

GENERAL STAFF MEETING  
MINNESOTA GENERAL HOSPITAL  
UNIVERSITY OF MINNESOTA

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## I. NEWS

### 1. Difference:

On a recent visit to Hospital X, we learned of the difference between the Staff of the Minnesota General Hospital (University Hospitals) and their Hospital. Out here we are supposed "to know a great deal and not do very much while down there they do not know so much but do a great deal."

### 2. Consumptive Girls:

According to Time, XXI, No. I; 20, (Jan. 2) '33, we may be wrong in ascribing higher female mortality rates in pulmonary tuberculosis to dieting, gadding, under-dressed flappers. Twice as many young women as young men between the ages of 15 and 24 die from tuberculosis. Edna E. Nicholson, investigator, discovered type who died from tuberculosis in 1929 by studying patients, interviewing physicians and relatives of 678 girls who died of this disease in New York City.

"She is not the girl who gads about drinking, smoking, and concentrating on wild parties. Neither is she a diet fadist, nor does she overstrain herself in athletics. She is not a down-trodden factory worker from the slums. She is apt to be third in a family of five children, one of whom died fairly young. Her father is engaged in some form of manufacturing or mechanical industry and her mother does not work outside the home. The family's income is in the neighborhood of \$50 a week, on which they live comfortably in a six-room house or apartment, and the girl spends her entire life at home.

"She starts to school at the usual age and leaves shortly before her sixteenth birthday. Within a few months she goes to work in an office which is about 30 minutes traveling distance from home. For almost two years she does clerical work about seven and a half hours a day, five and one-half days a week. She wears the usual type of clothing, including light weight hose and underwear, and a heavy coat which her parents are satisfied is adequate.

"Throughout her life she has a good appetite and does not diet. She is regard-

ed as a fairly quiet 'home girl,' who does not keep irregular hours and averages between eight and nine hours sleep a night. She first menstruates when about 14 years of age; has never married nor had history of pregnancy. She has not, to the knowledge of her family, ever been in close contact with an active case of tuberculosis (?). When out of school a little over 3 years and working almost 2, the first recognized symptoms of tuberculosis appears. She consults a physician within a month, and three or four weeks later the diagnosis of tuberculosis is made. She does not attend a clinic but spends almost six months in a tuberculosis sanatorium or hospital. In about a year after the first recognized symptoms of tuberculosis, and when under medical supervision less than a year, she dies".

Comment: It is apparent that at least one explanation of difference in mortality rates in males and females is biological and not environmental (habits, diets, etc.). This takes a great deal of wind from the sails of public health lecturers who have insisted that the difference was due to manner of living of the females.

3. Fat flies: Russell M. Wilder who delivered first of series of Mayo Foundation lectures at University on January 31, 1933, emphasized high death rate in fat people past forty from pneumonia, arteriosclerosis, heart failure and diabetes. Wilder following conclusions of Evans, S. A. and Strang, J. M. "The Treatment of Obesity with Low Caloric Diets", J.A.M.A. 97: 1063-1068, (Oct. 10), '31 believes that basal metabolic rate is normal according to usual tables but that surface area is increased markedly due to inert fat. This means normal? basal metabolic rate is really equivalent to +30 to 40 and puts corresponding strain on heart and blood vessels similar to hyperthyroidism.

In original contribution,

**Pittsburgh** authors summarize their observations as follows: 1. The excess weight of the obese is inactive storage tissue. 2. The level of oxygen exchanged in the obese is high when related to ideal weight which is a measure of actively functioning body tissue. 3. Diets containing 1 gm. of protein and 0.6 gm. of carbohydrate per kilogram of ideal weight (lean meat and 5% vegetables), and no fat other than that inseparable from protein ration afford menus of 400-600 calories a day. 4. On this diet, the obese lose weight rapidly, are not hungry, report increased feeling of well-being and resistance of fatigue. 5. Various minor disorders promptly disappear. 6. Satisfactory clinical results are obtained because only inactive excess fatty tissue is removed. Vital tissues are not wasted as in starvation. 7. Because of physiological strain which obesity throws on organisms one evidence of which is high level of basal metabolism, thyroid extract and other agents to increase total energy output are contraindicated. 8. Few patients, perhaps not over 2%, do not lose weight by diet alone. These patients cannot be differentiated from others by history or physical examination. May be recognized by careful observation of weight loss and basal metabolism during periods of dieting. 9. In these cases carefully regulated doses of thyroid are beneficial in conjunction with dietary treatment.

Interesting are comments by Evans and Strang in text of article, 187 obese patients treated lost 5,659 pounds, average 30 pounds each. Average duration of dieting period - 9 weeks, average weekly loss 3.5 pounds. First month's loss - 16 pounds. Sharp variations in weight usually due to water changes. Apparently no contraindications for diet as they treated very young and old, those who were well and those sick. So-called "drawn" expressions do not appear. Do not worry about ketosis. Twenty-six men and 161 women treated - old idea that women do not respond to dieting disproven, but men however respond more rapidly. No disasters or minor complications. All patients examined for contra-indications before treatment begun. Wilder adds for purpose of keeping of vitamine content brewer's yeast, cod liver oil, orange juice and calcium.

