

GENERAL STAFF MEETING
UNIVERSITY HOSPITALS
UNIVERSITY OF MINNESOTA

HENNEPIN COUNTY MEDICAL SOCIETY JOINT MEETING

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ANNOUNCEMENTS

1. Clinico-Pathological Conference: Friday, April 10, 11 A.M. Todd Amphitheater. Case - Mitral Stenosis.
2. Next Staff meeting Thursday, April 16. Meeting tonight replaces regular weekly meeting April 9. Next time: thymomata, malignant, abstracts of literature, indications for thoracoplasty and many other features.
3. Minneapolis Surgical Society met University Hospitals April 2, ate (Host Fesler and Speech of welcome). Program by Surgeon Wangenstein and associates - "Young Interstate Assembly", Comment by Visiting Surgeon Mann. Many expressions of appreciation. "Latch string is out" for meeting at Hospitals by any special group (with or without program).
4. Thank You for splendid cooperation on examinations (one-time autopsies) for past month. Note: we held our own last three months (compare with previous six months). Still in "first ten" in U. S. and Canada. Superhuman efforts failed on three misses.
5. Married: Radiologist Sagel and Technical Assistant Defiel, April 1 - in St. Paul. 100% University Hospital Romance. Many congratulations!
6. Miss Norris, genial, affable, alert librarian, Hennepin County Medical Society receives weekly copy of Proceedings of Staff Meeting, puts it in rack with current literature. Thank you!
7. Program of Activities, University Hospitals Spring Quarter, 1931. Everyone invited. Statistics show visitors most frequently lost in building are Twin-City physicians.

A. Conferences, seminars:

1. Pediatrics: 10:00-12 Noon Every 4th Sunday (every second week alternating with Minneapolis General.)
2. Surgery: 4:30-6:00 P.M. M. (Charts, Literature).
3. X-ray - Surgical: 10-11 A.M. T.
4. X-Ray - Departmental: 5-6 P.M. T. (Every other week with Mpls. General).
5. Medicine: 4:30-5:30 P.M. W.
6. Surgical Pathology: 10-11 A.M. Th.
7. X-ray - Pediatric: 10:30-11:30 A.M. S.
8. General Staff: 12-1:30 P.M. Th.
9. Pediatrics: 3:30-5:30 P.M. Th. (resident).
10. Health Service: 4:30-5:30 P.M. F.
11. Clinico-pathological: 11 A.M.-12 Noon. Every other F.
12. Tumor: 11-A.M.-12 Noon, Every other F. (with above).
13. X-ray - Medicine: 11 A.M-12 Noon, S.

B. Ward Rounds

Medicine 9:00 A.M. Monday.
Surgery 8:00 A.M. T. and F. (7:30 A.M. summer).
Dermatology 3:00 P.M. M. W. F.
Pediatrics 9:00 A.M. T. Th. S.
Others: Call service.

C. Operating Clinics

General Surgery - 8-12 Noon, M-W-S: 1-6 P.M. F.

Gynecology - T-Th-F. 8-12 Noon.

Eye - T-Th. 2:30-5:00 P.M.

Ear, Nose and Throat - M-W-F. 8-12 Noon.

Orthopedics - M-W-S- 8-12 Noon.

Urology (cystoscopic) T-Th-S. 8-12 Noon.

Daily Senior "Dry" Clinic 8-9 A.M.

D. Out-Patient Department

Call Di. 8720 (Ask for Out-patient desk), for hours of special clinics.

E. Short Courses:

Make special arrangements with Extension Division, Di. 2760.

8. Mortality Report - March 1931.Malignant - Examined

Carcinoma of antrum	M 47
Carcinoma of gallbladder	M 66
Carcinoma of stomach	M 67
Carcinoma of uterus	F 46
Multiple myeloma	F 39
Pituitary tumor	M 64
Thymoma	F 31

Malignant - Not Examined

Carcinoma of colon	M 30
Carcinoma of ovary	F 50

Non-Malignant - Not Examined

Nephrolithiasis	F 40
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Non-Malignant - Examined

Asphyxia neonatorum (cause?)	F 1 da.
Atresia, esophageal	F 7 da.
Benign hypertrophy of prostate	M 77
Benign hypertrophy of prostate	M 65
Birth trauma (cranial)	M 1 hr.
Bronchopneumonia	M 9 mo.
Endocarditis, subacute bacterial	F 67
Hodgkin's disease	F 27
Hypertension	F 53
Hypertension	M 46
Malnutrition	M 4 mo.
Mitral stenosis	M 45
Premature	M 2 da.
Premature	M 1 da.
Pulmonary tuberculosis	F 35
Salpingitis, chronic	F 20
Stillborn	M -
Stillborn	M -
Ulcer, gastric, chronic	M 73

Examinations by Services

	<u>Total</u>	<u>Examined</u>	
Tumor Gynecology	2	1	
Tumor Surgery	7	6	
Health Service	1	1	
Medicine	5	5	
New-born	3	3	
Pediatrics	4	4	
Surgery	5	4	
Still-born	2	2	
Total	29	26	Percentage 89.6

Summary of Deaths, Examinations, Percent. July 1, 1930 to April 1, 1931.

<u>Month</u>	<u>Deaths</u>	<u>Autopsies</u>	
July - 1930	30	27	90
August	33	24	73
September	31	21	68
October	33	27	82
November	31	20	65
December	39	27	70
January	38	26	68.6
February	25	21	84
March	29	26	89.6
Total	278	218	78.4

Summary of Examinations

<u>Year</u>	<u>Number</u>	<u>%</u>
1925-26	83	53.2
1926-27	157	61.6
1927-28	152	64.7
1928-29	175	69.6
1929-30	229	74.3
1930-4-1-31	218	78.4

CASE REPORTS: Mrs. Marie Lousie #58011

I. MULTIPLE MYELOMA. CHRONIC INTESTINAL OBSTRUCTION (HYPERTROPHY).
Path. Randall.

The case is that of a white female, 38 years, admitted to University Hospitals 3-3-31 and died 3-8-31 (5 days).

Dyspnoea

July to August 1928 - Short of breath. Edema of ankles and legs. Tired.

Delivery

8-3-28 - Delivered at full term. Edema persisted for several months after this. Has never felt just right since.

BLOW

Oct. 1928 - Hit over head by falling board. Not unconscious, not knocked down, did not have to stop work.

Tumor

Dec. 1928 - Bone in the area of the skull where she had been hit is becoming soft and swollen. Not tender or painful. (Noted by patient.)

