



Diagnostic Radiology

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I. REPORT OF
DEPARTMENT OF DIAGNOSTIC RADIOLOGY

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PERSONNEL

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INTRODUCTION

The last report from this department was presented at Staff Meeting on October 19, 1933. Since that time certain changes have taken place in personnel, equipment, and departmental procedure which should be elaborated upon. Due to the cooperation of the Health Service new equipment for roentgenography of the chest was obtained last year. This has permitted a further expansion of the department's work in this field. At the beginning of this year a considerable amount of additional work was put upon the department by the institution of a routine roentgen examination of individuals with a positive tuberculin skin test. With the use of the previously installed equipment for the examination of the chest, we have been enabled to handle this increased load. The results of these examinations are, of course, not yet apparent. Some data may be available by the end of the year.

New equipment will also shortly be added which will facilitate the drying of films and in that way make them available more quickly. A new type of apparatus which will permit films to be made on the

Bucky diaphragm without removing the patient from the stretcher is being purchased. Special stretchers will be available for such cases in the admissions department and in the x-ray department, and patients, who are in a condition where further removal from the stretcher to another table and back on the stretcher again would be harmful, will be put upon these new specially-built stretchers. This will be of particular value in those patients who are admitted with possible fractures of the skull, pelvis, or spine, with questionable kidney stones, with questionable intestinal obstruction, etc. Such patients can be sent directly from admissions to the x-ray department on this special stretcher, have the roentgen examination made and then go to their bed without having been removed from the stretcher at any time. We believe this will facilitate the handling of such emergencies. Further announcements will be made later as to the exact utilization of this new equipment. Further new equipment is being purchased to replace a worn-out table which has handicapped our work. This will improve, particularly, our work in the technique of ventriculography and encephalography.

Perhaps the most important change in the procedure of the department is that concerned with emergencies. A new technician has been employed; this has permitted a permanent service which has eliminated to a very large extent the complaints as to service in the matter of emergencies. At the same time the number of emergencies has increased, the total number for the past three months being shown in the following table:

<u>Emergency Cases</u>			
<u>January 1, 1936 to April 1, 1936</u>			
<u>Service</u>	<u>No. Cases</u>	<u>Service</u>	<u>No. Cases</u>
Surgery	61	Peds	41
Orthopedics	8	EENT	9
Medicine	28	Neurol.	2
Obstetrics	8	Adm.	23
SHS	19	Priv.Pt.	2
Gyn.	8	Misc.	4
Urol.	9		

Number of cases - 3 months in 1936...225
Number of cases - 3 months in 1935...185

ANALYSIS OF CASES

Parts Examined	July 1, 1934		to		July 1, 1935		Totals
	Hospital	Dispensary	Health Service	Miscel.			
Abdomen	504	37	2	2			548
Ankle	116	85	16	17			234
Bladder	35	6	-	5			46
Bowel stasis	11	14	-	6			31
Cervical spine	52	90	20	21			183
Chest	2034	1652	2253	293			6232
Clavicle	14	28	4	5			51
Coccyx	7	14	5	6			32
Colon	159	374	28	44			605
Cystogram	98	13	3	1			115
Dorsal spine	106	165	32	32			335
Elbow	84	50	8	13			155
Encephalography	23	3	-	2			28
Esophagus	91	68	22	10			191
Femur	256	99	3	10			368
Fluoroscopy	555	1345	139	146			2185
Foot	96	74	13	18			201
Gall-bladder	97	512	8	27			644
Hand	69	96	25	27			217
Heart	209	27	83	22			341
Hip	167	135	12	8			322
Humerus	91	43	1	3			138
Intravenous urography	151	158	4	21			334
Bronchography	41	39	-	4			84
Myelography	3	-	-	-			3
Hysterosalpingography	2	-	-	-			2
Injection of sinuses	3	9	-	1			13
Mandible	45	51	6	11			113
Knee	149	201	13	17			380
Liver and spleen	27	6	-	14			47
Mandibular joint	5	8	-	4			17
Mastoid	157	81	-	12			250
Maxilla	9	12	2	2			25
Miscellaneous	97	90	13	9			207
Nose	2	6	3	3			14
Orbit	31	15	-	2			48
Pelvis	148	135	7	13			303
Pregnancy	111	19	-	3			133
Retrograde pyelography	82	127	1	14			224
Radius and ulna	69	44	7	45			165
Ribs and sternum	31	51	20	8			110
Lumbo-sacro-iliac spine	161	495	78	49			783
Sella turcica	38	28	3	5			74
Sinuses (paranasal)	182	488	18	31			719
Sinuses (paranasal) Iodized oil	5	46	-	3			54
Shoulder	80	114	11	17			222
Skull	212	122	16	19			369
Stomach	295	932	108	101			1436
Tibia and fibula	194	167	5	18			384
Urinary Tract	115	676	14	37			842
Ventriculography	9	-	-	1			10
Wrist	56	55	3	102			216
Total	7,384	9,105	3,009	1,287			20,785

COMMENT

The preponderance of examination of the lungs is again demonstrated in the analysis of the cases examined between July 1, 1934 and July 1, 1935. This, no doubt, will become even more marked as the routine roentgen examination of the lungs in the tuberculin positive individuals becomes more permanently established. As might be expected, the next in order of frequency is the examination of the stomach and duodenum. The urinary tract, the lower back and the gall bladder follow in close order.

