. Enormous saving of life possible.

(e) Fighting Childbed Fever. Semmelweiss (82 years ago) was fired from General Hospital in Vienna for proving that childbed fever always came to mothers from outside. He died insane, trying to show doubting colleagues how simple, thorough cleanliness and antisepsis would wash that death off, bring death rate from worst curse of motherhood down near zero. Pasteur (53 years ago) found streptococcus, malignant microbe that Semmelweiss did not know existed, as cause. Mellanby, Sheffield, England, is feeding health, resistance, into mothers on road to death from childbed fever,

with few ounces of fantastic new super-concentrated food. Mellanby's dogs fed on fine diet (perfect except for vitamin A). All died of bronchopneumonia. Checked strange facts on young rats, A-less, die in from six to fifteen weeks from pus infections. Expectant mothers of all people are threatened with danger-ous hiddon hunger for this vitamin A. Have to support not only own body but growing baby's body also.

At Jessop Hospital, Sheffield (1927-28) out of twenty-six poor women smitten with childbed fever, 24 died--a dreadful but not exceptional mortality. First months of 1929, Mellanby fed nine mothers who were mortally sick from having brought the world new life, with new, terrifically concentrated form of vitamin A (150 times stronger than cod-liver oil). Of these, eight made a slow, beautiful, complete recovery. If superconcentrated food of Mellanby's will feed streptococ-cus-smashing strength into mothers already stricken, what if it's fed before, during, just after dangerous time of childbirth?

(f) Cure of Larynx Tuberculosis. Ove Strandberg, Finsen Institute, Copenhagen, asked authorities to set apart a sanatorium to test new treatment of dreadful complication of consumption. They laughed. Strandberg knew better. In 1914, Strandberg stated that it was dangerous, even murderous, to use sun or artificial-light irradiation on people sick with active lung tuberculosis. Next to no sun in Copenhagen so he began to expose hopeless, poverty-striken folks coming to Finsen Institute with throat tuberculosis to baths of artificial sun-light pouring out of carbon-arc lights, direct current, 55 volts, 75 amperes. Result — 55 out of every 100 of them were cured of their throat tuber-culosis. During past three years, at Vejlefjord 58 out of 69 people irradiated with carbon-arc light baths have been discharged cured of throat tuberculosis. Only 4 died. Still too early to tell final death rate, although spreading rapidly all over Scandinavia probably not well utilized in world. Strandberg contribution to American profession through J.A.M.A. as far back as 1928.

(g) Governor of Reproduction. American searcher, Evans, inject-ed soups brewed from front part of pitui-tary gland, produced giant rats at will. Zondek, Berlin, discovered deeper and more important, facts about gland and its incredibly fantastic use. Internal secretions pours into blood motor gen-erator of female sex instinct. Injected into baby female mice causes premature development of sex urge, swelling of ovaries, egg sacs ripening, bursting, sending out egg cells (Prolan A and B). A causes sex urge to rise, B sterilizes female animal. By A and B injections, Zondek can make female animals have young far ahead of time or cause to abort and lose babies she is carrying or make her permanently sterile.

Aschheim made discovery important to all women (absolutely certain early test for pregnancy). In women, four days after moment begun to guard life within them, great quantities of Prolan appear in urine--detected by injection into baby mice. Zondek takes young wives who are childless and want babies, (spots them by lack of pituitary hor-mone). Into ten, he injects Prolan. 5 menstrual cycle started. Will their hopes come true?

(h) Rheumatism, Cause and Cure. Russell Cecil with Edith Nicholls and Wendell J. Stainsby grows streptococ-ci from blood of 96 of 154 sufferers from chronic rheumatism. Takes extra-ordinary time of two weeks or longer before streptococci appear. Note: Clawson's contribution in calling pro-fession attention to fact. Re-injects streptococcus into animals which causes chronic rheumatism. Others have confirmed test. Makes vaccine after foci have been cleared out which has powerful healing action on joints. A cured patient with enough money might help Cecil get apes he longs for. Abstracts - Miracles of Medicine, Paul De Kruif, Ladies' Home Journal, XLV ii , June 1931.

Complete article should be read by all. Illustrates popular way of pre-senting scientific discoveries to lay-man.

4. Wisconsin State Medical Association meeting in Milwaukee has interesting radiological section. Addressed among others by Drs. Joseph Colt Floodgood and Leo G. Rigler. Remarkable demonstration of bone tumors using four lantern screens (making available comparisons of various types of x-ray films.) Active part played by Pathologist Enger, good friend of University of Minnesota Hospitals. Excellent idea for State Medical Association. Active sections covering major fields as we do in hospital services, in addition to clinics. Will allow men in active practice to join with specialists in various fields for discussion of problems of interest to practitioner.