#### 4. Social Trends:

January Survey Graphic 1933 attempts to analyze in brief report of Commission on Social Trends in America from 1900 to 1930, "what we are, what we have, what we do and what we think." Obviously, we now live in the age of the automobile which has probably made the greatest change. In 1930 private passenger automobiles covered in aggregate more than 150,000,000,000 miles. Taking population as a whole, greater percentage of people were at work in 1930 than in 1890. Women more than filled places held by children who were entering elementary, high schools and colleges in strikingly high proportion.

In 1900 there were 8000 automobiles. In 1930, 26,000,000 cars; paved roads increased from 144 to five times around earth.

The span of natural life has not changed but more of us live through childhood to middle and later years. Between 1900 and 1930 average age at death in original registration states increased from 48 to 57 years for men, and from 51 to 60 years for women. Male discrepancy is explained on environmental differences (but biological factors may be responsible). Change in the average size of family has been reviewed. Enormous number of patents granted (421,000 in decade ending with 1930) is one measure of our rapid mechanization. We passed Great Britain before the Civil War and still hold the lead.

In 1929 we grew crops on somewhat over one-third of land capable of producing them, another third needed only plowing to make them produce, while remaining third requires drainage or clearing. Scientific reading has gone persistently up., religious papers and periodicals down. Million American youngsters were in college, 4,000,000 in high schools in 1930. We bought more than 30,000,000 copies of magazines that year.

Government has grown like a weed. New functions, new costs, but its forums remain unchanged and there is

widespread dislike of experimentation.  
**Result:** America has come to parting of ways in public relations. If business may accuse government of meddling, then government may also accuse industry of meddling with political affairs, often corruptly, and challenge industry to reveal the names of the chief corruptionists.

One child families remain constant during entire period (26%). Birth rate is decreasing. We have more people over 50. A big social event of the future may be Veterans of the World War going from Old Soldier's Home to call on fair ones at Old Ladies' Home. These and many other interesting observations are to be found in the January Survey Graphic and are worthy of reading.

Most interesting observation: American High Schools enroll 50% of country's children of appropriate age. This in spite of critics of our educational system who insist our elementary grade schools are alright, our high schools almost as bad as our Colleges and Universities.

#### 5. A Nurse

died this week at a local hospital. Realizing her end was approaching she called for pencil and paper and wrote: Instructions after my death:  
 1. Please do an autopsy. 2. Lay me out in my white dress, etc. Truly living the spirit of service of her profession after death. Have you informed your family of your wishes in this matter?

#### 6. Minnesota Radiological Society:

Winter meeting  
 Nicollet Hotel, Minneapolis.  
 Saturday, Feb. 18, 1933  
 2:00 P.M.

- 1 Pre-operative Diagnosis of Malignancy of the Liver with Thorotrast.  
 Lester G. Ericksen, M. D.,  
 Minneapolis.
- 2 The Physical Basis of Chest Radiography and the RUGGLES Cine Cardiographic Film (Work of R. B. Wilsey)  
 Robert G. Morrison, Minneapolis.
- 3 A Simplified Technic for Roentgenography of the Optic Canals.  
 John D. Camp, M.D., and Cesare

Gianturco, M.D.,  
 Rochester.

- 4 Atypical Findings in Bone Lesions.  
 Charles G. Sutherland, M.B.  
 (Tor.), Rochester.

- 5 Roentgenologic Study of Bone Changes accompanying Neurofibroma of the Spinal Cord and Associated Nerves.  
 John D. Camp, M.D., Rochester.  
 Discussion by W. A. O'Brien,  
 M.D., Minneapolis.

- 6 Case Reports from the University Hospital.

- A. Demonstration of Methylene Blue Method for Calibrating Dosage.

W. K. Stenstrom, Ph.D.

- B. Achondroplasia, Advanced Ossification, Vertebral Osteochondritis.

John B. Eneboe, M.D.

- C. Carcinoma of Breast, Skeletal Metastases, Response to Radiation.

C. O. Hansen, M.D.

- D. Carcinoma of the Skin, Response to Radiation.

Frederick B. Exner, M.D.

- E. Simulants of Mediastinal Masses.

Leo G. Rigler, M.D.

INFORMAL DINNER  
 NICOLLET HOTEL, 7:00 P. M.

#### ADDRESS

The Contributions of Radiology to the Study of Growth.  
 Dean Richard E. Scammon,  
 University of Minnesota.

#### 7. Romance:

Mr. and Mrs. Bennard Benson announce the marriage of their daughter, Gladys Helen, (laboratory chemistry) to Dr. Cyrus Owen Hansen

**(Radiology)** on Saturday, February 11, 1933, Willmar, Minnesota. At home after March 1st, 115 Bedford Street, S. E., Minneapolis, Minnesota. The second interdepartmental laboratory wedding, the first Radiologist Sagel and Technician Defiel, see Staff Bulletin II, No. 25: 1, (April 6,) 1931, resulted in twins. Congratulations and best wishes.

#### 8. Meeting:

Northwest Regional Conference and Secretaries' Meeting, Minnesota State Medical Association, Lowry Hotel, Saturday, February 18th, and Sunday, February 19th, "to solve intelligently the problems that confront the medical profession, its officers must be informed". Discussion - Administrative Problems of a Secretary, Collection of Dues, Malpractice Insurance Rates, Care of the Indigent, Building Society Programs, Private practice and Public Health, Workmen's Compensation and Medical Practice, Medical Legislation, The Over-Supply of Physicians, Should Medical Schools Practice Medicine, Committee on the Cost of Medical Care (again, still), Chicago Conference, Health Insurance and Corporation Practice, Medical Journalism, Group Hospitalization, Committee Dinners, etc. You are cordially invited to attend.