The preponderance of examinations of the internal organs as compared to the bones and joints (1.5 to 1) is indicative of the character of the work of this institution. The cases which come to us are predominantly chronic and present difficult diagnostic problems in a surprisingly high percentage of cases. In private hospitals and in municipal institutions the reverse is true; examinations of the bones--particularly of the extremities--represent the major portion of the work. It is obvious that roentgen studies of the internal organs are far more difficult, time-consuming and expensive than studies of the extremities; these facts should be taken into consideration when estimating the work of this department. By way of practical illustration the following extreme comparison is cited. Using one room we could handle a maximum of ten cases for intravenous urography in the ordinary eight hour day. The cost of examining these cases would probably be approximately three dollars apiece. Using the same equipment and personnel we could handle at least one hundred cases for examinations of the wrist at a cost of approximately seventy-five cents apiece. While this contrast is extreme, it indicates the problem with which we are here confronted.

Certain striking changes in the frequency of various examinations, compared with the previous years, may be observed. The number of miscellaneous cases has increased largely because of the procedure of injecting an opaque substance into the common duct in cases in which a drainage tube has been inserted.

This examination was introduced at about that time and these are included in the miscellaneous group. There is also a distinct increase in the number of cases for encephalography and ventriculography reflecting, no doubt, an increased number of cases of neurological interest which are being admitted to the Out-Patient Department and the hospital. The examination in cases of pregnancy has increased from 30 in 1932-1933 to 133 in 1934-1935. This may be due in some measure to the attempt to diagnose placenta praevia by roentgen examination. The number of cystograms has been doubled due no doubt to the further expansion of the urological service. In this connection it is interesting to note that the number of intravenous urograms has increased from 158 to 334 - more than double while in the same period the retrograde pyelograms were reduced in number from 295 to 224. This is characteristic of the trend throughout the country.

COMPARISON OF CASES BY YEARSNumber of Cases

	1930-31		1931-32		1932-33		1933-34		1934-35		1935-36 (Computed from 8 Mos.)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Hosp.	7048	55%	7470	46%	9617	48%	8498	43%	7384	35%	8610	37%
Disp.	3561	28%	4567	28%	6568	33%	7436	38%	9105	44%	9498	40%
S.H.S.	1297	10%	3180	19%	2470	12%	2296	12%	3009	15%	4035	17%
Misc.	884	7%	1093	7%	1471	7%	1362	7%	1287	6%	1350	6%
Totals	12790		16310		20026		19602		20785		23493	

COMMENT

It may be noted that since our last report in which there was an increase of almost 60% in the number of cases examined between 1930-1931, and 1932-1933, the quantity of work has been somewhat more stabilized. During the past eight months, however, there was an increase of at least 13% in the number of cases compared to a corresponding period of the previous year. For last year it showed as a whole an increase of only about 5% over the previous year.

COMPARISON OF NUMBER OF PATIENTS WITH NUMBER OF X-RAY EXAMINATIONS

	1930-31		1931-32		1932-33		1933-34		1934-35		1935-36 (Computed from $\frac{1}{2}$ year)	
	No.	% of increase	No.	% of increase	No.	% of increase	No.	% of increase	No.	% of increase	No.	% of increase
Total number	12,790		16,310	28%	20,026	57%	19,602	53%	20,785	64%	23,493	83%
x-ray cases	6,437		6,824	6%	7,594	18%	7,610	18%	8,860	37%	6,800	5%
Number hosp. patients	7,048		7,470	6%	9,617	36%	8,498	21%	7,384	5%	8,610	22%
No. hosp. x-ray cases	17,924		18,623	4%	20,666	15%	19,849	10%	21,390	19%	20,744	15%
No. out-pat. x-ray cases	3,561		4,567	29%	6,568	86%	7,436	110%	9,105	158%	9,498	167%

COMMENT

This table presents graphically the relative increase in x-ray examinations during the past five years as compared to the increase in patients. Reliable figures for the years preceding 1930-31 are not available but what figures there are indicate that the relative increase in the number of x-ray examinations between 1927-28 and 1930-31 was even more startling. A comparison of the percentage increases in the last column of the table tells very briefly the story of the increasing use of the roentgen method of examination.