5. W. W. Murphy, Instructor Pediatrics (part time) "the man who never wore an overcoat" lost his life in an automobile accident over the weekend. Well trained, efficient, loyal, he has been a staff member for five years on service in out-patient department. Never has any man on our staff given such faithful service as he rendered. He will be missed by all.

6. Complimentary senior dinner tonight at 7 P.M. Everyone should turn out to tell the departing class "good-bye and good luck".

7. Please date original examinations of out-patients requests a staff member who has frequent occasion to consult records.

II. CASE REPORTS

I. MALIGNANT MELANOMA OF RIGHT EYE WITH INTRACRANIAL EXTENSION.
Path. Pearson.

The case is that of a white male, ranch foreman, 47 years of age, admitted to the University Hospitals 5-19-31 and died 5-23-31 (4 days).

Blind

1917 - Patient noticed a unilateral hemianopsia of right eye. He also had twitchings of right eyelid and occasional haziness of vision. He became blind in this eye a few weeks later.

Inflammation, neuralgia (2 years)

1919 - In spring, patient noticed that the blind eye would become inflamed and had intense pain which radiated from eye to right side of his head. The skin during these attacks was tender and relieved by alternate hot and cold packs. These attacks would last two or three weeks and would occur from one to two times each year.

Eye removed (7 years).

1924 - Patient had sever attacks of pain in eyeball which became swollen and protruded. He saw a physician who enucleated the eyeball.

Neuralgia

1927 - Patient had a mild attack of pain, lasting one to two days, which was relieved by heat and cold.

1929 - Patient suffered a very severe attack necessitating morphine.

1930 - Patient had two severe attacks during summer which were relieved by alcohol packs.

11 - - 30 - Patient had a severe attack which could not be relieved. He also noticed numbness of the side of nose, roof of mouth, upper lips and upper part of cheek. At this time the pain became so severe that the patient had to quit work.

Treatment!

1- -31- Patient went to a Chiropractor and later to a physician then to Hot Springs for treatment. The stump from the old eye was enucleated and removed. The teeth in the right jaw and tonsils were removed at this time. Since this time the pain was practically constant which had a burning sensation and occasionally a sharp, stabby pain.

Hospital

5-19-31 - Admitted to University Hospitals. Physical examination: a well-developed and well-nourished, white male is admitted complaining of severe pains of the face and head. The right eye had been removed. There was anesthesia and analgesia in the right ophthalmic and maxillary division of the fifth nerve and moderate nerve deafness on the right. The visual fields were normal in the left eye. Blood pressure 150/70. Amytal gr. iii, and Codeine sulphate gr. i were

given. Pulse 80. Temperature 98.

X-ray

5-20-31 - Patient complains of constant pain in head. Codeine gr. i times 3 given. A spinal fluid (puncture) was done and the report was negative. Blood - Hb. 102, wbc's 7,450, Pmn 54% and Lymph 40%. Urine- faint trace of albumin and many wbc's. X-ray at this time of the skull and fascial bones: There is no evidence of pathology in the skull itself. There is a distinct irregularity and rarefaction of the maxillary bone on the right side, especially as it extends upward. The appearance suggests some necrosis of the bone here which might be secondary to the previous removal of teeth. The possibility of a tumor or inflammatory process could not be excluded. There is some thickening of both maxillary sinuses and slight cloudiness of the frontals. These suggest a chronic sinusitis. Evidence of recent extractions in the mandible is also present, root sockets still being shown.

Eye consultation

5-21-31 - Patient complains of severe pain in the head. Codeine gr. i, 2 times was given. Urine shows faint trace of albumin and a few wbc's. Eye consultation: Perimetric and color fields of the left eye are negative. No scotmata either relative nor absolute. The fundus is negative. The optic nerve and macula are normal. No vascular changes. The retina and choroid are negative. Refracting media is negative. The history suggests that he had an old iridocyclitis with no doubt old choroiditis of the right eye and that the eye was an irritable one. I believe this occurred co-incidentally with his tic douloureux.

