

GENERAL STAFF MEETING
UNIVERSITY HOSPITALS
UNIVERSITY OF MINNESOTA

CONTENTS

	PAGE
I. ANNOUNCEMENTS	
1. CLINICO-PATHOLOGICAL CONFERENCE	1
2. RADIOGRAPHERS	1
3. NURSES	1
4. WIDAL TESTS	1
II. ABSTRACT	
TREATMENT OF CARCINOMA OF SKIN	1 - 5
III. CASE REPORT	
ACUTE ULCERATIVE ENTERITIS	5 - 8
IV. ABSTRACTS	
CHRONIC ULCERATIVE COLITIS	8 - 10
V. CASE REPORT	
CHRONIC ULCERATIVE COLITIS	10 - 14

L. ANNOUNCEMENTS

1. Clinico-pathological Conference:

Friday, May 22, 11 A.M., Todd Amphitheater.

2. Radiographers - American Society of

Radiographers meet St. Paul, Lowry Hotel, May 25-29, 1931 under presidency of Mrs. E. C. Grierson (St. Paul). Address of Welcome: Gerhard J. Bundlie, Mayor of St. Paul. Greetings: Carl T. Schuneman, President, Saint Paul Association of Commerce. Radiographer's Creed:

"We believe that every Radiological Technician should work under the direct supervision of, and be directly responsible to, some member of the Radiological, Medical, Surgical or Dental profession, such member being generally recognized in his profession as being qualified to do the work attempted.

"We are opposed to the so-called schools (whether conducted by professional men or laymen) who urge the attendance of any or all laymen with the promise of speedy preparation and handsome remuneration for their services. In other words, we are opposed to the commercial school.

"We believe that the standards for all plate and film work should be established by the professional man doing the work of interpretation, and that it is our duty to qualify ourselves to produce the desired standard.

"We believe that no expression of our opinion regarding treatment, diagnosis, or interpretation concerning any patient with whom we work, should ever be made to other than the professional man to whom we are responsible."

Forty-five papers will be read by members of Society from various parts of Country. Distinguished guests: Frederick Melville, Honorary Secretary Society of Radiographers, London, and Ed. C. Jerman, D. Sc., President Emeritus, Chicago. Papers also by Drs. Ehrenberg, Schons, Rhinehart, Desjardins, Hanson, Lt. Col. Gentz Perry, Foley, Cole, Waldron, Allison, Rigler, Clement, James F. Kelly (Omaha) and Roy Kegerreis (Chicago). Benjamin H. Orndorff, Chicago, will represent American Congress on Radiology. Meeting followed by day at Mayo Clinic. **Anyone** interested in subject of Radiological Technique invited. Society

with origin and headquarters in Twin Cities is outstanding contribution to field of better technique and laboratory service. Fostered by high ideals, they have done great deal to better standards of their profession. They work hand in hand with radiologist and are credit to our part of Country.

3. Nurses - Last lecture in six weeks' short course for public health nurses was given by Leo G. Rigler, Monday, May 18th, 4 P.M.. More than 120 nurses have been in attendance. W. T. Peyton discussed field of surgical treatment of malignancy; K. W. Stenstrom, radiological treatment; and L. G. Rigler, radiological diagnosis. Early signs, treatment and public health aspects discussed by W. A. O'Brien. This is part of general program of Cancer Education sponsored by Citizen's Aid Society. Nurses by attendance and interest shown have apparently appreciated effort in their behalf. We are glad of the opportunity to spread cancer knowledge to most important group.

4. Widal Tests - frequently returned as unsatisfactory. Usual complaints, too scanty for satisfactory examination, wet blood. State Board of Health advises us to use one large drop on foil and allow to dry thoroughly before sending or to put 2, 3 cc. in Wassermann tube (mark especially for Widal undulant fever and tularemia). Cooperation will be appreciated.

II. ABSTRACT

TREATMENT OF CARCINOMA OF SKIN.

Ericksen, L. G., Tumor Conference, May 15, 1931 (Author's Abstract).

1. Material: 152 cases (161 lesions). Basal cell carcinoma 83 cases, 88 lesions (55%), Squamous carcinoma 61 cases, 65 lesions (40%); Basal squamous carcinoma 8 cases (5% of total cases, 10% of basal lesions). Period - 4 years.
2. Sex ratio: Basal, 4 males to 5 females, Squamous, 2 males to 1 female, mixed, 7 male to 1 female.
3. Age factor: Basal most frequent 6th decade, limits (11 to 92 years);

Squamous, 7th decade, limits (30 to 87 years); mixed, 6th decade, limits (45 to 82 years).