The expense of roentgen examination should cause the staff to consider the remarkable increase which has taken place in the number of x-ray examinations compared to the relatively small increase in the number of patients. The fact that the number of examinations in the Out-Patient Department is almost double that of

1930-31 while the number of patients has only increased by a small percentage, indicates that the increased utilization of the x-ray method is largely responsible for the increase in the number of examinations. On the other hand it should be borne in mind that extensive use of the x-ray method can diminish, to some extent at least, the number of beds available, because of the limited character of the hospital support funds from the counties. These may be so diverted to diagnostic procedures as to reduce the amount available for the support of hospital beds. It is evident that a large part of this relative increase in the number of x-ray examinations is due to the expansion of this method into various fields. With each new procedure which is prescribed, a new set of examinations occurs. An excellent illustration of this, as stated above, is the utilization of the cystogram in the diagnosis of placenta praevia. Likewise the introduction of opaque substances into the common duct after drainage has led to an increased number of x-ray examinations.

The striking difference in the percentage increase in the hospital cases as compared to the out-patient department is due, we believe, to the activities of the admissions service. In order to save hospital beds many of the x-ray examinations which would ordinarily be done in the hospital, are ordered through the out-patient department. The effort to accomplish most diagnostic procedures before entrance permits, naturally, a much greater turn-over in hospital beds which are thus being utilized largely for therapeutic purposes. This trend is no doubt sound and explains the apparent discrepancy in the figures.

It may be pointed out in this connection that a study of our gastro-intestinal x-ray examinations over a five year period revealed that about 36% of the cases examined showed x-ray evidence of abnormality. This is considerably higher than in most institutions of this character and serves to demonstrate that an intelligent selection of cases, in this division at least, is being made.

In order to acquaint the staff with

the nature of the newer methods in roentgen diagnosis, the following review of progress in roentgen diagnosis was prepared. In addition illustrative case reports are presented to demonstrate to a limited extent, these procedures.

RECENT ADVANCES IN ROENTGEN DIAGNOSIS

Diagnostic roentgenology, one of the youngest of the medical sciences, has long since achieved a position among the fundamental branches of clinical medicine. Already indispensable to most of the specialties, its continual development steadily widens its sphere of usefulness. The period of sensational progress immediately preceding and following the war has passed, and while an occasional new field of research is discovered, most of the present work is directed toward elaborating on and consolidating the existing knowledge, and evolving new and refined techniques.

The most fertile field of progress lies in the injection of various organs with radio-opaque substances, Hepato-lienography, with the intravenous injection of thorostrast, a colloidal preparation of thorium dioxide, is one of the most recent. The particles are picked up by the reticulo-endothelial cells of the liver and spleen and thus allow their visualization. Tumors, anomalies, fibrosis, and other diseases may be demonstrated. This method also affords a new approach to the study of the physiology of the spleen, by the measurement of changes in its volume in response to various drugs. Unfortunately thorostrast remains permanently within the liver and spleen, a fact which at present restricts its application.

In larger doses thorostrast may be used to visualize the bone marrow. Some success has been achieved in animals in visualizing inflammatory processes in bone based on the fact that reticular cells increase in areas of inflammation. This may assist in the future in differentiating obscure neoplastic processes from inflammation but the doses used

make it impractical at present.

Cholangiography. The injection with thorotrast of the common bile duct, following biliary tract surgery is a promising procedure. Obstructions and dilatations of the duct system, both extra- and intralepatic, can readily be determined and often stones can be identified. The pancreatic duct is occasionally seen.

Neurography, the injection with thorotrast of the perineurium of peripheral nerves is a development of the past year. Applied particularly to the ulnar nerve it will localize injuries of the nerve and will outline neurinomas. The media flows in the fibrous sheaths of the nerve both centrally and peripherally.

Intravenous urography, introduced in 1928, has since become universal. It is invaluable in determining anomalies of the urinary tract and in cases where retrograde pyelography is impossible or contraindicated. While it cannot supplant the latter, it is a most important adjunct and often will save the patient from undergoing cystoscopy.

Arteriography, the injection of arteries with thorotrast or iodide preparations is relatively new. By this means diseases such as arteriosclerosis, thromboangiitis obliterans, Raynaud's disease and peripheral aneurisms, can be studied. The extent of the vascular damage and collateral circulation are well portrayed. Similar injections of veins have been made in study of varicose veins.

Arthrography, the injection of joints with opaque solutions is used particularly in the knee joint for study of the capsule, joint bodies, and diseases of the cartilages. Most solutions cause some irritation of the synovia. Hippuran is the least irritant.