X-Ray

March 1929 - Went to Clinic where diagnosis "blood tumor" was made. Given x-ray therapy to skull. Told to return for further x-ray treatment. This she did not do. Pains in both shoulders. General weakness. All her hair came out following x-ray treatment. Swelling of head went down and left large hole in skull, (gradually healed). Rough edges could be felt. Defect became smaller.

Healed?

July 1929 - Defect in skull is completely gone. Since having had the x-ray therapy? frequently becomes nauseated and vomits!! Weakness persists but felt fairly well.

Pain

January 1930 - Has joint pains. Pains in chest and legs. Pain is vague, not severe and intermittent in character. Dizzy spells came on suddenly. After sitting down these spells pass away. No diplopia. 3-4 attacks per week. Lasted to July 1930.

Fracture

June 1930 - during a dizzy attack broke upper part of left humerus. Did not fall but threw her arm outward and it broke. Was treated for 6 weeks at the hospital. The arm healed and she has perfect use of it since. Developed severe itching of back which came from lying so long in bed in hospital?

Albumin

Was told she had kidney trouble with albumin in urine. After treatment this cleared up and later examination revealed negative urine.

Anemia

August 1930 - Malaise, weakness, anorexia. Was told she had anemia and given liver extract. Could not tolerate liver extract and had to discontinue use.

Well

Dec. 1930 - Began to feel better and thought she would get well.

Fluoridyl

3-31 - Attack of influenza. Malaise. Pain in joints, knees and elbows, com-

licated by pleurisy? on left side of chest, which caused a great deal of pain on deep breathing. In bed 4 weeks.

Course.

January to March 1931 - Gradually getting weaker, an^orexia, vomiting for several days prior to admission to hospital. No abdominal pain.

Hospital

3-3-31 - Weakness, lost 35# in weight, nausea and vomiting, malaise.

Past history

Scarlet fever at 3 years. 6 children living and well. No miscarriages.

Physical

Examination - B.P. 100/60. T 98, P 110. Woman 39 years old, lying quietly in bed, apparently in no great pain. Very emaciated and pale. No mental impairment. Skin: dry and warm. Wrinkled like old woman. Reddened ulcerated area 3 cm. in diameter over scapula. Also decubitus ulcer over buttocks. Nodes - slight right cervical adenopathy. Vascular system negative. Reflexes negative. Muscles weak and flabby.

Bones and joints

Upper half of left arm showed diffuse, soft area (fracture). Slight limitation of motion of elbows. Slight pain on extension. Left arm cannot be fully abducted. Clavicles enlarged and nodular. Right 4th rib anteriorly is also somewhat larger. Skull: Over occipital region in midline there is area about 6 cm. in diameter in which normal contour of skull is lost and appears to be flattened. Loss of concavity in this region and softened areas. Mouth: Much dental work has been done. Fetid odor to breath. Tongue coated. Lungs negative. Heart: Apex visible in 4th interspace. Heart not enlarged. Systolic murmur on both sides of sternum. P2 / A2. Abdomen: Distended and tympanitic. Rigidity present. No masses. Liver and spleen not felt.

Laboratory

3-5-31 - Urine: spec. grav. 1018. Heavy cloud albumin (Bence-Jones). 3-3-31 - Hb. 56%, RBcs 2,950,000. WBcs 6,150. P 70, L 29, R 1. Slight anochromesia, poikilocytosis, anisocytosis and polychromatophilis. Group II.

Progress

3-3-31 - General diet. T 99.6. P 115, R 26. Able to walk with some assistance, upon admission. Very weak. Could not retain food, nauseated, vomiting. 100 cc. greenish color fluid. S.S. enema expelled with poor results. 9:30 P.M. sodium bicarbonate, gr. xx, luminal gr. 1-1/2.

Acid

3-4-31 - Gastric expression (histamine mm.v.)

1st. spec.	67	- Free Hcl	5	Total	52
2nd	"	31	0	"	19
3rd	"	54	0	"	18
4th	"	53	5	"	29

X-ray

Multiple myeloma involving bones of pelvis, skull, chest and femora. (pathological fracture pubis and ribs.) Stasis (gas) in small bowel. Hb. 56%, RBcs 2,850,000, WBcs 12,750.

Stasis

3-5-31 - Takes no nourishment and very little water. Abdomen less distended than 3-4-31. No abdominal pain. Vomits dark green material. Enemas and turpentine stupes ^{give} little relief. Peristaltic rushes on auscultation. Vaginal examination negative. Rectal negative. Smear negative. B.U.N. 50. Spinal fluid: pressure 60/100. Negative. Blood Wassermann negative. Emesis several times of small amounts. 1,000 cc. 10% glucose intravenously. Eye consultation: Fundi essentially negative.

Obstruction

3-6-31 - Urine - sugar 4 plus (glucose). Albumin negative. Blood Chloride: 550, B.U.N. 58.8, Co2 64. X-ray: marked stasis of gas in small intestine. 10:40 A.M. 2,000 cc. 5% glucose intravenously. Gastric lavage 600 cc. retention. 7:15 P.M. 2,000 cc. 5% glucose intravenously. Surgical consultation: History of gas, pain in abdomen several days with vomiting. Visible and palpable peristaltic over abdomen. No pain at any time during operation. X-ray: Gaseous distention of small intestine. No gas in colon. Expels enemas. No recent fracture of ribs (no tenderness) to give spastic ileus. Vaginal examination shows a fairly large fibroid uterus. Rectal with middle finger shows a moveable mass just barely felt. Impression: mechanical obstruction (subacute) with moderate intestinal distention. Treatment depends on outlook. One course is to withhold things by mouth and give para-oral fluids then liquid and later soft diet with mineral oil. Other things being equal should have exploration now. T 100, P 120.

Expectant

3-7-31 - Warm turpentine stupe. 12:15 Emesis 200 cc. brownish fluid. 9 A.M. Gastric expression 400 cc. retention/brown fluid having foul odor. Lavage with soda bicarb. Voided 425 cc. Very weak and nauseated. 10 A.M. 2,000 cu. 5% glucose in saline intravenously. Poor day. Nauseated and general malaise. Abdomen more distended. Vomiting increasing and becoming more foul in character. Few sounds are heard over abdomen this morning but none this afternoon. Slight gas pains in abdomen. Slightly tender area over right lower quadrant. B.P. 102/60. P 100, good. T 102 (R), P 140. 2:30 P.M. intravenous 2,000 cc. 5% glucose in normal saline. B.U.N. 60.7. P.S.P. 1st hour -5%, 2nd hour 0. 6:45 P.M. Gastric lavage and 200 cc. brownish fluid, sour odor, followed by soda bicarb. 7:05 P.M. morphine sulphate gr. $\frac{1}{6}$, Atropine sul. gr. $\frac{1}{180}$.