## II. CASE REPORT

### CARCINOMA OF SMALL INTESTINE.

Path. Dvorak.

Case is white man, 65 years old, admitted to Minnesota General Hospital 3-7-30, expired 3-20-30 (13 days).

#### Accident - Pain umbilical (4 years)

1926 - Accident, broke 4 ribs on right side posteriorly. Immediately observed pain in abdomen. Pain rather dull and localized to region of umbilicus, persisted for 2 weeks, then disappeared entirely.

#### Pain (2½ years)

1927 (Autumn) - Recurrence of pain lasted 1 day. Pain again localized in region of umbilicus.

1927 (Late Autumn) - Recurrence of pain which lasted for 4 days. Pain still dull sometimes severe, still localized in re-

gion of umbilicus, moves about on palpation. Note this.

#### Pain (2½ years)

Sept. 1928 - Recurrence of pain. Attack lasted 5 weeks, similar to pain previously, occasionally more severe and crampy. Continued to work throughout this time.

#### Pain (6 months)

Fall 1929 - Complete absence of pain during interval. Pain now dull, occasionally severe, confined to area about 4 inches in diameter about umbilicus, moves about within this area. When was severe, it was crampy in nature. Worse at night and awakened him. Food brought on attacks which occurred about one-half hour after eating. Definite cycles of pain following meals.

Late evening and early morning pain which suggested ulcer type. During evening attacks, crampy character evident. Certain types of foods, such as cabbage, strawberries, fresh white bread, intensified pain. Relief obtained by hot towels to abdomen, soda and intake of liquid foods. No vomiting but some nausea. No jaundice. Felt and heard gurgling in abdomen during attacks.

#### Worse

2- -32 - Condition progressively worse. No remission. Gradually stopped eating solid foods, taking only liquid and semi-solid foods. Loss of 25# in weight. Diarrhea past month. Stools watery and brown. Palpitation and dyspnea on severe exertion.

#### Hospital

3-7-30 - Admitted. Physical Examination: Markedly emaciated. Head, neck, chest, heart - normal. Abdomen - concave, some dilation of superficial veins; mass about 2 inches to left of umbilicus, size and shape of medium size dill pickle, hard and seems to be attached to posterior abdominal wall. During pains intestinal peristalsis visible and palpable, sounds of increased peristalsis audible.

#### Laboratory

Blood - Hb. 80%, wbc's 4,850. B.U.N. - 45.6. Blood chlorides - 495.

**Icteric index** - 8 units. Gastric extresion - maximum free Hcl 9°, (histamine).  
**Urine** - Urobilin increased. P.S.P. - normal excretion at end of 2 hours. Stool - No occult blood (one examination).

#### X-ray - Gastro-Intestinal

Barium enema. Colon filled out well. Markedly dilated throughout especially in cecum. No barium forced through ileo-cecal valve indicating obstruction in this region. Stomach normal in size, shape, position shows no abnormalities. At end of 6 hours, head of meal in terminal ileum, loops of which could be seen to be dilated for a considerable distance proximal to ileo-cecal valve. This confirmed impression that there was an obstruction in region of ileo-cecal valve. Examination at 24 hours showed practically entire colon filled with none of meal in ileum. Obstruction may be due to malignancy in this region but this could not be definitely demonstrated. Cecum itself did not appear to be seat of malignancy. 6 Ft. Chest - Old fracture of lower posterior ribs.

Conclusions: Negative stomach and duodenum. Obstruction in region of ileo-cecal valve, possibly malignant. Very marked dilatation of cecum. Redundancy of colon. Negative chest. Negative heart. Old fractures of lower posterior ribs, right. Slight obstruction of small bowel.

3-11-30 - Up and about. Complains of pain from time to time occasionally quite severe.

3-16 -30 - Condition unchanged. Pain present. Some distention. Given subcutaneous fluids.

#### Operation

3-17-30 - Preoperative diagnosis - chronic intermittent intestinal obstruction. "Growth" of small bowel. Obstruction of small bowel due to malignancy. Carcinoma of cecum. Carcinoma of colon. Opening peritoneal cavity, no exudate or fluid present. Exploration of contents showed a small tumor of ileum, exact location in relation to cecum not being determined. Bowel above tumor was markedly hypertrophied and appeared like rectum. Definite spasm above site of obstruction. Below bowel appeared about one-fourth size of that above. Wall of bowel was of normal thickness. An enterostomy was done above site of obstruction. Catheters were brought out through a stab wound and

abdomen closed in layers without drainage.

#### Worse

3-18-30 - Pulse very rapid, ranging up to 150. Respirations slightly elevated, 30. Very slight drainage from enterostomy. Still has crampy pain in abdomen. Temperature 99.8.

3-19-30 - Pulse up to 160. Temperature suddenly went up, ranging up to 107. Respirations 36. Slight drainage from enterostomy. Blood pressure 100, systolic. 600 cc. whole blood given (direct method). Semi-comatose. Pulse irregular. Patient cold and does not respond. Abdomen diffusely tender throughout; definite rebound tenderness.

#### Exitus

3-20-30 - Condition more severe. 7:20 A.M. Exitus.