Operation

5-22-31 - Rectal anesthesia, 234 cc. ether, 234 cc. olive oil and 50 cc. of 50% glucose intravenously were given. Operation was started at 1 P.M. Patient returned from the operating room at 5:25 P.M. The preoperative diagnosis was atypical trigeminal neuralgia with possibility of tumor of gasserian ganglion. Rectal ether plus ether inhalation were used. The external carotid was first ligated and a perierterial sympathectomy done on the common carotid and the internal carotid for about a distance of 2 inches. The external carotid was doubly ligatured. The temporal muscle was divided and the wound rongeured away. The temporal bone was unusually porous like the mastoid. It soon was apparent that there was a large tumor involving the gasserian ganglion. The sensory roots of the ganglion were sectioned. A small vaseline pack was inserted. The patient returned from the operating room in fair condition. 700 cc. of unmodified blood was given per vein. 6:40 P.M. - proctoclysis 1000 cc, started. 50 cc. of 50% glucose given per vein. Blood pressure 120/60. Patient is very restless. Given chloral hydrate gr. xxx for proctoclysis.

Exitus

5-23-31 - 2 A.M. - Patient is extremely restless. Right foot in restraint. Morphine sulphate gr. 1/4 given. Respirations 44. Much mucous in throat but little relief from aspiration with syringe. Suction is applied to throat. Atropine sulphate gr. 1/120 given. Breathing is now slower and going into Cheyne-Stokes respirations. Patient is cyanotic and artificial respiration is applied. 3:50 A.M. - patient expired.

Autopsy

The body is that of a well-developed and well-nourished, white male, measuring 177 cm. in length and weighing approximately 210#. Rigor is present. Hypostasis is purplish and posterior. The right eye had been previously enucleated. The pupil of the left eye measures 4 mm. in diameter. There is no cyanosis, edema nor jaundice. There is a recent operative incision, measuring 6 cm. in length, over the course of the common carotid, and when inspected it is noted that the external carotid is doubly ligatured just cephalad to the bifurcation. There is a recent operative incision, 13 cm. long, over the temporal region, the lower-most portion of which contained a gauze pack. There is also another small, recent incision, 2 cm. in length, in the right antecubital space.

The fat over the anterior abdominal wall is 6 cm. thick. The PERITONEAL CAVITY is normal. The APPENDIX is subcecal and free.

The PLEURAL CAVITIES are free from

adhesions and fluid. Both lungs are a seat of moderate anthracosis.

The HEART weighs 400 Gm. The chambers are normal. The valve edges are free and normal. The coronaries show no sclerosis. There is a minimal amount of sclerosis at the ROOT OF THE AORTA.

The LEFT LUNG weighs 640 Gm., the RIGHT 950 Gm. The lower lobes of both lungs show congestion and edema, especially marked on the right. The cut surfaces exude a fluid. The lower lobe of the right lung contains a black, soft mass about the size of a walnut evidently a metastatic melanoma.

The SPLEEN weighs 200 Gm. The capsule is gray and wrinkled. The cut surface shows a reddish-gray pulp. The trabeculae are prominent.

The LIVER weighs 2000 Gm. The surface is studded at intervals with hard, whitish tumor masses about 1 cm. in diameter and which has an umbilicated center. When cutting the liver, similar tumor masses are seen scattered throughout. On the superior and right lateral surface, there is a black, tumor mass 2 x 2 cm. No other similar tumor masses are found.

The LYMPH NODES are inspected but no metastases can be found. The liver also shows slight cloudy swelling.

The GALL-BLADDER AND GASTRO-INTESTINAL TRACT are normal in their entirety.

The PANCREAS weighs 100 Gm. and is normal.

The ADRENALS are normal.

The LEFT KIDNEY weighs 165 Gm., and the RIGHT 155 Gm. They show a slight cloudy swelling. The ureters and bladder are normal.

The BRAIN is removed and the cranial contents are inspected. There is a softening of the inferior surface of the right temporal lobe in the region of the right gasserian ganglion. Upon viewing the cranial cavity, an oblong tumor mass, 6 x 3 cm. in diameter, is seen extending from the right orbital cavity to the region of the posterior clinoid process. This is in close proximity to the pituitary fossa and the bulk of the mass is extra-dural. However, in about its mid-portion, there is a small, blackish knob, 1.5 cm. in diameter, which apparently extends through the dura. The mass is dissected free from its surrounding structure and the color and texture is noted. The portion that extends into the region of the orbit is grayish-black in color and of soft consistency, some of the portions are whitish in color. The sphenoid and posterior ethmoid sinuses are next inspected and are filled with an extension of the tumor mass in this portion being of a grayish-white color. There is also an extension of the tumor mass into the right maxillary sinus, the roof of which has been compressed and broken down by the invading tumor. In places, the bone is as thin as paper. The mucous membrane of the maxillary sinus has not been pierced by the tumor but pushed away by the mass. There are no vessels injured to the retinae. There is a moderate amount of hemorrhage in the base of the brain.