Operation

3-7-31 - 7:20 P.M. to O. R. in semi-conscious condition. Condition poor. Spinal anesthesia (spinoaine). Stopped breathing (artificial respiration) rallied. Exploratory laparotomy done. Small intestine is found (ileo-cecal valve up) to be greatly thickened. Generalized chronic fibrosis of mesentery (appendocostomy and enterostomy done). Incision closed and given oxygen and cardiozol. Transfusion 750 cc. blood. Breathing labored. B.P. 100/110, P 130. Irrational and mentally hyperactive. 11 P.M. Condition same.

Exitus

3-8-31 - 2 A.M. B.P. 103/70. Body cold. External heat. Refuses oxygen. 3 A.M. B.P. 98/65. Restless and hyperactive. Chloral hydrate gr. xx. P 140. Unable to sleep. Large amount of drainage. Pulse weak. Respiration labored. 7:30 A.M. B.P. 80/54. Color poor. T 103 (R). 8 A.M. B.P. 70/48. Pulse weak. Body cold. 8:20 Condition poor. 8:45 A.M. Cyanotic. Pulse weak. Breathing ceased. Died suddenly.

Autopsy

(partial) Only examination of abdominal contents is allowed through operative incision. The body is that of a well developed, undernourished, young white female about 38 years old. Length 158 cm. Estimated weight 103#. Very poorly

emaciated). Rigor present. Hypostasis purplish and posterior. No edema, cyanosis or jaundice. Pupils round, regular and equal. 4 mm. in diameter. Midline abdominal incision 18 cm. in length and puncture wound in right lower quadrant 2 cm. in length. In both incisions (2 small rubber catheters). Midline incision is opened and abdominal contents explored. About 500 cc. bloody (clear) fluid, principally coming out from pelvis. Appendectomy and ileostomy had been done. Omentum adherent to several loops of bowel. Small intestine somewhat distended (not markedly so.) Large intestine collapsed and appeared normal. Small intestine is quite thickened. Walls showed chronic hypertrophy. No evidence of mechanical obstruction. Intestinal surface finely granular. No ulceration. Villi hypertrophic. Pelvic organs negative. Both kidneys were small. Cortex and medulla distinct. Showed cloudy swelling. Glomeruli not very distinct. No tumor. Spleen small. Number of stones in gallbladder wall thickened. A number of lower ribs could be palpated and were found to be fractured. Sections taken. Bone is soft and friable. Section of left ilium taken (quite friable).

Diagnosis

1. Multiple myeloma.
2. Chronic intestinal obstruction (hypertrophy) of small intestine (amyloid).
3. Ascites (bloody).
4. Cloudy swelling of kidneys.
5. Chronic cholecystitis and cholelithiasis.
6. Abrasion of left ankle and decubitus.
7. Appendectomy and ileostomy.

CASE 2. *Louis Gill #57513*

CARCINOMA OF LEFT ANTRUM WITH OSSEOUS, VISCERAL AND LYMPHATIC METASTASES.

Path. Pearson.

The case is that of a white male, 47 years, admitted to University Hospitals 1-28-31 and died 3-10-31 (41 days).

Sinusitis

July 1930 - Complained of pain in eyes, especially left. Diagnosis of sinusitis by physician.

Submucous

August 12, 1930 - Complains of pain in left antral region. Slight toothache. Submucous resection performed.

Granulation Tissue

September 12, 1930 - Excess granulation tissue removed from antrum.

Gumma?

10-1-30 - Tumor appeared in roof of mouth. Two physicians in consultation diagnosed gumma. Blood Wassermann negative. Given 4 arsenic and 2 mercury injections without effect on tumor.

10-24-30 - Referred to University Dispensary. (Eye Department) And diagnosis dacryocystitis (left side). Mercurochrome 2% injected. Hard mass in palate (left side.)

Biopsy

Biopsy - squamous carcinoma.

11-13-30 - Complains of slight pain in lumbar region. Also vague pains over

abdomen, not related to food or bowel movements. Urine negative. Hb. 86%.
 Wcs 7,600, Pms 70, E 4, L 20. Wassermann - State Board and Larson negative.
 Smear (urethral) occasional pus cell.

Rapid Growth

10-30-30 - Rapid growth of tumor for past 6 weeks. Left antrum, nostril and palate filled with tumor. Nodes on both sides of neck involved. 14% skin erythema dose to region of left face and neck in 4 treatments (8 days).

X-ray

10-28-30 - X-ray of sinuses showed a very marked pansinusitis, on left side involving especially sphenoids and ethmoids. Some thickened mucous membrane in right maxillary also present. Definite evidence of malignancy cannot be made out. Conclusion: Pansinusitis left, thickened mucous membrane (right maxillary).

12-2-30 - X-ray: Plates of sinuses made and compared with those taken 10-28-30. Marked decrease in density in all left paranasal sinuses indicating absorption or removal of pus. There is however, some evidence of thickening of mucous membrane in left maxillary sinus, and similar thickening in the right maxillary sinus as previously reported. Conclusions: Marked improvement of pansinusitis, previously reported.

Spine

12-16-30 - No definite evidence of metastases in lumbar spine. There is some increase in density along anterior superior margins of lumbar vertebrae, somewhat more marked in 5th lumbar vertebrae. Probably represents a beginning hypertrophic change. Conclusions: Slight hypertrophic arthritis of lumbar spine.

Back

12-18-30 - Dispensary note: No evidence of metastases in lumbar spine. Sodium salicylate gr. x. given t.i.d. and heat prescribed.

12-22-30 - Still complains of pain in lower back region. Not much relief from salicylate. Aolan 5 cc. intramuscularly, and diathermy over back. Prostate enlarged but shows no infection.

12-26-30 - Patient feels better. 8 cc. aolan injection.

12-30-30 - Patient feels better. 10 cc. aolan injected.

Worse

1-3-31 - Pain in back worse. Aggravated by motion. Aolan 10 cc. injected intramuscularly.

1-5-31 - Patient strapped. If no relief application of plaster jacket suggested.