#### Autopsy:

##### Drainage

Body is well-developed, poorly nourished, white male measuring 168 cm. in length, weighing approximately 100 lbs. Rigor present and hypostasis purplish and posterior. No edema, cyanosis or jaundice. Pupils normal. Recent operative wound in right rectus region with 2 drainage tubes brought out through stab wounds adjacent to this. Small lipoma of left wrist. Left testicle is atrophic. Subcutaneous fat scanty.

##### Peritonitis

Peritoneal Cavity - Generalized fibro-purulent exudate throughout all parts of the abdomen most marked about enterostomy opening. Appendix present.

##### Fluid - Adhesions

The Right Pleural Cavity contains about 250 cc. of turbid, dark brown fluid; Left, several old adhesions and about 50 cc. of fluid. Pericardial Sac contains about 50 cc. of fluid.

##### Atrophy

Heart 310 grams. Serous atrophy of surface and some brown discoloration of muscle. Valves no defects. Root of the Aorta slight amount of sclerosis. Coronaries are thickened but patent.

Pneumonia

Right Lung 650 grams, Left 405 grams. Pneumonic consolidation in patchy areas throughout right lower lobe. Balance of lung shows congestion and edema. No tumor tissue.

Exudate

Spleen 110 grams. Capsule covered with exudate. Splenic pulp is soft.

Tumor Metastases

Liver 1390 grams. Surface is likewise covered with inflammatory exudate. Many small metastatic nodules scattered throughout entire organ.

Gall-Bladder and biliary tracts patent.

Tumor - Metastases

Gastro-Intestinal Tract: Esophagus, stomach and duodenum no change. Small bowel dilated and hypertrophic. Shows evidence of generalized peritonitis.

Tumor mass, 130 cm. from ileo-cecal valve. Tumor is about 2 cm. in diameter and produces complete occlusion of lumen of bowel so that a probe cannot be passed through. Metastatic deposits near mesenteric Lymph Nodes in adjacent area.

Pancreas and Adrenals normal.

The Kidneys weigh 160 grams each. Some cloudy swelling present.

Bladder wall thickened and trabeculated.

Aorta moderate arteriosclerosis.

Involvement of mesenteric Lymph Nodes (as noted above). Aortic nodes about origin of large vessels are invaded. Thoracic lymph nodes not involved.

Microscopic Diagnosis:

1. Adenocarcinoma of ileum.
2. Questionable carcinoid.

Final Diagnosis:

1. Adenocarcinoma of ileum (carcinoid).
2. Bowel obstruction with hypertrophy and dilatation of proximal bowel.
3. Metastases to mesenteric and aortic lymph nodes and liver.
4. Operative enterostomy.
5. Acute generalized peritonitis.
6. Bronchopneumonia, acute.
7. Cloudy swelling of liver and kidneys.
8. Brown and serous atrophy of heart.
9. Emaciation.

10. Lipoma of wrist.
11. Atrophy of testis.
12. Splenitis.
13. Pulmonary congestion and edema.
14. Pleural effusion.
15. Pleural adhesions.
16. Trabeculation of bladder.
17. Arteriosclerosis.

III. ABSTRACTMALIGNANT TUMORS OF THE SMALL INTESTINE.Ref.:

1. Meyer, J. and Rosenberg, D. H., Primary Carcinoma of the Duodenum, Arch. Int. Med. 17: 917-941, (June) '31.
2. Harris, F. I. and Rosenblum, H. Primary Carcinoma of the Jejunum. Arch. Surg. 23: 805-812, (Nov.) '31.
3. Lynch, J. M. Primary Carcinoma of the Ileum. Am. Proct. Soc. 32: 145-149, '31.
4. Shiflett, E. L. Tumors of the Duodenum. Radiology 19:79-90, (Aug.) '32.
5. Golden, R. Non-malignant Tumors of the Duodenum. Am. J. of Roent. 20:405-413, (Nov.) '28.
6. Raiford, T. S. Tumors of the Small Intestine. Arch. Surg. 25:122,321, (July, Aug.) '32.
7. Cooke, H. H. Carcinoid Tumors of the Small Intestine. Arch. Surg. 22:568-598, (Apr.) '31.
8. Rankin, F. W. and May, C. Carcinoma of the Small Bowel. Surg., Gynec. & Obst. 50: 939-947, (June) '30.
9. Ullman, A. and Aheshouse, B. S. Lymphosarcoma of the Small and Large Bowel. Ann. Surg. 95:878-916 (June) '32.
10. Wilensky, A. O. Nonspecific Granuloma of the Intestine. Med. J. & Rec. 135: 445-446, (May 4) '32.
11. Mock, H. E. Infective Granuloma. Surg., Gynec. & Obst. 52: 672-689, (Mar.) '31.

Introduction:

Carcinoma of small bowel is rare condition; yet in our own group there are records in past 4 years, 3 proven cases and 2 doubtful cases. Two are adenocarcinomas (one in operation records only), one sarcoma, one arose either in small bowel or ovary, and one in terminal ileum or adjacent cecum. An incidence of one case a year in our own material. While early diagnosis cannot be made in every case, fact that such diagnoses have been made should be a stimulus to be on the lookout for cases.