Diagnosis:

1. Malignant melanoma of right eye with intracranial extension.
2. Tic douloureux (atypical) (clinical).
3. Metastases to liver and lungs.
4. Recent operative division of sensory root or gasserian ganglion.
5. Recent carotid peri-arterial sympathectomy.
6. Ligation of external carotid (recent).
7. Edema of lungs.
8. Old enucleation of right eye.
9. Cloudy swelling of liver and kidneys.

Comments:

An unusual history of malignant melanoma of right eye beginning in 1917 with suggestive involvement of Gasserian-ganglion two years later. Eye removed seventh year of illness with definite neuralgia at this time indicating probable beginning of condition as seen at autopsy, 14 years after onset of illness. Diagnosis of probable tumor of Gasserian ganglion suggested by findings independent of history of eye removal. For this reason, patient was explored. X-ray involvement of bone verified at postmortem. Tumor was very friable, bled easily and could not be dissected.

In children, neuro-epitheliomata are found in eye. So-called because of suggestive appearance of embryonic neuro-epithelium. Contains great many cells and few fibers, some of cells arranged

in rosettes suggest primitive central canal, not sharply separable from glioma. Most common site is retina. In middle-age and late life, melanoma arise in choroid, iris or ciliary body, or conjunctiva. Of all forms of melanoma, group comprises about one-third. Growths may progress rapidly and cause blindness. Fuch believes enucleation before onset of glaucoma gives 60 to 80% cures and prognosis is much worse later. Metastases have been found years after enucleation of eye. Common site of metastasis is liver and association of liver tumor, jaundice and absence of eye, blindness or disease of eye is frequently seen.

It is most unusual in reviewing our records to note high percentage of failure to associate an absence of eye with appearance of a tumor (local or distant). Present case is not an exception.

Laura Lane, consultant in ophthalmology our Staff, has made intensive study of group of tumors, those reported during past five years. included. She finds frequent history of late recurrence so that present case is not much out of ordinary.

2. CARCINOMA OF BREAST WITH LYMPHATIC, PULMONARY, OSSEOUS HEPATIC, RENAL METASTASES.
Patho. Henrikson.

The case is that of an adult, white female, 65 years of age, admitted to the University Hospitals 5-20-31 and died 5-21-31 (1 day).

12-?-29 - Dyspnea on exertion.

10-?-30 - Nocturia and frequency with "creamy" urine at times.

Pain of metastases?

12-1-30 - Pain in right breast, low in the back, and in right knee.

Lump in Breast

12-30-30 - Patient noticed lump about 1-1/2 inches in diameter in right upper quadrant of right breast. Became constipated.

1-21-31 - Physician consulted. She was told that she had carcinoma.

1-24-31 - Consulted another physician and again was told that she had carcinoma of the breast. Advised to enter University Hospitals.

Three weeks (Dispensary)

1-30-31 - (Disp.) Physical examination- Head and neck negative. Chest - right breast contains a large, hard lump with marked retracting nipple. Large axillary lymph nodes are palpable. Sinus in lower rib in mid-axillary line. Heart - negative. Lungs - apparently normal. Abdomen - negative. Back - marked tenderness over lumbar spine and right kidney region, as well as over right hip down to right knee. Impression: Carcinoma of right breast and axillary gland envolvement. Pain in lumbar spine and right hip may be due to metastases. Referred to tumor Dispensary with same diagnoses with suggestion that the metastases may also be present in the lungs. Advised to have x-ray. Laboratory: Urine - negative.

Hospital

Advised to enter Hospital and did so the same day. On entry, she states that her appetite has been poor for one year and her stools were clay colored for three days. Physical examination is the same as above. Mass stated to be 3 to 5 cm. in diameter. No supraclavicular nodes are palpable. Blood pressure 104/74. Has lost 30# in the past two weeks. Right knee, especially patella, is tender on palpation. Tenderness is also over sacrum and 4th and 5th vertebrae. Laboratory: Blood - Hb. 90, wbc's 12,850, P 76, L 23, M 1. NPN - 34.5.

2-3-31 - X-ray of right knee showed slight hypertrophic arthritis.