Encephalography and Ventriculography are no longer new procedures but steady progress is being made in the establishing of the finer details by which early lesions are to be recognized in the

future.

Numerous other methods for the roentgen demonstration of various structures by the introduction of contrast media might be enumerated. Amongst the most recent of these procedures are: ventriculography with opaque substance, the injection of thorotrast or lipiodol directly into the ventricles of the brain; cerebral arteriography, the injection of thorotrast into the internal carotid artery to demonstrate the vessels of the brain; aortography, the injection of thorotrast directly into the abdominal aorta; amniography, the injection of strontium bromide directly into the pregnant uterus for the demonstration of the placenta (very seldom used).

In the field of the digestive tract various refinements in technique have been developed. Demonstration of esophageal varices is now a fairly reliable procedure. The roentgen diagnosis of terminal ileitis is well established. The flat plate of the abdomen in acute abdominal conditions, particularly intestinal obstruction, is now routine. Intensified oral cholecystography whereby larger amounts of dye are given in two or more doses, has increased the accuracy of this method in different cases.

In obstetrics the roentgen diagnosis of placenta praevia by demonstration of separation between the fetal head and the iodide containing bladder, has been worked out by Ude and Urner at the Minneapolis General Hospital. A negative diagnosis is very reliable; a fairly high percentage of positive diagnoses are accurate.

Methods of measurement of the maternal pelvis and fetal head are being improved. With the Ball pelvicephalometer an accuracy is possible of within 2 cm. in 100% cases and of 1 cm. in 85%.

Soft tissue radiography of the breast is another interesting field. Carcinoma and non-malignant conditions have been differentiated with an accuracy

of 85-90%. Carcinoma presents the shadow of a single mass with hazy borders and linear infiltration of surrounding tissue. The various types of mastitis and cystic disease are often multiple, and displace but do not infiltrate the normal tissues.

Kymography is a recent development whereby the movement of muscular viscera can be observed. It is applied chiefly to the heart. By making a long exposure with a moving grid in front of the plate a series of superimposed shadow of the heart of different sizes is obtained. The margins are serrated representing the amplitude of the pulsation. By this method the auricular and ventricular pulsations may be differentiated on a film and the extent of these chambers determined. Pathological pulsations such as fibrillation are readily detected.

The roentgenological phase in newly discovered clinical syndromes also bears mention. The roentgen findings in hyperparathyroidism are now well established: the diffuse osteoporosis, the multiple cystic areas in the bones, and the calcifications in the kidneys. Likewise with the development of the clinical conception of petrositis associated with mastoiditis, the roentgen findings have been described. To this list may be added the rectal strictures of lymphogranuloma inguinale, terminal ileitis, Cushing's syndrome of pituitary basophilism, and silicosis. In this latter disease roentgen diagnosis is of paramount importance in diagnosis and control.

This briefly sketches the main trends in the field of roentgen diagnosis today. Many have not been mentioned. Some will not stand the test of time. But all are an expression of the eternal search for new knowledge, that characterizes a vital and growing branch of medical science.

CASE REPORTS

ENCEPHALOGRAPHY

Case . . .
Female, age 4 yrs.

Symptoms: child had been irritable since age of one and has urinary incontinence, impairment of vision, personality changes.

Physical findings: bilateral optic atrophy, nystagmus, urinary incontinence.

Lab. findings: leucocyte count, 16,250. Wasserman blood and spinal fluid neg. Spinal fluid pressure 300 mm., clear, no cells, Nonne 76.4.

Roentgen findings: (1) absence of dorsum sellae and posterior clinoid processes without other erosion. (2) Marked hydro-cephalus of lateral and third ventricles. Third ventricle pushed upward, compressed markedly, while aqueduct of Sylvius and fourth ventricle are displaced posteriorly.

Conclusions: supra-sellar midline tumor, either of floor of third ventricle or of thalamus.

Course: discharged because of inadvisability of surgery.

VENTRICULOGRAPHY

Case 1 . . .
Male, age 29.

Symptoms: severe headaches right frontal, three months; attacks of unconsciousness lasting 5 to 45 minutes; vomiting; increasing mental dullness; lately incontinence.

Physical findings: bilateral choked

discs; increased reflexes left knee and ankle; positive Babinski, left; loss of pupillary light reflex.

Roentgen findings: left lateral ventricle dilated and displaced to left; right lateral ventricle smaller, displaced to left of midline; anterior horn of right ventricle markedly compressed and encroached upon by a mass lying in front and to the right of it.

Conclusions: tumor of right frontal lobe, anterior, lateral and above the anterior horn of right ventricle.

Surgery: large tumor in right frontal lobe with probable involvement of parietal lobe; removed almost completely.