Classification:

The following table is compiled from the literature (rearranged):

Malignant:

Carcinoma  
Sarcoma  
    "Lymphosarcoma"  
Neurosarcoma  
    Neuroblastoma  
    (fibrosarcoma?)  
    (myxosarcoma?)  
Unclassified "sarcoma"  
Carcinoids (unclassified: epithelial, neural?)

Benign:

Adenoma  
Polyps, papilloma  
Fibroma (classification?)  
Lipoma  
Myoma  
Angioma  
    Hemangioma  
    Lymphangioma  
Accessory pancreatic rests  
Hematoma  
Enterocysts  
Cystic pneumatosis

Inflammatory:

Chronic non-specific granuloma.  
Chronic specific granuloma (tbc.)

Historical:

Knowledge regarding small bowel tumors is in process of organization--stimulated by recent roentgenological interest. No summarizing reviews; instead, individual series presented. Isolated cases date back to Georginis

Hamberger 1746 (carcinoma of duodenum). Literature still has no comprehensive review.

Incidence:

All small bowel tumors constitute 3 to 10% and carcinoma about 3% of all gastro-intestinal tumors. General opinion indicates that percentage of benign tumors in small bowel is higher (20 to 40%) while carcinoma is much lower (.5 to 2%) than above figures.

Lack of correlation indicated in following table:

<u>Carcinoma of duodenum</u> (Meyer and Rosenberg '31) - 179 cases.	
329,000 autopsies, 105 cases .03%	
11,000 general carcinoma,	40 " .37%
11,000 gastro-intestinal carcinoma, 179 cases 1.6%	
Benign tumors of duodenum (Golden '28)	17
Benign tumors of duodenum (Shiflett '32)	32
Carcinoma of jejunum (Hillstrom '27)	70
Carcinoma, all small bowel (D'allaineo '29)	114
Carcinoma, all small bowel (Charity Hospital '23)	44 (?large bowel)
Carcinoma, all small bowel (Mayo Clinic '29)	55
Carcinoma, all small bowel (JHH '32)	16
Carcinoma, all small bowel (Cook Co. Hosp. '31)	13
All tumors, small bowel (Raiford '32)	339 (?)
Carcinoids, small bowel (Cooke '31)	104
Sarcoma, small bowel (Crowthers '13)	191
(Graves '19)	249
(Ullman & Ahe- shouse '32)	375

Note obvious contradictions.

Summary:

Duodenum, carcinoma	- 179
Jejunum, carcinoma	- 70
Carcinoma, small bowel (4 series)	- 198
Carcinoids	- 104
Sarcoma	- <u>375</u>
Reported malignancies	- 926

(Incomplete, possible overlapping).

No estimate of total benign lesions of small bowel available.

Johns Hopkins Hosp. '32:  
42 benign tumors  
46 malignant

Neoplasms of small bowel constitute definite percentage of gastro-intestinal malignancies.

<u>Carcinoma</u> - Mayo Clinic	.06%	of gastro-intestinal.
J.H.Hosp.	5. %	" "
Herman von Glahn	3. %	
Ewing	3. %	
Forgue, Chavin	6. %	

<u>Benign tumors:</u>	
J.H.Hosp.	24 % of all gastro-intestinal tumors
Judd	40%

Sarcoma: (lymphosarcoma)  
Ullman & Aheshouse 65% all gastro-intestinal lympho-sarcoma.

Location: Carcinoma

	Duo- denum	Jeju- num	Ileum	Total
J.H.Hosp	7	4	3	14
Mayo Clinic	15	21	14	50
Cook Co. Hosp.	<u>7</u>	<u>3</u>	<u>3</u>	<u>13</u>
	29	28	20	77

It is customarily stated that two ends of small bowel are usual sites of carcinoma. Frequency in ileum is not borne out by collected statistics.

Sarcoma: (lymphosarcoma)

	Duo denum	Jeju- num	Ileum	Total
Crowther	19	32	55	106
Ullman, Aheshouse	<u>4</u>	<u>17</u>	<u>36</u>	<u>57</u>
	23	49	91	163

(Excluding mixed, jejunum and ileum, etc.) Marked preponderance in ileum.

Carcinoids:

Cooke -	duodenum	2
	jejunum	11
	ileum	<u>79</u>
		92

Benign Tumors:

	duodenum	12
	jejunum	8
	ileum	<u>21</u>
		41

Statistically, summary of above groups cannot be made because of incomplete inclusion of carcinoma and benign tumor groups. In general, the ileum is the most frequent site of tumors because of large number of lymphosarcomas. The duodenum appears to be common location. Carcinomas are about equally distributed with marked preponderance for duodenum on a basis of length.

Meckel's diverticulum: (Wisely)

Rarely is seat of malignancy. Reports only case of carcinoma on record. Five cases of sarcoma previously reported. Cites statistics on frequency of diverticulum.

Ewing	- 2.7%
Balfour	-15 cases in 10,600 laparotomies.
Telling	-39 cases in 13,068 autopsies.
Copeland	-11 cases in 50,000 surgical specimens.

Etiology:

Carcinoma: Relative infrequency

of small bowel carcinoma and distribution within bowel (40% in duodenum) suggests some etiological factors. The fluid content, alkaline reaction and the absence of friction points due to physiological stasis (contrast to stomach, cecum, rectum) have been presented. Importance of malignant change in benign tumors loses significance? 25-40% of benign tumors of gut in small bowel whereas only .06 to 6% of carcinoma of gut are in small bowel. Malignant change in duodenal ulcer discredited by Judd. Duodenum is mixing chamber for acid and alkali, its content is coarse and it has most curves (friction points). Significance (?).