4. Duration: Basal average 5 years, Median 4 years; Squamous average 3 year, median 2 year; Mixed average 5 year, median 2 years.

5. Location: Tymors of lip excluded - Basal 98% above level of mandible, Squamous 77% above level of mandible.

6. Treatments: number of each and results:

Type	Treatments	Cases	Lost	Fail	Cured
Basal	1	48	8	2	38
"	2	22	1	1	20
"	3	11	0	1	10
"	5	1	0	0	1
"	5+	1	0	1	0
Squamous	1	40	8	4	28
"	2	14	1	1	12
"	3	4	1	1	2
"	4	1	0	0	1
"	5	1	0	0	1
"	5+	1	0	1	0

7. Retreatment:

Basal Cell:

Persistence of lesion (retreated within 3 mo. of original treatment) 20

Recurrence of lesion (retreated after 3 mo. of original treatment) 13

Failures - - - - - 5

75% of those requiring retreatment because of persistence were in cases with clinical diagnosis only.

50% of those requiring retreatment because of recurrence were in cases with clinical diagnosis only.

Squamous cell:

Persistence of lesion - - - - - 16
(38% of these were clinical diagnosis)

Recurrence - - - - - 3

Failures - - - - - 6

8. Results

Basal: 83 cases - 9 lost - 5 failures, all far advanced cases but 1 who was not able to return for retreatment because of age and feebleness. Should have been

cured with 1 treatment however.

Squamous: 61 cases - 10 lost - 6 failures, all far advanced but 1 who was early and had 1 treatment with recurrence and could not return for re-treatment.

Basal squamous: 8 cases - 3 failures, all very far advanced when first seen.

9. Cases treated surgically:

Basal Cell: 2 cases both far advanced, given surgical cautery and post-operative radiation. Both failures.

Squamous Cell: 18 cases.

(1) Early cases with surgical excision and post-operative X-ray and are well now from 6 months to 4 yrs. - 6 cases.

(2) Early cases excised surgically with recurrence, later treated with X-ray and well now 6 months to 4 yrs. 2 cases.

(3) Far advanced cases treated with surgery and radiation. 4 cases all failures.

(4) Early cases treated with surgical excision with recurrence. Sent for radiation treatment when far advanced.

(5) Far advanced case treated with X-ray and radium and lesion healed but found it had extended into parotid gland which was excised with cautery - no recurrence for 1 year.

(6) Received radiation first and surgical excision later because involvement of cartilage - 2 cases. Both well 6 mo. - 2 yrs.

Basal Squamous: 2 cases.

(1) One case far advanced - cauterized surgically - failure.

(2) One early case treated surgically twice at University Dispensary with recurrence. Came to us far advanced - failure.

10. Conclusions:

(1) Youngest Basal Cell Carcinoma, 11 years old which is youngest found reported in literature.

(2) Basal cell carcinoma diagnosis as such clinically will turn out to be basal squamous in 15 to 20% when examined microscopically.

(3) Due to above fact and also to determine radiosensitivity biopsies should be made on all suspicious lesions.

(4) Basal squamous shows incidence of about 12% of epithelioms.

(5) Basal squamous cell carcinoma are very resistant to treatment and must be

treated as grade II Squamous type.

(6) Basal squamous cell carcinoma show narrow strands of tumor cells infiltrating deeper into surrounding structures than basal or squamous and therefore wider area of apparently normal tissue should be excised or radiated than in other two types.

(7) Basal Cell carcinoma practically never metastasizes. If it does, it probably will prove to be mixed cell type.

(8) Basal squamous cell carcinoma is a metamorphosis from basal cell to squamous cell and not a degenerative form of the latter.

(9) Multiple lesions of either or both types may occur on the same patient.

(10) If diagnosed early and properly treated, very good results may be obtained in treatment of skin carcinoma.

Comment: Excellent report showing value of biopsy in determining type of treatment, value of reradiation and follow-up, and essentially favorable type of tumor to treat.

III. CASE REPORT

ACUTE ULCERATIVE ENTERITIS. Path. Pearson.