Cast

1-12-31 - Diaphragm, mediastinum, heart and pleura normal. Lungs show no evidence of disease. Ribs show no evidence of disease. Conclusion: 1. negative chest. 2. Negative ribs. Plaster cast applied with moderate relief for short time. The past history is essentially negative except for gonorrhoea 3 times.

Hospital

1-28-31 - Admitted to University Hospitals. Physical examination shows a fairly well developed and nourished middle aged male complaining of pain in back. Examination of nose showed nasal congestion, mucopurulent slightly blood-stained bilateral discharge from sinuses. Old scar on roof of mouth on left side. Chest negative. B.P. 146/97. Pulse 84. Prostate enlarged. Complains of excruciating pain in lumbar region. Codeine sulphate gr. i given.

Pain

1-29-31 - Case removed. Complains of pain in back. Codeine gr. i given q.i.d.

Unable to void. Catheterized. Laboratory: Hb. 101%. WBCs 8,350, P 77, L 18.
Eye Consultation: Fundi no changes. Eye movements not normal.

Cord

Neurological consultation: Cranial nerves are negative. Knee jerks plus 2 bilateral. Ankle jerks plus 1 bilateral. Right positive Babinski, questionable left. Tendon pain and muscle pain is slightly reduced bilaterally. Strength decreased about 50% in the lower extremities. Vibration sense decreased bilaterally. Abdomen much distended and tympanitic. Abdominal reflexes appear ~~bilateral~~. -1 upper. Mid and lowers bilaterally absent. There is a hypalgesia and slight hypaesthesia below the region of the 6th thoracic segment anteriorly and posteriorly. Opinion: Cord compression at 4th to 6th thoracic vertebrae.

Retention

1-30-31 - Complains of severe pain in back. Cod. sulphate gr. i x 3. Elixir I.Q.S. i dram t.i.d. Unable to void. Catheterized 950 cc. obtained. Nasal irrigations with normal saline b.i.d. begun.

1-31-31 - Complains of severe pain in back and soreness in right scapular region. Codeine gr. 1 given 4 times. Unable to void. Catheterized 900 cc. obtained. Cascara 4 drams given. Noble's enema with good results. Urine: numerous WBCs. Spec. gravity 1014. P and T normal.

Distension - Tumor

1-31-31 -- 2-3-31 - Unable to void and has to be catheterized. Complains of severe pain in back. Codeine gr. i. given q.i.d. Abdomen distended. Magnesium sulphate 1/2 oz. b.i.d. for 1 day. Biopsy of antrum taken - diagnosis - carcinoma. Medical note shows that there is a small mass in right lower thoracic region.

2-3-31 - Complains of severe pain in back. Codeine gr. i given 4 times. Viosteral 10 drops b.i.d. Urethral smears negative.

2-5-31 - Severe pains in back. Codeine gr. i x 5 given. Some difficulty in breathing. Unable to void. Has to be catheterized. Abdominal discomfort. S.S. enema given. Fair results. Medical consultation: Extremely tender over left 6th rib in anterior axillary line. Question of metastases should be considered and metastases of spine should be considered as cause of bladder trouble.

X-ray

X-ray of thoracic vertebrae and right scapular region: Distinct hypertrophic change in lower dorsal vertebrae with some slight compression of bodies of 9-10-11th dorsal vertebrae and slight rarefaction. Some obliteration of spinal canal in region of 8th to 10th dorsal vertebrae. Density which suggests a soft tissue mass. Metastases to bodies of vertebrae themselves is very doubtful, but soft tissue mass may represent a large metastases with secondary pressure on cord.

Food

There is no definite evidence of metastases in ribs. Some deviation of the posterior pleura on left is made out in region of soft tissue mass, suggesting possibility that it has invaded thorax. Conclusions: 1. Soft tissue lesion in region of the spine. 2. Secondary atrophic and hypertrophic changes in the bodies of the vertebrae. Deep x-ray given.

2-6-31 - Abdomen distended. Noble's enema and hot turpentine stupes given with slight relief. Complains of pain in back. Cod. sulphate gr. i. given q.i.d. Urethral smears negative. Unable to void and has to be catheterized.

Furia

2-8-31 - Complains of severe pain in back. Cod. gr. i x 6. Urine - full of pus cells. AmC chloride gr. xv, urotropin gr. x given q.i.d. Unable to void and ~~catheterized~~. Has fecal incontinence. P and T normal.

2-10-31 - Complains of severe pain in back and abdomen. Cod. gr. i given. t.i.d. Morphine sulphate gr. 1/4 x 2. Urological consultation: Urinary retention due to compression myelitis from metastatic lesion of spine. Prognosis bad. Suggest: Catheterization t.i.d. or vasectomy with indwelling catheter. 2. Urinary anti-septics. 3. Force fluids. 4. Opium suppositories prn for bladder distress. Poor prognosis contraindicates other measures. Patient to deep x-ray. Catheterized and bladder injected with 1/1,000 silver nitrate. P 114, T 100.4.

2-14-31 - Complains of severe pain in back, legs and burning around the rectum. Fecal incontinence noted. Cannot void. Catheterized and boric acid solution instilled. Morphine sulphate gr. 1/4 x 5. Sod. bicarbonate gr. xx 4 x daily. Medical note: Patient now has 2 firm, rounded swellings each about 7 x 4 x 2 cm. on both lateral surfaces of the chest. Cause constricting pain of marked severity. Urine: 1008 spec. gravity. Very little pus.

Legs

2-18-31 - Complains of pain in back and legs. Morphine sulphate gr. 1/4 x 5. Opium suppository. Bladder irrigated. 1:10,000 silver nitrate. Urine: faint trace albumin, numerous pus cells. Swelling of upper left nasal region increasing almost closing left eye. Constipation requires Noble's enema.

Chest

2-19-31 - Pain in chest. Morphine sulphate 1/4 x 5. Opium suppositories. Dichloramine T to abrasion on back. S.S. enema with fair results. To deep X-ray. P 108, T 99.6.

2-26-31 - Complains of severe pain in back. Morphine sulphate gr. 1/4 given 5 times daily. Opium suppositories. Bladder irrigation of 1:10,000 silver nitrate. Urine: albumin plus 1 Microscopic negative.

3-1-31 - Voided 250 cc. (voluntary). Complains of pain. Morphine Sulphate 1/4 given 6 times daily. Atropin sulphate 1/150. Opium suppository. Bladder irrigated. 1:10,000 S.N. WBCs 3,400.