Sarcoma: The normal preponderance of lymphoid tissue in ileum explains prevalence of the "lymphosarcoma" in this area. The frequency with which trauma is associated with the onset of lymphosarcoma is unique (see also chronic granuloma).

Carcinoids: The etiological factor or pathogenesis of this type is unknown. Two fragments of data seem worthy of review. The tumors are argentaffilic (silver staining). Normally such cells are present in the Paneth cell of the deeper layers of the mucosa; hence, tumor of Paneth cell (?). However, the Paneth cell is equally distributed throughout the small bowel whereas carcinoids are most frequent in the ileum. Neurogenic cells migrating from sympathetic ganglia also are argentaffilic. Carcinoids therefore may belong to the class of neurogenic tumors (neurosarcoma). Clinical features of variable malignancy suggest this type of tumor (compare other neurogenic tumors: melanoma, neurofibroma, neurosarcoma).

#### Pathology:

Very little difference between pathology of small bowel tumors and such tumors elsewhere. Carcinomas usually adeno type. Certain "medullary" types have a squamous-like appearance and suggest ovarian carcinomas. Since extension or metastasis to ovary is not infrequent certain of these cases are diagnosed primary ovarian malignancy. In duodenal, ampullary, and terminal ileal malignancies (our case) frequently impossible to localize primary focus.

Lymphosarcoma: Confusion regarding this group fully as great or even greater in intestinal form as in other types of this condition. May be a systemic lymphogranulomatosis with first lesion appearing in bowel (compare multiple xanthomatosis, Schuller-Christian disease, multiple myeloma, Ewing's tumor). Ullman and Aheshouse's study of intestinal lymphosarcoma adds only more confusion to nature of disease.

Carcinoids: Characteristic tumor. Requires proof by silver staining (criticism of best study by Cooke). Usually small (.5 to 1 cm.) frequently multiple (35%) yellowish firm flat tumor with predilection for ileum. Rarely annular and constricting. Cells form pockets highly suggestive of appearance of basal cell carcinoma of skin. Cells contain granules which may be chromated and which take a silver impregnation stain.

#### Metastasis:

Carcinoma: Marked variation of opinion as to time of metastasis. Rankin: metastasis early. Harris and Rosenblum: metastasis late. No significant data to indicate metastasis occur any differently than in carcinoma of remainder of gastrointestinal tract. (Note: how long our case had his tumor).

Carcinoids: Popular opinion is that carcinoids are benign lesions and never metastasize. Study by Cooke is criticized because all the cases were not proven by silver staining.

Malignant (metastasis)	21	(20%)
Benign (?) (no metastasis)	83	
	104	

Above division into "malignant" and "benign" is probably unfortunate. Apparently carcinoids are malignant tumors of which 20% show metastasis, i.e., low tendency to metastasize. (Carcinoids of appendix not included in this group. This type in the recorded cases has never shown metastasis beyond the regional lymph nodes.)

## Gross Pathology in General:

Division into intrinsic and extrinsic tumor is of value. The intrinsic location results in death or surgical intervention as soon as the tumor is of sufficient size to produce obstruction or intussusception. Extrinsic growth may continue to massive proportion until tumor mass or pressure symptoms lead to operation. Mucosal growths become pedunculated because of bowel activity unless they infiltrate the wall. Ulcerations occur as in other gastro-intestinal tumors. Lymphosarcoma are peculiar because dilation rather than stenosis occurs (35%). Infiltration of muscle and nerves is said to produce a local paresis of the bowel with subsequent dilation. Complete obstruction rarely occurs.

## Pathology of Granulomas (non-specific):

Increasing number of reports of more or less massive, localized or infiltrating tumors of small (and large) bowel which by examination and clinical course prove to be chronic inflammatory granulomas. In nearly every case extensive study is necessary before diagnosis of chronic granuloma is established. Gross appearance (massive hard, infiltrating, necrotic, enlargement of local lymph nodes) frequently not differentiated from malignancy. Frozen rapid sections resemble sarcoma or carcinoma. Problem very difficult for surgeon at operation.

Histological studies of numerous samples rule out malignancy. Structure is that of chronic inflammation with fibrosis, necrosis and cellular infiltration with small round cells, plasma cells and giant cells. Etiological factor variable. Mock divides these into: Trauma, gastrointestinal conditions, extraperitoneal infections. In detail, these include extraneous trauma, surgical trauma (including foreign bodies: non-absorbable sutures, lint, other larger bodies), diverticulitis, peptic ulcer, degenerating polypi, foreign bodies in bowel (bone, pins, inspissated faeces, gall stones, etc.), pyogenic colitis, appendicitis, infection of a partial obstruction, infection of retroperitoneal lymph nodes, urinary bladder infections

and pelvic infection. The most frequent cause extraneous trauma. Certain cases appear to be neoplasms (plasmocytoma). Wilensky emphasizes that the condition is frequently mistaken for tuberculosis. He believes appendicitis is a frequent cause.

## Terminal Pathology:

Tumors of the small bowel come to death or to medical attention in the following manner: Intestinal obstruction, intussusception, tumor mass, cachexia, incidental finding.

Relative frequency (82 cases) outcome: Obstruction 31%, intussusception 23%, incidental 46%.