X-ray

2-4-31 - Advised to have x-ray therapy. X-ray of chest and pelvis revealed osteoclastic and osteoblastic carcinomatous metastases to pelvis and femora with a possible metastases to the lungs.

Treatment

2-5-31 - 40 gold implants of radium emanation of 1 mc. each inserted. Total dose 5280 mc. hours.

2-11-31 -- 3-2-31 - 150% of a skin erythema dose to right breast and 60% to four fields of pelvis in eight treatments.

2-8-31 - Discharged from Hospital.

Treatment

2-11-31 - Readmitted to University Hospitals, for the deep x-ray therapy.

3-3-31 - Discharged again with instructions to return to Tumor Dispensary.

Chest findings

5-6-31 (Disp.) Losing weight. Becoming progressively weaker. Still constipated. Raises bloody sputum and pus occasionally. Coughs. Has a rattling noise in left chest. Is short of breath.

Progressive metastases

5-20-31 - Readmitted to University Hospitals. Physical examination: Head - left ear drum is retracted. Heart - rate 90, blood pressure 104/55; rhythm irregular at intervals with occasional premature beats. Lungs - asthmatic rales over entire areas of both lungs. Gurgling rales over both bases. Dullness over both bases, posteriorly. Patient is very dyspneic and all accessory muscles of respiration are being used. Peculiar oscillating vocal fremitus like a crepitation is felt over the left base in axilla. Extremities - Edema of ankles and feet. Adenopathy - very large, irregular mass felt in right inguinal region but none felt elsewhere. Reflexes - right knee jerks absent, left sluggish. Both ankle reflexes absent. Ankle clonus absent. Abdominal reflexes and Babinski absent. Breasts - no evidence of primary tumor. Diagnoses: Carcinoma of right breast with metastases to lungs, right inguinal glands and pelvis. Cardiac decompensation. Patient is admitted to Medical service for what was considered cardiac decompensation. Right chest tapped in 9th interspace and 1200 cc. of transudate removed with relief. Eye grounds examination reveals no abnormal changes.

Unusual

X-ray of chest, pelvis and upper femora reveals right pleural effusion, a linear type of metastases to the lungs and osteoclastic metastases to pelvis, lumbar spine and femora.

Worse

5-21-31 - 500 cc. of fluid removed from left chest and 150 cc. from right chest. 7:30 P.M. - Patient is very dyspneic, pale and perspiring profusely. Sits on edge of bed with no covering over her. Says she is very hot although it is a very cold day and both windows are wide open. Lungs have no rales. Pleural cavities are apparently free of fluid. There are, however, asthmatic sounds over both chests. Portable x-ray plate shows a fairly large amount of pneumothorax on right side with partial collapse of right lung. A moderate amount of fluid is still present. There is a partial obliteration of the left costophrenic sinus due probably to some fluid. The markings in the lung fields are markedly exaggerated as noted before.

Examination of cords shows no evidence of obstruction.

Exitus

Adrenalin M x (H). 8 P.M. - Caffeine gr. viiss (H). Temperature 97. Very dyspneic. 8:30 P.M. - respirations are slow and shallow. Patient expired.

Autopsy

The body is that of an adult, white female, about 55 years of age, weighing approximately 135#. She is well-developed and well-nourished. Rigor is present. Hypostasis is purplish and posterior. There is no edema. Pupils are equal and regular, measuring 5 mm. in diameter. There are puncture wounds in both antecubital spaces. There is a brownish, mottled discoloration over the outer surfaces of the right breast. An almond-size, firm mass can be felt in the deeper tissues with some difficulty as the whole breast is slightly indurated. compared with the left breast. A few navy bean-size nodes can be felt in the right axilla. The breast is examined from the under surface and a typical scirrhous carcarcinoma with finger-like projections into the surrounding tissue, measuring approximately 1.5 cm. in diameter, is found in the upper right quadrant near the outer margin. On dissecting the axilla, navy bean to almond-size, firm lymph nodes are found.

The fat on the anterior abdominal wall is 2 cm. in thickness. The appendix is small, whitish, atrophic, subcecal and free. The diaphragm is at the 5th rib on the right and the 5th interspace on the left. Whitish, slightly elevated patches, 2 to 5 cm. in diameter, are seen on the outer surface of the liver. On removing the chest plate, a few adhesions are present between the lung and the lateral surface of the pleura.