3-8-31 - Patient appears drowsy. Complains of a great deal of pain. Morphine sulphate gr. 1/4 and magnesium sulphate 1 cc. both q.i.d. Opium suppositories given 3 times. Bladder irrigated with boric acid solution. WBCs 22,950. Urine trace of albumin. 5 pus cells per h.p.f. P 130, T 105.

Exitus

3-10-31 - Complains of being tired. Difficulty in swallowing. T 106, pulse weak, and irregular. Metrozol 1 ampule given. 11:30 A.M. died.

Autopsy

The body is that of a well developed, well nourished male, 47 years old, 187 cm. in length, weight approximately 180#. No cyanosis, edema or jaundice. Hypostasis purplish and posterior. Decubitus ulcer about 4 cm. in diameter over sacrum slightly to left. Pupils 5 mm. each. Mass lateral and to left side of nose, upper pole situated at about level of lower lid of left eye and extending caud-ward for about 4 cm. or to region of nasal fold. Laterally extends about 5 cm.

On reflecting skin and muscle of chest wall, small tumor mass approximately 2 x 3 cm. in diameter is exposed at level of 5th rib. This mass is soft and adherent to sternum as well as overlying skin. On lateral side of thorax in anterior axillary line about the 9th to 11th rib on both sides, there is an oblong mass with long axis in line with the general contour of ribs, right measuring 9 x 5 cm., left 7 x 4 cm. respectively. These similarly were densely adherent to ribs and to the overlying muscle of chest. On cut section 5 masses have common characteristics of being soft, white, homogeneous and mucoid-like.

When anterior portion of thoracic cage is elevated, mass in midsternum is seen to have perforated sternum and is adherent to pericardium at base of heart. It is also seen that lateral masses are continuous with similar masses most prominent in region of 9th ribs on both sides, extending along ribs to spinal column. These vary in size from 4 cm. in diameter to 1 cm. and are bluish in color.

There are other similar masses scattered throughout chest, but not as numerous or as extensive as region described. On bisecting ribs in region of mass, it was noted that mass is firmly adherent to periosteum. It also communicates through costal interspaces. On further inspection, it is seen that periosteum is elevated, both anteriorly and posteriorly about 7 mm. and this space is occupied by similar tumor mass as well as radially constituted fibrous tissue strands. Normal red bone marrow is replaced by tumor mass.

The fat over abdominal wall is 2 cm. thick and when the peritoneal cavity was opened, it showed a normal glistening surface. APPENDIX is subcecal and free. Liver extends 7 cm. in midclavicular line and midsternal line. Anterior surface of liver shows hyaline patches.

The PLEURAL CAVITIES show moderate anthracosis of lungs. No adhesions and no fluid. The PERICARDIAL SAC is described. It is adherent to tumor mass in its upper portion but is easily freed. There is a moderate amount of sub-pericardial fat present. When opened the sac contained a moderate amount of clear fluid.

The HEART weighs 340 grams. There is moderate amount of fat over right ventricle. The valve edges are free and normal. Both CORONARY ARTERIES have origin above right cusp of aortic leaflet. There is no sclerosis present. The ROOT of the AORTA was normal.

The RIGHT LUNG weighed 300 grams, the LEFT 290 grams. There is moderate emphysema and anthracosis present. No tumor mass is found.

The SPLEEN weighs 150 grams. The pulp is red and trabeculae prominent. The LIVER weighs 1650 grams and shows numerous hyaline patches on anterior surface. The liver is examined very carefully for metastases and two are found: (subcortical) on the anterior surface, and one in region of porta hepatis. Each measured about 1 cm. in diameter. The GALLBLADDER and DUCTS are normal. The STOMACH and adjacent glands are normal except for one enlarged prepyloric gland.

The PANCREAS weighs 275 grams and presents very firm mass of tumor infiltration in midportion. The head and tail seem normal except for a small portion of tail which was adherent to right adrenal. Cut section shows mucinous and homogeneous picture previously described. The ADRENALS are normal except the left (upper pole is imbedded in tumor mass).

The LEFT KIDNEY weighs 175 grams, the RIGHT 200 grams. The capsules strip easily. Left kidney had numerous deep irregular scars in upper pole. The right kidney also had a few but they were not as prominent. Cut section shows cloudy swelling. The URETERS are normal. The BLADDER is trabeculated and shows small submucosal hemorrhages throughout. The middle lobe of PROSTATE is enlarged. A portion of spinal column is removed, including thoracic portion of 6th, 7th, 8th and 9th. To left of spinal column at this point there is a soft mass about 12 x 4 cm. closely adherent to bodies of vertebrae. The spinal cord is removed and shows infiltration of tumor at rootlets. In center of each vertebral body there is a greyish area of tumor mass present? Not confirmed.

There are a few enlarged mesenteric LYMPH NODES and involvement of retro-peritoneal nodes to region of iliac vessels. On cut section these show a similar consistency to other tumor masses. Organs of HEAD and NECK are not examined. Minimal amount of sclerosis of the AORTA is present.

Diagnosis:

1. Primary carcinoma of left antrum, with local extension and infiltration.
2. Dacryocystitis left (clinical).
3. Metastatic carcinoma of ribs, sternum, and thoracic vertebrae (para).
4. Compression myelitis of 4th-6th thoracic vertebrae (clinical).
5. Metastatic carcinoma of midportion of the pancreas.

6. Metastatic carcinoma of liver.
7. " " " retroperitoneal, and mesenteric lymph nodes.
8. Hemorrhagic cystitis.
9. Hypertrophy and trabeculation of bladder.
10. Hypertrophy of middle lobe of prostate.
11. Anomalous coronaries.
12. Cloudy swelling of liver and kidneys.
13. Old atrophic scars in left kidney (arteriosclerosis).
14. Moderate emphysema & anthracosis of lungs.
15. Dorsal decubitus ulcers.
16. Arteriosclerosis (minimal).