Approximately half of those with obstruction and intussusception came to necropsy without symptoms severe enough to cause operation.

Kasemeyer collected 284 cases of intussusception due to tumors, 30% were malignant, 70% benign.

Cachexia results from malignancy, or malnutrition, anemia (bleeding) and repeated vomiting in the benign cases.

## Symptomatology:

Symptomatology variable but follows a general pattern. Symptoms are those of chronic intermittent intestinal obstruction ending, usually by progression, more rarely suddenly with acute complete obstruction. Like other forms of obstruction, the rapidity with which toxic symptoms develop depends on the level of the lesion: duodenal location--rapid toxicity. Typical history is that of many months of periodic attacks of milk abdominal pain, cramps and nausea or vomiting. Attacks become longer and more pronounced and finally end in a disabling attack or in complete obstruction.

Pain is said to be well localized (see our case). The point of obstruction can sometimes be pointed out by the patient. Diarrhea and constipation

are common. Bloody stools are rare. Preampullary lesions of the duodenum give symptoms of pyloric stenosis; ampullary lesions those of carcinoma of the pancreas. Exacerbations by intake of food is common. Food dyscrasias frequent (lack of HCl?) Anemia quite common and may be presenting symptom. Average duration of symptoms is 14 to 15 months but may range from 2 mo. to 5 yrs.

Raiford suggests that the symptoms of intussusception are more characteristic: sudden localized sharp pain and sometimes palpable mass, shock or bloody stool; all of which suddenly undergoes spontaneous remission.

#### Examination:

Anemia, cachexia, weight loss (av. 28#) usual. Abdomen shows signs of obstruction depending on intensity and stage in cycle (may be negative in interval). Finding of large masses depends on size of tumor. Special attention has been given to small movable tender tumors which "slip away from the fingers". Achlorhydria is frequent (50%), hypoacidity in 25%. Occult blood in stool usually present. Hemoglobin average 60%; 50% of cases show under 40% hemoglobin.

#### X-ray examination:

Recent interest in subject has been manifested. In recent meeting (Detroit) diagnostic methods reviewed but still not available in literature (Rigler). Older articles give rather unfavorable outlook on possibility of making accurate x-ray diagnosis. Presence of a filling defect or a localized round defect of a polyp or sticking of barium in crevices of a polyp has resulted in occasional diagnosis. In the duodenum more accuracy is attained because chance for obstruction by adhesions, etc. less than in small bowel and diagnosis is made by inference.

#### Diagnosis:

Reviews of the reported cases show that only "a small percent" have been correctly diagnosed before operation.

Types of preoperative diagnosis are illustrated in the following group:

Obstruction 12, intussusception 1, tumor 7, malignancy - various parts 6, appendicitis 14, tuberculosis 9, biliary disease 4, colitis 4, peptic ulcer 2, gynecological 8, miscellaneous 8.

#### Treatment:

Surgical removal offers only hope of cure. Technique and preliminary treatment of the obstruction (decompression, enterostomy) depend on condition of patient.

The following interesting data regarding amounts of bowel which can be resected is taken from Ullman and Aheshouse.

<u>Surgeon</u>	<u>Amt. Resected</u>	<u>Result</u>
Perey	75 cm.	well 7 yr. later
Kelly	152 cm. (5ft)	" 9 mo. "
Puccinelli	160 cm.	" 3 yr. "
"	150 cm.	Died 3 mo. recurrence.
"	145 cm.	" 14 da. hemorrhage.
Doerfler	all except 9.12 inches	Well 6 yr. later.
Jerauld & Washburn	570 cm. (19 ft)	" 2½ " "
Brenner	540 cm. (17¾ ft)	Died marasmus 2½ yr.
Storp	510 cm. (16¾ ft)	Died recurrence 5 m.

Average length of small intestine in male is 22 ft. 5 inches and in female 23 feet 5 inches. Longest was 31 feet, shortest 15.5 feet (Treves)

#### Mortality & End Results: (available for carcinoma only).

Rankin: (55 cases) No patient lived over 3 years; average less than 1 yr.

Venot and

Pareclier - 26 cases - 38% operative mortality.

Hildstrom - 70 cases - 36% operative mortality.

In acute stage, mortality is 70%.

Prognosis estimated at 16% chance for cure.

### Lymphosarcoma:

While this condition is customarily regarded as a non-operative condition in recent literature, the end results of operative resections in 103 cases collected by Ullman and Aheshouse are of interest. Patients living without signs of recurrence are recorded.

5 years - 3 cases; 5½ years - 1;  
7 years - 3; 7 years 9 mo. - 1;  
8½ years - 1; 11 years - 1; Total  
10 cases (10%). No data on radiation  
but it is recommended.

### Impressions:

1. Malignant tumors of small bowel are rare but must be kept in mind. We have had 3 proven cases and 2 doubtful cases in last 4 years.

2. A classification is offered. Note 3 definite types; carcinoma, sarcoma, and carcinoid. Neurosarcoma must also be kept in mind. Benign tumors resemble those seen elsewhere in gastro-intestinal tract.

3. Chronic specific and non-specific granulomas must be differentiated from malignant growths.

4. No good summaries are available in literature (examined).

5. All small bowel tumors constitute 3 to 10% and carcinoma about 3% of all gastro-intestinal tumors.

6. In general, ileum and duodenum are most frequent sites with latter most frequent on basis of length.

7. Meckel's diverticulum found in 2 to 3% of all individuals. Less frequently in surgical exploration. Rare as site of malignant tumor.