The LUNGS are grayish dappled with black. Along the mediastinal surface, a grayish streak radiates from the mediastinum towards the apices. The glands of the mediastinum form a mass about the large vessels and a chain of glands can be felt coming downwards along the course of the vessels towards the root of the heart.

The LUNGS are removed intact and are not weighed. A section is made towards the mediastinum from the lateral surface of each lung and the surfaces made by cutting show a firm infiltration along the bronchi and vessels radiating outward 6 to 7 cm. from the hilus towards the outer surfaces on both sides. The lymph glands are flat dappled by a few whitish areas. There are split-pea to bean size, black lymph nodes along the margin of both bases some of which contain a whitish area on cut section.

The SPLEEN weighs 175 Gm. and is grayish-purple. The trabeculae are prominent. There are no signs of carcinomatous metastases.

The LIVER and PANCREAS are removed intact to serve as a specimen because of the large nodes in contact with the head of the pancreas along the hepatic artery and portal vein which give the impression of a carcinoma at the head of the pancreas when the finger is placed through the foramen of Winslow. The nodes vary in size from those 3 x 5 cm. to those .5 cm. in diameter and are very firm and adherent to the surrounding structures.

The GALL-BLADDER is small and contains a light brownish fluid which passes downwards through the ducts on pressure over the fundus.

There are no signs of metastases in the GASTRO-INTESTINAL TRACT. However, the nodes along the spinal column are firm and are whitish-gray in color on cross section. There are walnut-size to navy bean-size nodes in the inguinal region which are also firm as though indurated with the carcinoma.

The ADRENALS appear normal.

The LEFT KIDNEY weighs 150 Gm., the RIGHT 140 Gm. There is one metastatic nodule, 4 mm. in diameter, near the upper pole of the left kidney. The surfaces made by cutting are slightly paler than usual. The kidney margins are normal. The bladder appears normal.

The AORTA shows no degenerative stages. The uterus, tubes and ovaries show no abnormal changes.

The LYMPH NODES have been described above.

The organs of the HEAD and NECK are not examined.

Diagnosis

1. Scirrhus carcinoma of breast.
2. Metastases to right axilla, lungs (infiltrative bronchovascular), region of pancreas, lymph nodes, kidneys, bone (osteoclastic and osteoblastic), and right inguinal gland.
3. Pneumothorax (clinical).
4. Brownish pigmentation of right breast region.
5. Puncture wounds.
6. Pleural adhesions.

Comment

Ill-health (cachexia) may have preceded discovery of primary tumor in breast by patient. Note: Pain in breast, back and right knee, early in illness.

Course: In spite of fact that patient reported rather promptly after discovering tumor, course was rapidly down hill and multiple metastases were seen.

Lung findings are unusual. The first records of physical examination of chest show no change. At this time, (x-ray) metastases to lungs were suggestive. The tenderness over lumbar spine, right kidney region and right hip down to right knee indicated bone tumor which was demonstrated by x-ray. Note generalized metastases without apparent involvement of supraclavicular nodes. Weight loss was 30# in two weeks. Tenderness about knee suggestive of hypertrophic arthritis. Given prompt radiation treatment which apparently did not alter course. When she returned 5-6-31, raising bloody sputum, coughing, positive chest findings, shortness of breath, edema of feet and ankles (which apparently disappeared), finding of large inguinal mass as result of secondary extension from bone or direct to node. Pleural effusion of bloody type is again suggestive of malignancy. Infiltrating mass in mediastinum with linear radial extension into both lung fields is probably result of direct extension

through chest plate then on into lungs. Finding of tumor in liver shows downward spread. Very difficult in looking back on the case to tell when the tumor really started. Would indicate difficulty in health education as to possibility of prompt report when tumor discovery is made.

III. ABSTRACTS

METASTATIC CARCINOMA OF BREAST

1. Reference

Cancer of the Breast, Hanley, 2nd edition, Hoeber, 1922.

Two theories of cancer dissemination from breast (embolism and permeation). Author believes centrifugal spread of growth is through lymph channels to skin, subcutaneous fat, deep fascia, muscles and bone. Examination of tissue by serial sections shows continuous tumor growth. Absence of continuity in some probably due to degenerative changes. It is possible to extend thru lymph channels to axillary and supraclavicular nodes, chest wall, mediastinum, along fascia to liver and peritoneal cavity. Modern operations are based on this conception. Considers invasion of bone may be accounted for by permeation. Attempts to prove theory by statistics and serial sections of lymphatics.

Comment: While permeation may account for much of extension seen in carcinoma of breast, it is difficult to rule out embolic process or direct extension. Most observers take middle ground.