III. ABSTRACTS: MULTIPLE MYELOMA. Abstr. Randall.

- Ref. 1. Geschickter, C. F., and Copeland, M. M., Arch. Surg. 16, 807-863 (April) 1928.
2. Hueter, C. Beitrage fur Path. Anat. and Allg. Path. 49, 101, 1910.
3. Meyerdig, H. W., Radiology 5, 132, 1925.
4. Coley, W. B., An. Surg. XCIII 77, (Jan.) 1931.
5. Ewing, J. Neoplastic Diseases (3rd Edit.) W. B. Saunders Co., 321-326, 1928.
1. Definition: Specific malignant tumor of bone marrow, arising probably from a single cell type (plasma), with multiple foci of origin, uncommon metastases, albumosuria and fatal termination (with many variations from orthodox description.)
 2. Historical: Dr. William McIntyre saw a highly respectable tradesman, aged 45, Oct. 30, 1845 in consultation with Dr. Watson. Patient's urine had been repeatedly studied by Dr. Bence Jones who suggested addition of alum to tonics in use to check exhausting excretion of animal matter (now known as Bence-Jones protein). Later Dalrymple (Dublin Quart. J. M. Sc. June 1846) reported results of microscopic examination of two ribs. In spite of obvious priority; Rustizky (1873) (27 years later) gets credit for histologic description and Kahler (1889) (39 years later) for association of multiple tumors and albuminuria.
 3. Age: 40-70 (80%) peak at 55, same age factor as metastatic tumors. Five cases under 35. A few in children (2 to 12 years).
 4. Sex: Male (80-70-68%) Approx. M2-f1. Occurrence widespread (all countries, social strata, any clime).
 5. Frequency: .03% of all malignancy; 400 bone sarcomas (3% myeloma). Sarcoma (All types) 35% of malignancy, bone sarcoma 1%. Impression: probably not common. Mayo clinic 13 cases (1925). 15 out of 548,000 admissions (1930).
 6. Cause: unknown. Suggestions: Trauma (20%) usually slight or "recall under questioning type". Infection (often associated in same age group) febrile course used as evidence? Familial- few cases. Constitutional - because of widespread beginning.
 7. Onset: Insidious (75%) or abrupt. Usually pain (see our case). Trauma calls attention to bone lesion.

8. Clinical:

- A. Pain: usually starts as "rheumatism" wandering, intermittent, generally in back, (70%); ribs or sternum (20%); legs, arms or shoulders (5%); others (5%). Other types - neuritic (girdle or down legs). Aggravation on motion, pressure. Always subject to remissions and acute exacerbations. Sudden onset of pain may prostrate (beginning) after exertion or fall. Stages: 1. onset, 2. exacerbation, 3. recession, 4. remission, 5. extremis (average course 1-2 years.) During free interval (opiates no longer needed) think they are getting well. (see our patient). Then pain is extreme and death may be unexplainably sudden.
- B. Tumor: sometimes initial finding, usually if not always multiple (425 cases - 420 multiple, 5 single, all doubtful). Ribs, sternum or clavicle and spine (90%). Skull, femur, pelvis and humerus - less frequent in order named. Of the original (90%), 40% have other additional sites. No extremity tumor (alone). Size pin point to hazel nut (tenderness, pulsation, lump, pathological fracture). May be diffuse. May be diffuse absorption with minimal tumor formation (one of our previous cases). Original tumor if in spine often obscured by (stiffness, kyphosis) Note: stiffness, pain, tenderness in spine mean x-ray examination in elderly subjects. Other signs: parchment crepitation, spontaneous decrease, disappearance and reappearance. Impression: Results of therapy must be evaluated very carefully on this account (Coley's toxins and x-ray).
- C. Deformity: 60% thoracic - may involve pelvic girdle and extremities (pseudo-Paget). Special: sinking angle of Ludwig, wavy gladiolus, parasternal rosary, flattening of lumbar curve, telescoping, kyphosis, scoliosis. Posture protruding abdomen, bulging lower ribs on pelvis, feet apart, shoulders back, deliberate walk (often bed patient), sometimes chin rests on chest, (ulcer), tire very easily, teeth fall out, etc.
- D. Fracture 62%, (other frequencies (33% metastatic, 38% cyst), probably most frequent of all. Other diseases usually in long bones. Note: 50% in ribs in myeloma - often multiple. Some unite, others do not. No ground for belief fracture is primary.
- E. Pulmonary: Chronic bronchitis and emphysema. Painful respiration contributory. Others dyspnoea, asthma, anginoid pains, pleurisy, often terminal pneumonia.
- F. Neurologic: paraplegia with other neural disturbances (40%). Insidious onset - weakness, stumbling, bladder, myelitis, flaccid, rarely unilateral, may recede. Others diplopia, throat, radiculitis, etc. toxic neuritis? Psyche usually clear until near end.
- G. Kidney: 70% lesions not well studied, e.g. chronic nephritis (others tubular, acute) amyloid reported. Mixed with hypertension factor - Lesion usually interstitial (pyelonephritis) with patchy atrophy, exudate, atrophic and dilated tubules, albumin, decreased function, (cord kidneys?) glomerular changes?
- H. Bence-Jones albumin: 60-80%. Also found in other primary and metastatic bone tumors, osteomyelitis, leukemia, chloroma polycythemia, experimental aplastic anemia. Rare, if not unknown, outside bone disease.

Cloud in urine appears 50° - 60° C. (43° - 46° C) dissolves (90° - 100° C) reappears on cooling. Always do urinalysis in bone disease. B-J usually late, may be intermittent.

- I. Blood: anemia (75%) (Count 2.0 to 3.0) whites usually normal, 25% increase. Myelocytes may appear. Low platelet count (hemorrhage and epistaxis). J. X-ray: multiple lesions trunk, skull and proximal skeleton. Bone destruction pea to orange, osteoporosis in some, mottling, punched out, fracture (not clean) expansion, deformity.
- K. Biopsy: bleeds freely, parchment shell, dark red or grey tissue. Cell type: oval or egg shaped plasma cells. Differ from blood cell in plasma stains (blood-blue, myeloma - not blue). Others show lymphocytes, giant cells. Myelocytes and myeloblasts (transition of above). Rich in vessels, hemorrhage, eosinophiles. Tumor fuses with surrounding tissue. Cells rarely if ever circulate? *colony about 100*
9. Metastasis: usually local infiltration. Some show metastases to distant organs (multiple); every part of body may be involved. May be likened to lymphosarcoma (irregular sized cells). Most frequent site - lymph nodes.
10. Gastro-intestinal: 20% diarrhoea, colicky pains (assumed to be terminal enterocolitis) usually achylia when studied, sometimes peptic ulcer, or metastases. Outstanding when present are nausea, vomiting and colicky pains. (Note early appearance in our case.) Most observers think this is due to cord lesion, i.e. nausea without vomiting, etc. But Ewing records amyloid finding in one case in small intestine and muscles of thorax, shoulder joint. (Ref. Hueter.)