The case is that of a white female, 56 years of age, admitted to University Hospitals 4-10-31 and died 4-12-31 (3 days).

Acute abdominal attack

4-9-31 6:00 A.M. when the patient got up, felt nauseated. 9:00 A.M. The patient was seized with a sudden severe pain in the lower part of abdomen which was more intense in the right lower quadrant. Pain became progressively worse so physician was called and gave her a hypo. 10:30 P.M. Patient began to vomit greenish material and some mucus. Patient rested somewhat after medication was given by physician.

Hospital (24 hours)

4-10-31 Admitted to the University Hospitals. Physical Examination: Showed definite tenderness in the lower abdomen more marked over the right lower quadrant. There was also some rigidity.

Past History

Negative except for pneumonia which she had three times. Laboratory examination on admission: Hb 90%; wbc 26,400; pmn's 91; lymph 9. Urine negative except for trace of albumen. P 120; T 100.8. The patient was catheterized, 75 cc of urine was obtained. Morphine sulphate gr. 1/4, atropine gr. 1/150 given.

Operation

Begun at 12:37 P.M. and ended 1:15 A.M. (Time 38 minutes). Under spinal anesthesia the abdomen was explored through a McGurney's incision, when the peritoneum was opened there was a gush of purulent fluid. Coils of bowel were deep red, and adhered. Three drains were inserted.

Post-operative

The patient returned from the operating room in fair condition. P 120; R 24. 3000 cc. of saline was given per vein. 4:30 P.M. Morphine sulphate gr. 1/4 given. Patient was put in a semifowler's position. Complains of pain in the operative region. 8:30 P.M. Morphine sulphate gr. 1/4. P 120; R 22. Patient perspires profusely. 12 Midnight - Patient is hyperventilated 5 minutes; coughs some; continuous steam inhalation is instigated. P 120; T to 102.6.

Restless (48 hours)

4-11-31 - Patient perspires profusely and is very restless. Continuous steam inhalations are given. Hyperventilated 5 minutes three times daily. 2:50 A.M. Talks irrationally at times. 4:20 A.M. Morphine sulphate gr. 1/4. T 101; P 112; R 22. Coughs some and is unable to raise sputum. 5:00 P.M. 1000 cc 10% glucose and 1000 cc saline is given per vein.

X-ray

A portable x-ray of the chest at this time--there is some density at the right base with parietal obliterations of the costophrenic sinus. This may represent either a beginning pneumonia or possibly a small amount of fluid, the former seeming somewhat more probable. There is some increase of the markings throughout but no other definite evidence of parenchymal infiltration. There is a dense shadow in the right infraclavicular

region which may possibly represent some calcification within the lung but more likely a thickened pleura. Conclusions: Probable beginning pneumonia, right base. 7:20 P.M. 2 ampules sodium chloride added to the intravenous. The patient has a large emesis. 8:30 P.M. codeine sulphate gr. 1/2. The patient has a watery emesis of 200 cc. 10:30 P.M. Codeine sulphate gr. 1/2. T 102; P 120; R 24.

Distension (72 hours)

4-12-31 Patient is very restless. The abdomen is not distended. 12:30 A.M. Codeine sulphate gr. 1/2. 1:55 A.M. Morphine sulphate gr. 1/4. Complains of distress from distention. Rectal tube is inserted with relief. 6:00 A.M. Morphine sulphate gr. 1/4. Dressing applied. Pulse now weak and irregular. Hyperventilated three times daily. 12:15 P.M. Surgical pituitrin 1.5 cc given. SS enema with poor results. Respirations are now slow and labored. 2:00 P.M. Patient does not respond when talked to. Sodium chloride two ampules added to the intravenous. 1000 cc 10% glucose per vein. 6:15 P.M. Gastric lavage 500 cc retention. SS enema expelled flatus. 1 cc surgical pituitrin and rectal tube. Breathing is now rapid and labored. 9:20 P.M. Caffeine sodium benzoate 7-1/2 gr. The pulse is now very weak. 9:50 P.M. Patient expired.

Autopsy

The body is that of a well developed, well nourished, white female, 167 cm. in length and weighing 200 lbs. Rigor is present; hypostasis is purplish and posterior; no edema; slight cyanosis. There was a generalized jaundice of about +2. The pupils measure 4 mm. and are both equal. There is a McBurney's incision in the right lower quadrant, measuring about 16 cm. (Three drains were present. There were puncture wounds in both antecubital spaces. The side of abdominal wall is about 4 inches thick.