2. Reference

Copeland, M. M., Radiology XVI 198-210 (Feb.) 1931.

Report of 334 cases of osseous metastases (J. Hopkins) according to primary: 100 breast cases (5.2%) instead of (50%) because study represents one examination only. Bone involvement when present similar in location to reports elsewhere. No relationship to side involved. Did not bear out strict permeation theory.

Table I - Metastatic Bone Lesions
Incidence of Cases - Five-year Cures

Primary Malignancy	No. Cases	Osseous # Cases	Metastases %
Breast carcinoma	1914	100	5.2
Prostatic "	1040	134	12.8
Stomach "	537	7	1.3
Colon & rectal "	497	3	0.06
Melanoma	169	3	1.77
Uterine carcinoma	86	5	5.6
Hypernephroma	63	22	34.9
Ovarian carcinoma	60	1	1.6
Testicular sarcoma	42	1	2.4
Lung carcinoma	24	4	16.6
Ovarian sarcoma	15	1	6.6
Thyroid malignancy	15	6	4.
Testicular carcinoma	13	1	7.7
Undetermined malig.	..	37	..
Nasopharyngeal carc.	..	1	..
Squamous-cell "	..	2	..
Soft-part sarcoma	..	2	..
Bladder carcinoma	..	1	..
Esophageal "	..	1	..
Ileac sarcoma	..	1	..
Liver carcinoma	..	1	..

3. Reference

Lenz, A. M., and Fried, J. R., Annals of Surgery, XCIII, 278-293 (Jan) 1931.

General

Authors state patients alive when investigated or those dying accidentally or from intercurrent diseases, illustrate only single chapter in life history of breast cancer and do not give true picture of disease as a whole. (Note: See Johns Hopkins statistics, 5 or 50% bone metastases.) In Montefiore Hospital, New York, during past ten years, many patients reach there in terminal stage of disease. Clinical course, reconstructed, from patients' history and consultation with records.

Material

168 cases of carcinoma of breast with metastases to various parts of body were studied from time of discovery of tumor to death. Nearly half had skeletal metastases, proven roentgenographically or at autopsy. More than half of these had involvement of lumbosacral spine and about one-third of skull. Of the latter, more than half gave neurologic signs of brain involvement and of the former, 13 cases were thought to have spinal-cord

metastases. No cases of spinal-cord involvement were observed in absence of disease in lumbosacral spine. This is probably true of brain. Of the 85 cases of metastases to skeleton and central nervous system, 67 were verified histologically; 32 of these were examined postmortem. 60 of 85 cases could be grouped according to histological evidence of malignancy. Of 85 cases nearly 66% had radical mastectomies; 15% were not operated upon; 8% had simple mastectomies, and 6% had only biopsies. Radiotherapy was withheld in some because of advanced state of disease.

Age and Sex factor.

80 women and 1 man. Age of patients when tumor appeared varied from 22 to 75 years, under 30 (5%), 30-40 (30%), 40-50 (37%), 50-60 (19%), 60-70 (8%), and above 70 (1%). Primary tumor arose in right breast 43 cases and left breast 38 cases. Information regarding clinical or microscopical involvement of axillary lymph nodes so unsatisfactory that it was decided to leave this factor out of consideration.

Anatomical Distribution

Pelvis 62%, Spine 59%, Femur 54%, Ribs 39%, Skull 35%, Humerus 27%, Scapula 16%, Clavicle 14%, Tibia 3%, Sternum Radius, Ulna, Hands, Fibula and Bones of Feet 1% each. (Note: Most of cases had multiple metastasis so same case appears under several headings.

First Site of Involvement:

As suggested by pain and later confirmed Roentgenographically. Sacro-lumbar spine 37%, femur 16%, pelvis 14%, skull 13%, dorsal spine 5%, ribs 5%, humerus 4%, scapula 2%, clavicle 1% and tibia 1%. (Note: Anatomical distribution of metastases correspond to findings of others except Hanley. Hanley shows higher percentage of sternal and rib involvement (probably closer to facts than above) and less distant involvement (which is probably not so true).

Grading:

Grade I,	26 cases,	avg. duration of life in months	...50.2
Grade II,	26 "	" " "	...23.5
Grade III,	5 "	" " "	...17.3

(Note: Gradings correlate very nicely with length of life.) Survival after onset of skeletal metastases, 50 cases.