REPORT

Askanazy, 58, male, typical multiple myeloma. Stubborn obstipation, abdominal tumor, melena, sudden death. Autopsy - typical myeloma. No amyloid in spleen, liver, kidney, heart or stomach. Limited to jejunum and ileum (thick wall) fine nodular masses (like ours) fecal material, ulceration. Amyloid: perivascular in serosa, muscle (more circular) small plaques and diffuse masses caused thickness of wall, also in muscularis mucosa, ulcers (very little if any in mucosa proper). Jejunum most marked. Impression: ^{very few} ~~no other~~ cases found in literature - preliminary search and review articles. In view of similar findings in our case (thickened bowel, obstruction) it seems likely that some of 20% showing gastro-intestinal symptoms may be amyloidosis of intestine. Note: In addition to orthodox causes (osteomyelitis, tuberculosis, syphilis) amyloid may be found in Hodgkin's disease, leukemia, goiter (Hunter W.C. and Seabrook, D.B., Arch. Surg. 20, 762-767 (May) 1930). Tongue and heart (idiopathic tumors), etc.

11. Course: 1-2 years - fatal. Longest 5-1/2 years. Not influenced by therapy (See untreated course).

SUMMARY

1. Frequency .03% of all malignancy; 3% of bone sarcoma.
2. Chief clinical findings are pain, multiple tumors, deformity, fracture, pulmonary, neurological, Bence-Jones bodies, anemia.
3. Most valuable diagnostic aids are x-ray and biopsy.
4. Cell type is plasma cell with variations.
5. Usual form infiltrates locally. Others disseminate widely.
6. Kidney lesions have not been well studied.
7. Pathological fracture (trunk) is most common of all tumors.

8. Gastro-intestinal involvement occurs in 20%.
9. In our case it was due to amyloid infiltration of small intestine.
10. Course is characterized by remission (pseudo-cure) and exacerbations.
11. Disease is fatal (average 1-2 years).
12. Cause is unknown. (Trauma 20% is probably secondary).
13. Incidence by percentage of leading symptoms: a. Fatal course (100%), b. Skeletal tumors in trunk (90%), c. Age 40-70 (80%), d. Red cells under 4 million (77%), e. Males (70%), f. Lumbar pain (70%), g. Nephritis? (70%), h. Bence Jones bodies (65%), i. Pathological fracture (62%), j. Thoracic deformity (60%), k. Bronchitis (55%), l. Neural changes (40%), m. Rib fractures (32%), n. Myelocytes (25%), in blood, o. Gastro-intestinal symptoms (20%), p. Trauma (20%), q. Amyloidosis?

Note: All references are excellent, especially Geschickter and Copeland. Bibliography 1845-1928. 322 references.

ABSTRACT - TUMORS OF ANTRUM, Metastases of group and other tumors arising in head and neck to regional nodes and structures below clavicle. Abstr. Pearson. References:

1. Quick, D., S.G.O. 462-467 (Apr.) 1926. 2. Thompson, G.H., Ann. Oto, Rhin. and Laryng. 36, 715-732, 1927. 3. Simpson, B. T., Dental Cosmos (Aug.) 1927. 4. Hanson, E., Jour. Lancet 45, 105-110, 1925.
5. Schreiner, B. F., Rad. Rev. and Chicago Med. Rec. (July) 1929. 6. Schmidt (quoted by Thompson). 7. Phillips (quoted by Thompson). 8. Schreiner, B. F. Acta Rad. VII, 419-452, 1926. 9. New G. J.A.M.A. (May 9) 1920.
10. Davis E. D., Lancet (London), 1090 (Nov.) 1920. 11. Ewing, Neoplastic Dis. 3rd Edition. 12. Peyton, W. T. (personal communication). 13. Green, D. C., Ann. J. Rad. 9, 591-606 (Sept.) 1922. 14. Willis, R., J. Path. and Bact. 33, 501-1920. 15. Kettle (quoted by Fitzwilliams). 16. Broders, A. C., J.A.M.A. 74-656-664, 1920. 17. Fitzwilliams, D.C.L. The tongue and its diseases. Oxford Med. Pub. 438-443, 1927. 18. Darrance, G. M. and McShane, J. K., Ann. Surg. 88, 1007-1021 (Dec.) 1928.

Tumors of Antrum:

1. Incidence: 1.8% of all cancers (Schreiner) 2.53% - tumors of nasal origin (Ewing) Older series .021% (Schmidt 1900), Epithelioma of antrum 1.4%, adamantine epithelioma, 3% (Schreiner), Very rare (Phillips). Comment: States frequency about 2%. In advanced tumors in this region origin is difficult to establish and frequency may be greater.
2. Etiology: a. Complex embryology (many tumor types). b. anatomical factors (tendency to inflammation) (quick). c. malignant degeneration of polyp. d. epithelial rests (tooth sockets). e. Cysts. f. Trauma (Thompson). Comment: retention cysts cause pressure necrosis leaving irregularly epithelial lined cavity. Cystic osteoma predisposes. Benign polyps (recur degenerate) (Schreiner).
3. Types: a. Papilloma (benign, malignant) show growth, recur. b. Basal cell - may resemble thyroid gland, mucoid, show growth recur, belong to dental group. May invade bone and nodes. c. Cylindric cell - (common), bulky rapidly growing, eroding, ulcerating, recurs after removal. Comment: tumor described by Ewing is adenocarcinomatous or large sheets or polyhedral. Also seen in other sinuses. Very few reports by others who state squamous is common type. d. Squamous - Ewing says rare except from

invasion from without or metaplasia. Most report it as commonest.
 e. Round cell - carcinoma. F. Dental. g. Sarcoma. Comment: Older series stressed sarcoma as commonest, probably confusion with undifferentiated carcinoma (see our case). Ratio carcinoma to sarcoma (2-1). Davis 1920 39 cases: squamous 19, cylindric 7, round cell sarcoma (carcinoma?) 5, spindle cell sarcoma 2, chondrosarcoma 2, malignant melanoma 2, papilloma 3. New 1929: 129 cases: squamous 82, sarcoma 9, lymphosarcoma 4, fibrosarcoma 4, osteosarcoma 1, adenocarcinoma 6, undetermined 6, others 13. Schreiner 1929 - 45: epidermoid 38, giant cell, myxosarcoma 3, spindle cell sarcoma 2. Note: invasion may take place from regional, ethmoids involved so often origin here is questionable. Very necessary to determine type for prognosis.