One PERITONEAL CAVITY is opened and contains a large amount of purulent fluid. The APPENDIX is subcecal and free. The tip is reddened but no evidence of perforation and the appearance is as if it were secondary involved.

The PLEURAL CAVITIES contain no fluid. There are numerous, firm, fibrous adhe-

hesions on both sides, especially marked on left side. The PERICARDIAL SAC contains a minimal amount of fluid.

The HEART weighs 300 Gm. The chambers and valves are normal. The ROOT OF THE AORTA is normal and showed a minimal amount of sclerosis.

The RIGHT LUNG weighs 750 Gm. and the LEFT 525 Gm. There is a moderate amount of anthracosis in both upper lobes. Both the lower lobes show the beginning of bronchopneumonia.

The SPLEEN weighs 140 Gm. and on cut section, the pulp is soft and reddish.

The LIVER weighs 1375 Gm. Is very soft and pale. On cut section, especially on the anterior surface there are a few small, pin-point, glazed areas suggestive of small abscesses.

The GALL BLADDER and ducts are normal.

The lower portion of the jejunum and ileum are fiery red in color and adherent. An attempt was made to wall off a pelvic abscess; when this was freed about 300 cc of pus was found in the pelvis. The pelvic organs are carefully examined and show no evidence of any old inflammatory disease but was quite red and congested due to the associated peritonitis. There were also three drains in the PERITONEAL CAVITY extending up along the right gutter. The appendix showed no evidence of perforation. The bowel was examined very carefully and showed no evidence of perforation. The upper jejunum, however, when dissected showed an ulceration of the mucosa with a gray membranous-like structure covering it.

The PANCREAS and ADRENALS are normal.

The LEFT KIDNEY weighs 175 Gm. and the RIGHT weighs 130 Gm.

The BLADDER is normal.

The AORTA shows a moderate amount of sclerosis.

The organs of the HEAD and NECK are not examined.

Diagnosis

1. Acute ulcerative enteritis (cause undetermined).
2. Generalized peritonitis.
3. Bilateral beginning pneumonia.
4. Bilateral pleural adhesions.
5. Recent operative incision.
6. Multiple abscesses of the liver.
7. Cloudy swelling of the liver and kidneys.
8. Multiple puncture wounds.

Comment:

Mild forms of enteritis (catarrhal) show congestion, edema, and increased secretion of mucous, and are thought to be due to irritating foods. Infectious enteritis may be produced by organisms normally present in intestine, especially if injury of mucous membrane is present. Specific enteritis may be due to *B. enteritidis*, *B. paratyphosus*, and cholera vibrio. Ulcerative enteritis of unknown origin may be seen. In severe forms, fibrino-purulent inflammation of the diphtheritic type is present. Phlegmonous inflammation may be encountered at any point along the intestinal tract. Some of the cases of so-called primary peritonitis may have their origin in enteritis. This condition may occur at any time. Note: once seen in woman who was being sent home from hospital after removal of mixed paratid tumor.

IV. ABSTRACTS: CHRONIC ULCERATIVE COLITIS.

1. Reference: Brown, T.R., and Paulson, M., Inter. Surg. Digest (Lewis) Critique Section 8: 67-85 (Aug.) 1929.

2. Synonyms: Non-specific ulcerative colitis, idiopathic ulcerative colitis, colitis ulcerosa, colitis gravis, primary ulcerative colitis, and suppurative colitis. Condition apparently on increase (with usual argument as to whether it represents increased diagnostic efficiency or actual increase). Literature voluminous, consists in main of case reports, clinical observations and impressions, therapeutic procedures and opinions. Formal research and experimental effort have been very limited. Purpose of present communication to survey more important data at hand.

3. Definition: (Negative). It is not colitis gastrogenous, putrefactive, fermentative, endocrine, pancreatic, nervous, environmental; not due to sprue or pellagra; not due to administration or excretion of metallic products such as mercury or arsenic; not due to excretion of toxins of and secondary to known disease; not brought on by known infectious agents such as tubercle, dysentery or cholera bacilli; not occasioned by protozoa, *Entamoeba histolytica*

or *Balantidium coli*; not a secondary manifestation of a known etiologic agent; not the type seen at necropsy as terminal manifestation in disease, e.g., nephritis. In short, etiology still undetermined; cannot be even stated to be a distinct entity, although it is a well recognized syndrome.