Pathology: astroblastoma.

Course: x-ray therapy; symptomatically almost completely recovered.

MYELOGRAPHY

Case
Female, age 53 yrs.

Symptoms: began to fall while walking one year ago; now has tingling in both legs, up to hips, jerking of toes, cannot walk unassisted nor stand long.

Physical findings: paresis of both legs, more marked on right; impairment of sensitivity both lower extremities to light touch, pain, and temperature; some impairment of vibration sense, position sense; muscle and tendon pain; reflexes hyperactive in lower extremities; Babinski positive bilaterally. Findings suggest tumor at level of 11th - 12th thoracic vertebrae.

Roentgen findings: iodized oil (1 cc.) injected intracisternally was obstructed almost completely at the level of fifth thoracic vertebra.

Conclusions: extra-medullary tumor at level of fifth thoracic vertebra.

Surgical findings: extra-medullary tumor on right dorsal side of cord compressing and displacing cord to left and anteriorly.

Pathology: meningioma.

Course: patient able to walk alone and improving rapidly with return of sensation to limbs.

BRONCHOGRAPHY

Case
Male, age 49 years.

Symptoms: shortness of breath, chronic cough for two years; recently blood streaked sputum, night sweats, loss of weight, pain in chest, weakness.

Physical findings: clubbing of fingers, flatness to percussion, absent breath sounds over right chest.

Lab. findings: Hemoglobin 64%, erythrocytes 3,680,000; leucocytes 16,800.

Roentgen findings: atelectasis, extreme, right upper lobe; bronchography shows filling defect in right main stem bronchus just at orifice of upper lobe bronchus.

Conclusions: probable carcinoma right upper lobe bronchus.

Bronchoscopy: stenosis right main bronchus; probable tumor right upper lobe bronchus; biopsy.

Pathology: squamous cell carcinoma.

Autopsy: Polypoid carcinoma right upper lobe bronchus extending to orifice; marked atelectasis and bronchiectasis right upper lobe; metastases to mediastinal lymph nodes.

Case A.J.
Male, age 50 years.

Symptoms: shortness of breath for two years following "pneumonia"; six months ago had "pneumonia" again, followed by increased dyspnea and extreme weakness; unproductive cough; occasional pain left chest; lost 37 lbs. in weight during past year.

Physical findings: dullness entire left side of chest with diminished breath sounds.

Lab. findings: hemoglobin 78%, erythrocytes 4,100,000, leucocytes 14,300.

Roentgen findings: diffuse density of entire left hemithorax, probable elevation left diaphragm and retraction of mediastinum to left; bronchography with lipiodol shows complete occlusion of left main bronchus about $2\frac{1}{2}$ cm. below bifurcation.

Conclusions: carcinoma left main bronchus with extensive atelectasis left lung.

Bronchoscopy: lesion in left main bronchus near bifurcation; biopsy done.

Pathology: bronchial carcinoma.

Course: pneumothorax attempted but unsuccessful; x-ray therapy followed by general improvement, gain in weight, but no change in roentgen findings.

INTRAVENOUS UROGRAPHY

Case
Male, age 55 years.

Symptoms: pain in right renal region; hematuria for five months.

Cystoscopic findings: blood from right ureter.

Roentgen findings: intravenous urography reveals normal left kidney pelvis; right kidney pelvis dilated with filling defects extending into major calyces; right ureter failed to fill.

Conclusions: neoplasm of right kidney.

Surgery: papillary carcinoma right renal pelvis; nephrectomy; later ureterectomy done.

Course: radiation therapy; symptom free.

Case
Male, age 58 years.

Symptoms: burning urination for one month; frequency; pus in urine; few drops of blood in urine at end of urination; loss of weight.

Physical findings: enlarged prostate; infiltration in region of seminal vesicles, blood pressure 152 systolic, 94 diastolic.

Roentgen findings: intravenous urography reveals normal left renal pelvis with spasm; right renal pelvis dilated; right ureter dilated; large defect on right side and at base of bladder.

Conclusions: carcinoma of bladder; moderate hydronephrosis and hydro-ureter, right.

Cystoscopic findings: tumor right side bladder.

Pathology: biopsy shows squamous cell carcinoma.

Course: radium seeds implanted; x-ray therapy; exitus six months later.

Autopsy findings: carcinoma of bladder with wide metastases and extension to surrounding tissues; pyonephrosis and gangrenous cystitis; pelvic abscess.

PLACENTIA PRAEVIA

Case
Female, age 29 years.

Symptoms: pregnant, 8 months; for

two months has had intermittent vaginal bleedings; for 24 hours crampy pelvic pain and increased bleeding.

Physical findings: evidence of pregnancy of about 8 months gestation; all other findings normal.