8. Cause of small intestinal malignancy is discussed. Tumors usually correspond in histological types to those seen elsewhere.

9. Interesting groups are lymphosarcoma with or without associated lesions elsewhere and carcinoid tumors (argenta-filic).

10. Tumors may be intrinsic or extrinsic. Mucosal growths become pedunculated. Ulceration is seen. Peculiar dilations (35%) at site of growth found in lympho-

sarcoma, explained on neurogenic basis (?).

11. Granulomas are massive, hard, infiltrating, necrotic tumors with inflammatory changes in lymph nodes. Difficult to diagnose at operation or rapid section. Caused by trauma (large number), gastro-intestinal conditions, extraperitoneal infections.

12. Common terminal features of new growths are obstruction (1/3), intussusception (1/4), incidental finding (nearly 1/2).

13. Symptoms usually those of chronic intermittent intestinal obstruction with progression or sudden complete obstruction. Result depends on location. Pain, usually well localized, food dyscrasia frequent, anemia common.

14. In diagnosis special attention should be given to small, movable, tender tumors which slip away from the fingers.

15. Recent interest in x-ray diagnosis manifest at last Radiological Meeting in Detroit. Reviews of reported cases show only small number correctly diagnosed before operation or autopsy.

16. Surgical removal only hope of cure. Large sections of intestine have been resected. Radiation recommended in lymphosarcoma group. Operative mortality high.

17. End results in carcinoma poor. Rankin (55 cases), no patient lived over 3 years. Death usually occurs in one year. By contrast lymphosarcoma may live for many years but reappearance of the disease locally or generally (Hodgkin's disease, lymphosarcoma, leukemia, aleukemia) must be kept in mind.

Abstract by Rudolph W. Koucky.

### IV. MEETING

Date: February 9, 1933.  
Place: Interns' Lounge, 6th Floor, West Building.  
Time: 12:14 to 1:35.  
Program: Impressions of America by Professor Syvert Syvertsen.

## Uterine Bleeding -- Cause, Diagnosis, and Treatment.

Present: 96

Discussion: J. C. Litzenberg  
G. E. Hudson  
H. M. Wynne  
C. J. Ehrenberg  
R. E. Boynton

Theme: J.C.L.: Discussion of uterine bleeding involves practically every field of Gynecology. Curette once used as therapeutic agent now of chief value in diagnosis. In search for cause of uterine bleeding, ordinary cervical polyp frequently overlooked. Graves (died just 10 days ago, a wonderful man in every way) coined term "endometrial dysplasia" to replace hyperplasia. He found retention cysts of ovary, thick capsule, hypertrophy of lining cells of follicle in most cases examined while doing hysterectomies for severe bleeding. He believes change in endometrium is part of endocrine disorder which later is really cause of hemorrhage.

Hemorrhage (bleeding is better term) may also be due to displacement of uterus, myoma and fibrosis uteri (benign causes). The ovaries are also frequently cystic in these conditions. Number of times, curette now used in diagnosis, has increased 2 to 300% in last five years. In revised experience, large amounts of material are apt to be benign. We once taught that large amounts were malignant. My cures are higher than those reported today from elsewhere. In some only curette was necessary although these patients should also be followed for recurrence.

We make it a practice to curette all bleeders over 18 or 20. Post-menopausal bleeding is never due to menstruation and is always pathological (stressed for 20 years). Radium and deep therapy are both of value in the treatment of bleeding due to dysplasia, in some radium is preferred when more local action on the uterus is desired (fibrosis uteri). In both types of treatment, the ovarian effect is objective. Watch for excessive bleeding after curettage (recites experience of case). Radium stopped it for a

while but now she is bleeding again. Note that two-thirds of the post-menopausal group are due to malignancy. Not long ago, some gynecologists removed uterus routinely under these conditions. It must be emphasized that the cause of uterine bleeding in dysplasia is not the endometrium but endocrine disturbance chiefly in ovary. Note: In our experience, the last one hundred diagnostic curettages can be classified as follows: Carcinoma (3%), Polyp (5%), pregnancy (10%), cystic dysplasia (marked) (25%), irregular glandular dysplasia (25%), balance of sections (atrophy, various phases of menstrual cycle, infected material, etc.). A curettage is classified as a biopsy.

G.E.H.: In "small ovary" type of endometrial dysplasia, certain endocrine preparations should be tried.

H.M.W.: Curette is valuable in palpating for submucous fibroids but it may be misleading. Violent curettage, according to Curtis, may cause strictures of internal os and cervical canal when muscle is scraped.

C.J.E.: Note the large number of inflammatory lesions of tubes and ovaries reported by Schmidt. Bleeding may come from cervicitis. Be careful about curetting just before menstrual cycle as marked hemorrhage may be induced. I have seen 5 cases of severe bleeding clear up when cervicitis was treated by cautery.

R.E.B.: We see many functional bleeders in university girls. In checking the histories, we frequently find that many began to menstruate late (15 to 16) and often started with scanty flow suggesting endocrine dysfunction. Note: A code sheet is being devised for the study of the endometrium. These will replace usual written reports. Attempts to correlate this data with other findings and response to treatment would be interesting.

Gertrude Gunn,  
Record Librarian.