4. Morbid Anatomy: Involvement of large intestine. Usually begins in rectum, sometimes at mucocutaneous border; may remain localized in rectum or extend upward, involving at times entire large intestine and fewer instances even terminal ileum. May begin at cecum and ascending colon and descend. By scope (procto and sigmoido) primary involvement of mucosa (hyperemia, friability, tendency to bleed, edema, usually discrete and petechial ulcerations which may be preceded by miliary abscesses). In others, spongy, diffusely hemorrhagic, edematous tissue. As disease progresses, other layers of intestine are involved, resulting in contraction, narrowing (fibrosis) (roentgenoscopically and roentgenographically). Rarely, if ever, completely heals, although mucous membrane may assume normal appearance or show fibrosis. Complications - myocardial changes (toxic myocardium?), metastatic lesions of joints, erythema nodosum, polypoid masses, malignancy, peri-rectal abscess, peripheral neuritis, perforation with peritonitis. Colon empties rapidly and is irritable. Lumen may or may not be constricted or haustra obliterated by spasm.

5. Clinical Signs - diarrhea, continuous or intermittent; blood, mucus and pus in stool; debility; progressive anemia; pyrexia; and eventual emaciation. Note-stasis may be present when disease is restricted to distal segment. Extremely severe hemorrhages are not uncommon. Comment: in one of our cases this was main feature, and diagnosis of hemorrhagic colitis was suggested in excised

bowel. Not all variations and phases are to be seen in same individuals. Acute manifestations tend to be self-limited; periods of remission vary in duration; condition fluctuates between acute exacerbations and chronicity.

6. Historical: "Bloody flux" known for more than 300 years in available English literature. Wilkes (1875) first suggested chronic ulcerative colitis as distinct from epidemic tropical dysentery. Hale-White (1883) - first adequate description of pathology and symptomatology. Believed it to be a distinct entity of unknown etiology. Monograph by Gemmel (1898). Definite differentiation by Vedder, Duvall, Eyre.

7. Etiology: Restricted neither to season, locality nor zone. Apparent increase since Great War. No respect for age or sex. Apparently equally divided between both sexes. Most cases fall in third, fourth, and fifth decades. Ten unquestioned cases in children from 7 to 15 years. Also reported in advanced years. Never has occurred in epidemics. No definite evidence of transmission. In 560 cases, Logan found four instances in same family (exception proves rule). Predisposing factors - debility and overwork; yet on other hand frequently seen as acute invasion in individuals in apparently perfect health. In some instances associated with acute upper respiratory tract infections (see Bargen)

8. Bacteriology: Most literature deals with conjecture, impression, and opinion. Etiology has been suggested because of presence as unusual in location, increase in number of organism (already present) alterations in bacterial flora. Fallacy, in fact danger, of regarding coincidental or anomalous findings as cause of given result, appears to have been forgotten.

a. B. Dysenteriae: Aberrant form of bacillary dysentery (Hurst, 1927 England). Many supporters in Great Britain, Canada, and Continent. Reason offered similar appearance of lesions in both conditions, startling responses to intravenous injection of polyvalent anti-dysenteric sera. Hurst does not believe cause is foreign protein as injections of immune horse serum do not give

same result. Thorlakson and Cadham, Canada, (1928) found few cases with organisms in ulcers. Recognize necessity of further study before final opinion can be given. Against view: Non-agglutination of patient's serum with any of known strains, non-contagious, non-transmissible, very rare to find more than one case in same family, increase in number of cases of chronic ulcerative colitis without corresponding increase in true bacillary dysentery forms.