Roentgen findings: single fetus with occiput, left, posterior presentation; cystogram shows marked separation between head of fetus and superior surface of bladder; soft tissue shadow appears in this area.

Conclusions: placenta praevia.

Course: ten days later very profuse hemorrhage; vaginal examination revealed marginal placenta praevia; Voorhees bag inserted; version and extraction of normal infant; uneventful recovery.

CHOLANGIOGRAPHY

Case

Female, age 60 years.

Symptoms: began one and one-half years ago with pain right upper quadrant, nausea, vomiting, chills, fever, jaundice, had cholecystectomy 16 years ago; radical mastectomy for carcinoma six months ago.

Physical findings: tenderness right upper quadrant.

Roentgen findings: non-functioning gall bladder but not significant as patient was jaundiced.

Surgery: multiple stones found in common duct; T tube inserted.

Roentgen findings: thorotrast injected in T tube; common duct dilated, hepatic ducts dilated; large filling defect distal end common duct just above ampulla; no obstruction.

Conclusions: dilatation of common duct with large stone at distal end.

Surgery: stone removed from common duct.

Roentgen findings: thorotrast filling of T tube shows no further evidence of stone in biliary tract; common duct still dilated.

GASTRIC LESIONS

Case

Female, age 70 years.

Symptoms: epigastric pain, nausea, vomiting for 20 years; tarry stools for last six weeks; loss of 20 lbs. in weight the past six months.

Physical findings: dehydrated, anemic, very weak.

Lab. findings: hemoglobin 46%, erythrocytes 2,200,000, leucocytes, 8,500.

Stomach contents on entrance: total acids 8, free HCl, 0.

Stomach contents after two weeks: total acids 66, free HCl, 54.

Roentgen findings: first examination, large gastric ulcer, lesser curvature, middle third, with marked obstruction at pylorus, almost complete retention; second examination after treatment, obstruction greatly reduced, gastric ulcer much smaller, pyloric ulcer, duodenal ulcer.

Conclusions: benign gastric, pyloric, and duodenal ulcers with obstruction, active.

Course: very satisfactory under treatment with gain in weight but continued moderate obstruction.

Surgery: gastroenterostomy; ulcers found as described.

Course: apparently cured, no further gastrointestinal complaint, gaining weight. Reexamination shows gastroenterostomy functioning well, gastric and pyloric ulcers healed, duodenal deformity.

Case .
Male, age 42 years.

Symptoms: epigastric distress 15 years, coming on two hours after meals, relieved by food, increasing for past five years; diagnosis of gastric ulcer two years ago but no relief on treatment; for one year pain more severe; nausea and vomiting; loss of ten lbs. weight.

Physical findings: tenderness in epigastrium.

Lab. findings: Hemoglobin 91%; leucocytes, 10,350; stomach contents, free HCl acid 10, total acids 16; occult blood in stools.

Roentgen findings: three examinations, defect in prepyloric region on greater curvature, constant, not increasing in size.

Conclusions: very small carcinoma pyloric region, well localized.

Surgical findings: gastric resection, extremely small, hard lesion confined to pyloric end of stomach; one hard lymph node in gastro-colic omentum removed.

Pathology: small area infiltration of mucosa, prepyloric; pylorus infiltrated; scirrhus carcinoma, very small size, with metastasis to lymph node.

Course: patient recovered fully, regained weight nad has been apparently entirely well for one year.

Case .
Male, age 69.

Symptoms: noticed lumps in submaxillary region five years ago; later lumps in neck; 3 yrs. ago enlarged masses appeared in axillae; loss of weight 20 lbs; 2 yrs. ago developed epigastric distress after eating, acid eructations, loss of appetite, constipation.

Physical findings: masses in region of lacrymal glands in upper eyelids;

masses in submaxillary areas; extensive masses in neck, floor of mouth, mucous membrane of cheek, both parotids, both axillae and inguinal regions; liver and spleen not palpable; later spleen enlarged and readily palpable.

Lab. findings: first examination, Hemoglobin 85%, leucocytes 9,000, p.m.n. 52%, lympho. 44%, mono. 4%; Second examination, leucocytes 5,100, p.m.n. 39%, lympho. 56%, mono. 4%.

Pathology: biopsy of cervical node indicates leukemic infiltration.

Roentgen findings: extreme hypertrophy of mucous membrane of stomach, rugae of giant size. Similar changes in esophagus, duodenum, and to a much less extent in colon.

Conclusions: diffuse leukemic infiltration of stomach.

Course: lymph nodes and other infiltrated masses respond well to radiation therapy, disappear and reappear over a four year period. Radiation to stomach produces marked relief of gastric symptoms and marked reduction in size of rugae of stomach.