Grade I,	23 cases	survival period	15.1 mos.
Grade II,	22 "	" "	8.0 "
Grade III,	5 "	" "	9.0 "

Summary

1. 168 cases of metastases to various body from carcinoma of breast are studied.
2. 48% had skeletal metastases, 15% brain, and 8.7% spinal cord involvement.
3. Life expectancy was markedly shortened with increasing malignancy according to grading methods as to time intervals between (a) discovery of tumor and onset symptoms in skeletal metastases, (b) survival period after discovery of tumor, and (c) after symptoms of skeletal metastases.
4. Age, apparently, had no influence upon the survival period (most cases occurred between 40 and 50).
5. Pain was first sign, 75% of cases. Roentgenographic evidence varies from a few weeks to one year following this.
6. Pathological fractures (26%) usually terminal.
7. X-ray and radium therapy are useful agents in control of pain.
8. In few cases it produced remarkable temporary regression and in a few cases of invasion in central nervous system caused definite palliation.

4. Reference

Carnett, J. B., and Howell, J. C., Annals of Surgery, XCI, 811-833 (June) 1930.

General

In six-year period (1924-1929) 267 patients with breast cancer were registered in Radiological Department of Philadelphia General Hospital. The great majority were in late stages, being inoperable or having recurrence after operation. Many succumbed from extensive visceral metastases before sufficient time elapsed to develop bone metastasis. In this group there were 2 patients with acute carcinoma. 204 patients had more or less extensive x-ray examination of skeleton. 49.5% of 101 cases gave definite evidence of bone metastases.

Age and Sex Factor

100 women and 1 man. Distribution: Skull 14, cervical vertebrae 10, thoracic vertebrae 41, lumbar vertebrae 44, pelvic bones 45, femora 32, leg bones 7, foot bones 4, shoulder girdle 54, forearm bones 6, bones of hand 4, and ribs 35. Cervical vertebra probably smaller than real involvement because of technical difficulty? Metastasis were clastic and blastic types.

Comment

Authors differ from blood stream embolie and Hanley theory. 30 cases dying of intercurrent disease before cancer ran course, showed extensive evidence of intra-abdominal lymphatic permeation (over 80%). Fairly constant finding is enlargement and induration of lymph nodes along abdominal aorta, common iliac arteries and pelvic regions. Authors believe they occur first in mesojejunum and think they result from permeation (which differs from Hanley's trans-coelomic transplantation theory). Authors are, apparently, very much impressed with permeation idea and seem to feel it probably explained all metastases. Believe only reason that lower bones are not involved (distal portion) is disease kills before cancer has chance to invade. We cannot predict which one or more of the lymphatic routes to skin and fat, to bones, or to thoracic or abdominal viscera, permeation will elect to follow in any given breast case but once we obtain evidence of permeation having started on one or more routes we can make a reasonably accurate prediction of the metastatic deposits that will follow and this we could not do if blood-stream were the main factor in disseminating cancer cells.

ABSTRACT

STUDY OF TUMORS AND INFLAMMATIONS OF THE GASSERIAN GANGLION.

Reference

Stammers, F. A. R., British Journal of Surgery, XVIII, 125-153 (1930).

General

In past 25 years about 60 cases of Gasserian ganglion tumors have been reported. Inflammatory lesions of ganglion are extremely rare, only three examples being found in the literature. The paper is based on seven cases of neoplastic and two of inflammatory lesions of Gasserian ganglion, representing all instances of this nature that can be traced in records of Mayo Clinic. They occur in animals as well as man, (either intrinsic or extrinsic). A number of cases described as primary tumor are in actual fact, extrinsic affairs (three in present series).

Classification

Epithelioma,(2); Glioma, (1); Meningioma (2); unclassified (1).

Endothelioma (in literature) probably arises from endothelial cells lining ganglion capsule.

Diagnosis

Pain is in 5th nerve area and is rarely confined to one division only. Fairly persistent in character and accompanied by alteration in sensation in somewhat smaller part of same area. Sometimes subjective numbness and others burning or stiffness. Partial anesthesia of cornea may be present. Motor roots usually affected. 6th nerve first to be affected in some (external rectus muscle paralysis develops early). 3rd and 4th nerve may show signs of pressure. Complications are due to spread of tumor. If backward ear signs may develop. Always when tumor is intrinsic order of events is pain, anesthesia or paraesthesia and weakness of ipsolateral masculatory muscles. Other signs depend upon direction of spread of growth. Differentiation between neoplastic and inflammatory lesions cannot usually be made although statistics favor tumor over inflammation.