4. Sex: 45 (Schreiner) 25 males, 20 females. 5 males, 6 females (Peyton, Minn.)
5. Age: 9 - 80, commonest 50-70, but may occur at any age.
6. Symptoms: (Hansen). a. Latent stage: neuralgic pains, itching, burning, pressure or weight, serous to purulent discharge, epistaxis, polypoid growths at nasal orifice, loosening of teeth in dental group. Frequently visit dentists for treatment in this stage.
 b. Deformation of maxilla: swelling of sinus walls, projects outward or into nares with more marked latent symptoms.
 c. Invasion stage: destruction of walls, hemorrhage, ulceration, involvement of skin, pharynx, orbit, skull, nodes, viscera, etc.
7. Metastases: a. Nodes angle of jaw and expansion of aponeurosis of sternomastoid muscle. 38 epidermoid, with 20, without 18 (Schreiner) 64 cases, with 19, without 45 (Windmuller) 51 cases, with 19, without 38 (Winiwarter) reported by Ewing. Comment: 40% regional metastases when first treated. b. visceral (see special notes).
8. Treatment: resection of maxilla (high primary mortality, cautery, surgical diathermy, andradium (ligation of carotid). Delay: average 8 mo. two-thirds by patient, one-third by referring physician. Extraction favorite type of previous treatment. (Peyton).
9. Results: 10% 5 year cures in all. 20+% in selected cases from radiation (best treatment). Comment: Note all features presented by our case including early distant growths. Diagnosis of gumma made without evidence. As general rule a poor diagnosis.
10. Distant Metastasis: 39 consecutive autopsies on tumors of head and neck (exclusive of cranium) 1918-31 (U of M Hospitals)

Type	Number	Metastases		Type	Number	Metastases	
		Cerv.	Visc.			Cerv.	Visc.
Carcinoma of antrum	4	2	2	Hemangioma of lip	1	1	1
" cheek	1	1	0	Melanoma of ear	1	1	1
" ear	1	1	0	" eye	1	0	1
" gum	4	4	0	" neck	1	1	1
" larynx	7	2	0	Mixt tumor of neck	1	1	0
" lip	3	2	0	Sarcoma of lip	1	1	1
" neck	1	1	0	" neck	1-7	1-5	1-6
" orbit	1	0	0				
" palate	1	0	0				
" pharynx	2	2	1				
" tongue	5	4	0				
" tonsil	2	2	0				
	2-32	2-21	0-5				

Comment: Carcinoma of antrum 4; metastases below clavicle 2; carcinoma of pharynx 2; metastases 1. Note high incidence of local metastases (carcinoma) local and general in other forms 7-6-6.

Broders (1920) 449 operations on squamous carcinoma of lip-metastases to cervical nodes 105 (23.3%) none 344 (76.6%). Also found 1 metastases to liver and 1 to lungs (.95%) each. Rupert (1930) made detailed studies of 20 epidermoid carcinomas of head and neck (solid viscera sliced 1 cm. in thickness) bloc of neck, mouth, mediastinum, fixed and then cut in five sections. Results: lower lip 5 - Metastases to local nodes 1. viscera 2.

anterior tongue	3	"	"	3,	"	2
base tongue	2	"	"	2,	"	1
tonsil	1	"	"	1	"	0
soft palate	1	"	"	1	"	1
nasopharynx	1	"	"	1	"	0
pharyngeal wall	2	"	"	2	"	0
hypopharynx	3	"	"	3	"	2
bronchiogenic	<u>2</u>	"	"	<u>2</u>	"	<u>2</u>
Total:	20			16		10

Kettle (1916) 43 autopsies on advanced carcinoma of tongue found 4 secondary growths in lungs, 2 in liver, 1 stomach, 1 axillary nodes. Rowntree (Williams) 1927, 127 postmortems on tongue cases - neck nodes 127. Others: lungs 11, liver 8, larynx 4, kidneys 4, adrenals 3, heart 2. Other nodes, pericardium, thyroid 9. Darrance, G. M. and McShane, J. K. (1928) 164 cases, 15 autopsies (none below). Comment: If all carcinomata of head and neck are included (basal which rarely metastases) the frequency is probably low. Most series report few autopsies on group probably because of low hospitalization. Note number when painstaking (mutilating) examinations are done (50%) in small series. Also higher incidence in certain locations (tongue pharynx) and probably antrum. Broders series illustrates reverse of cancer of breast (1/3 without 2/3 with) lip. (1/4 with 3/4 without) but glands should be removed routinely because of high metastases in incomplete treatment. Striking is distant deposit (distant) without local extension in all groups. Green (1922) 84 cases, 3 died of metastases (distant) without local (2 to liver, 1 to abdomen).

Summary:

1. Tumors of antrum constitute about 2% of all malignant tumors.
2. Exact frequency difficult to state because of difficulty of determining origin of late growths.
3. Cause is complex embryology (rests) and tendency to chronic inflammation (polyps).
4. Carcinoma is more common than sarcoma (2-1) recent figures.
5. May arise elsewhere (regional) in jaw and ethmoids (20-50%).
6. Sex is unimportant (small series).
7. Age factor (9-80) more common after 50.
8. Chief symptoms are pain, swelling, discharge, bleeding, node involvement. (Resemble intractable severe sinusitis).
9. Lymph nodes at angle of jaw are involved when first seen (40%).
10. Distant metastases may occur (even in absence of local involvement.)
11. Radiation (radon) (cautery, surgical diathermy ligation) is best form of treatment.
12. End results (10-20+) 5 year cures are reported. Average delay 8 months (Minnesota).
13. Old axiom "Tumors arising above clavicle never (meaning rarely) go below clavicle" may have to be revised.

14. If all tumors (epidermoid) are included figure is probably low? because of basal group.
15. Carcinoma of tongue, pharynx and probably antrum? are frequently seen in distant places.
16. Other groups (sarcoma, melanoma, hemangioendothelioma) are usually widespread.
17. Carcinoma of lip is found in nodes (23.3%) Should be removed routinely.
18. Suspect carcinoma of antrum more often and earlier diagnoses will be made (biopsy).
19. Biopsy should be repeated if diagnosis of chronic inflammation is made from edge of growth.
20. Clinical diagnosis of gumma (without biopsy or serology) is probably based on obsolete teaching (syphilis, the great mimic).

Handwritten signature
19-7-1934