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SUGGESTIONS FOR BETTER SERVICE

1. Fill out request blank completely. This will save time for you, the nurses, and the technicians.

2. Use the proper blank for each examination. Attention is particularly called to the special form for urological cases and the yellow form for routine chest examinations. Shortly there will be available a special blank for gastro-intestinal cases.

3. Please indicate on request whether patient is private, county or per diem. Private cases should receive special handling and we have no way of knowing, unless it is indicated on the

request.

4. See that requests for emergency cases reach the x-ray technician promptly. Many of these requests do not come to us until the following day, and the examination is then needlessly repeated.

5. Reserve emergency requests for true emergencies. Failure to have certain examinations made in time for staff rounds does not constitute an emergency.

6. Special examinations, such as intravenous urography, ventriculography or encephalography, cholangiography, bronchography, injection of draining sinuses or pneumo-peritoneum must be scheduled in advance by calling the technician. Certain of these procedures cannot be done at all times and it is imperative that we know beforehand.

7. Exercise care to prevent needless duplication of examinations on the same patient. This is particularly likely to occur when a patient is transferred from one service to another or from out-patient to in-patient service before the x-ray report has been posted on the chart.

8. Bear in mind that examinations of the stomach and duodenum are done on Monday, Wednesday, Friday, while colons are done on Tuesday, Thursday, Saturday. When it is imperative this schedule may be changed but only in exceptional cases.

9. Avoid telephoning for reports if it is at all possible. Frequently during rush periods or when some of the departmental personnel is ill, posting of reports may be delayed simply because of the press of work. Frequent telephone demands for reports merely prolong the congestion in the department as they take so much time from the already over-worked clerks.

10. Please do not request any more films for clinics than are absolutely necessary. The labor of finding and refiling films used in clinics is tremendous and a little thought in the preparation of the lists of cases will be most helpful.

11. Films removed from the wet film room before processing is complete must

be returned at once. Carelessness in the handling of such films may result in the loss of an important record-- just as valuable to you as to us.

12. Do not attempt to refile case cards or films or replace films in envelopes.

13. Please report promptly any complaints as it is most difficult to determine the source of any poor service if a long time has elapsed before it is reported.

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II. MEETINGS

1. MEETING OF AMERICAN MEDICAL ASSOCIATION

Kansas City, Mo. May 11 - 15, 1936

Hepatosplenography by Means of Stabilized Thorium Dioxide Sol (Lantern Demonstration)
Wallace M. Yater and Laurence S. Otell,
Washington, D. C.
Discussion to be opened by Leo G. Rigler, Minneapolis.

Adenocarcinoma of the Orbit (Lantern Demonstration).
William L. Benedict, Rochester, Minn.
Discussion to be opened by Martin Cohen,
New York, and Walter E. Camp,
Minneapolis.

Iridectomy with Cyclodialysis for Reduction of Ocular Tension (Lantern Demonstration).
John M. Wheeler, New York.
Discussion to be opened by Allen Greenwood, Boston, and Frank E. Burch, St. Paul.

The Galvanic Falling Reaction in Patients with Verified Intracranial Neoplasms (Lantern Demonstration).
Loyal Davis and Edwin J. Blonder,
Chicago.

The Vestibular (Barány) Tests in the
Diagnosis and Localization of Intra-
cranial Lesions: A Report of Fifteen
Proved Cases (Lantern Demonstration).

George M. Coates, Benjamin H. Shuster
and Herman B. Slotkin, Philadelphia.

Discussion on papers of Drs. Davis and
Blonder and Drs. Coates, Shuster and
Slotkin to be opened by Winchell McK.
Craig, Rochester, Minn.; Claude T.
Uren, Omaha, and John C. McKinley,
Minneapolis.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Executive Committee:

William Carpenter MacCarty,
Rochester, Minn.

Elias P. Lyon,
Minneapolis, Minn.

Henry C. Sweany, Chicago.

Cutaneous Lesions Associated with Mono-
cytic Leukemia and Reticulo-Endotheliosis
(Lantern Demonstration).

Francis W. Lynch, St. Paul.

The Relation of Diet to Skin Infection:
A Study of the Influence of High and Low
Carbohydrate and High Fat Intakes and
Starvation on Experimental Pyogenic Skin
Infections in Dogs (Lantern Demonstration)

Donald M. Pillsbury and Thomas H.
Sternberg, Philadelphia.

Discussion to be opened by John F. Madden, 2.
St. Paul.

Extracellular Cholesterinosis (Lantern
Demonstration).

Carl W. Laymon, Minneapolis.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

Executive Committee:

Albert F. R. Andresen,
Brooklyn, N. Y.

Walter A. Fansler,
Minneapolis.

Ernest H. Gaither,
Baltimore.

Disseminated Polyposis of the Colon
(Lantern Demonstration).

Charles W. Mayo and E. G.
Wakefield, Rochester, Minn.

Discussion to be opened by Frank H.
Lahey, Boston, and Walter A.
Fansler, Minneapolis.

Leukemia of the Stomach Producing
Hypertrophy of the Gastric Mucosa
(Lantern Demonstration).

Leo G. Rigler, Minneapolis.

SPECIAL EXHIBIT ON FRACTURES

Demonstrating Committee

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Vernon L. Hart, Minneapolis.

Habitual Hyperthermia.

H. A. Reimann, Minneapolis.

Discussion to be opened by Russell
Wilder, Rochester, Minn.

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2. AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Atlantic City, N. J.

May 4, 1936

The Coproporphyrin of the Urine and
Feces under Normal and Pathological
Conditions.

C. J. Watson

3. CENTRAL CLINICAL RESEARCH CLUB

Meeting of April 18, 1936

University of Minnesota Medical School,
Minneapolis.

Millard Hall, Room 129

T E N T A T I V E P R O G R A MMorning Session

- 9:00 A.M. The cause of death in bile peritonitis.
Melville H. Manson
(20 minutes)
- 9:25 A.M. Observations on early diabetes treated with low fat - moderately high carbohydrate diet.
B. A. Watson
(20 minutes)
- 9:50 A.M. Methods of evaluating the results of cancer therapy.
L. J. Jacobs and
K. W. Stenstrom
(20 minutes)
- 10:15 A.M. Diphtheria immunization in college students.
Ruth E. Boynton
(20 minutes)
- 10:40 A.M. Osteochondroma of brain. Case Report.
Royal C. Gray
(15 minutes)
- 11:00 A.M. Childhood tuberculosis.
C. A. Stewart
(25 minutes)
- 11:25 A.M. Experimental tuberculosis.
B. J. Clawson
(20 minutes)
- 12:15 P.M. LUNCHEON - MINNESOTA UNION

Afternoon Session

- 2:00 P.M. The transplantation of additional pituitary glands and the effects produced.
Raymond F. Blount
(20 minutes)

2:25 P.M. Pituitary basophilism.
Report of 3 cases.
Richard Johnson
(20 minutes)

2:50 P.M. New observations on the sphincter choledochus (Oddi)
Edward A. Boyden
(20 minutes)

3:15 P.M. Studies on micrococcus tetragenus.
Hobart A. Reimann
(20 minutes)

3:40 P.M. Cysticercosis of the central nervous system.
A. B. Baker
(25 minutes)

4:10 P.M. Subclinical forms of glomerulonephritis
E. T. Bell
(25 minutes)

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4. THE MINNESOTA PATHOLOGICAL SOCIETY

Institute of Anatomy

Tuesday, 8:00 P.M. April 21, 1936

Tumors of the Thymus in Myasthenia Gravis.

Dr. E. H. Norris

Myasthenia Gravis: Clinical Symptoms, Therapy and other Features.

Dr. W. M. Boothby

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5. UNIVERSITY OF MINNESOTAINTERDEPARTMENTAL SEMINAR
FOR MEDICAL RESEARCH

Eustis Amphitheater,
Wednesday, April 22, 1936. 8:00 P.M.

Gastroscopy: A valuable method of
gastric examination.

Arthur C. Kerkhof
(20 minutes)

Principles underlying the treatment of
gastric and duodenal ulcers.

Waltman Walters
(25 minutes)

Roentgen studies in gastritis.

Russell Morse
(20 minutes)

Experimental perforation of the gastro-
intestinal tract in dogs.

George S. Bergh, and
Warner F. Bowers
(20 minutes)

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III. ANNOUNCEMENTS

1. ROBERT R. KIERLAND, M.D.

announces the
opening of an office
for the General Practice of Medicine

at

635 Medical Arts Building
Minneapolis

Office Hours:
11:00 until 2:00 and
by appointment.

2. DR. EDWARD SCHONS

Announces the association with him of

DR. JOHN PAUL MEDELMAN

in the Practice of Radiology

572 Lowry Medical Arts Building
Saint Paul, Minnesota

Open House at the Office

2 to 5 P. M.

Saturday, April 18th.

IV. MOVIE

Title: Marching with Science

Released by: Fox Film Corp.

V. LAST WEEK

Date: April 9, 1936

Place: Recreation Room,
Nurses' Hall

Time: 12:15 - 1:30

Program: Movie: Finer Points
Gastrojejunal Ulcer

Present: 125

Discussion: L. G. Rigler
Gatewood
O. H. Wangensteen

Gertrude Gunn,
Record Librarian