Comment: In Minnesota experience bacillary dysentery is not uncommon, especially as cause of "summer diarrheas".

b. B. Coli: Bassler (1922) - Authors isolated B. coli from normal sigmoid ulcers of amebic dysentery and bowel of ulcerative colitis produced same lesions in animals. No convincing evidence of primary etiological relationship.

c. Uncommon Bacterial Types: e.g., B. proteus, B. pyocyaneus, B. mucosus capsulatus. Questionable evidence as to any relationship.

d. Virulence Ascribed to Normal Bacterial Inhabitants of Colon: or lowered resistance to normal flora. Theoretical possibility; difficult to prove.

e. Cocci: Diplococci, Pneumococci, Enterococci, Streptococci: Authors state "diplococcus" is descriptive, morphological term, describing condition which may be assumed by many forms as listed above. Diplococci may change to characteristic chains in older cultures. May be confused with others in smear. Pneumococci rarely present in bowel. In 300 specimens of normal feses, none found. Doubt if pneumococci can thrive in human colon or infect walls. When dependence is placed on morphological feature, all who are familiar with bacteriological methods know it may be misleading. Enterococci probably should be classified in separate group: little tendency to chains: not true streptococci or staphylococci. Bargen (Mayo Clinic 1924, 1925) working under Rosenow with Rosenow's methods attempted to establish gram-positive diplococcus as etiologic factor. Papers said to be incomplete as far as bacteriological work is concerned?. Strains (75) only (25) were studied culturally; 50 strains established on basis of morphology alone, (inac-

curate method?). Even agglutination is unreliable with enterococci (often spontaneous). Bargen claims lesion produced experimentally in large intestines (30 to 32%) of rabbits following intravenous injection of "diplococcus". Similar lesions by intravenous injection of mixed cultures from cases of ulcerative colitis. No control study except those done by Rosenow for other types of investigation. Cultural characteristics of Bargen's diplococcus vary with different observers. Thought by Bargen to belong to enterococci, (streptococcus faecalis group) Note: constant and regular inhabitants of normal faeces. (Cultural variation may mean different types). Authors believe not a single unquestioned confirmation of Bargen's work published to date, as all workers use same method (mixed culture). (1928) Bargen's answered major defect in early (controls) work. "Other strains of streptococci were frequently isolated. None produced lesions in rabbits similar to those described." No further description given. Authors studied 14 cases (exacerbations). Ten types of streptococci including "diplococcus" meeting original criteria of Bargen, isolated from 13 cases. In one, only B. coli was demonstrable. No 1 type was found to be present in more than 3 cases. In 2, diplococcus was found, in 1 it was predominating organism. Seven of 10 varieties were injected intravenously (rabbits). Experimental lesions (in one-half) varied from involvement of mucosa to wall with multiple hemorrhages (5 varieties including diplococcus). Authors question specificity of Bargen's organism and state streptococci from ulcerative colitis as well as many others produce identical lesions in laboratory animals. Flora in presence of mucus, blood, and pus, enterococci, and streptococci thrive. Can also be increased in number by saline purging, indicating possible hypermotility factor "change of flora".

f. Positive Blood Cultures have been secured from time to time (rare). Too much significance cannot be placed on such findings in an etiologic way (absorption).

g. Entamoeba Histolytica Infection with Ulcerative Colitis (may be associated). Observed that after entamoeba disappear ulcers may continue from secondary infection (also other tropical diarrhoes).

h. Vitamin Theory: McCarrison has shown that intestinal mucosa is damaged by avitaminosis. Many clinical cases, however, give history of well balanced diet before onset. Secondary signs may appear.

i. Focal Infection: Role is not clear. Should be eradicated whenever present. No indications to date to show amelioration of signs or symptoms. Experimental focal work of Mayo Clinic (mixed cultures). Non-specific?

j. Vagotonia: Apparently not directly related, but condition may follow in patients who have had irritable bowel, spastic constipation, mucus colitis, etc.

h. Duodenal Enzymes: Thought that hyperperistalsis caused partial digestion of mucous membrane?

9. Microscopic Anatomy: Some observers found no nerve cells? Replacement fibrosis with degenerating muscle and round cell infiltration common. Large ulcers covered by mucopurulent or fibrinopurulent exudate leave eroded surface on removal. Mucosa between hypertrophic, friable, and sanguinous. Suppurative condylomata may appear. Strictures apparently not very common.

10. Clinical Features: Two main types (a) One essentially chronic, acute exacerbations comparatively infrequent, usually not severe. May be localized to rectum or gradually extend. Patients seem immune to general toxemia. Most are ambulatory, relatively well nourished, or just below ideal weight. Nearly all able to perform daily tasks: (b) other type acute, rapid extension; soon present marked toxemia, and other signs of severe disease. Both show varying degrees of secondary anemia. Symptoms depend upon severity and extent of involvement.

11. Diagnosis: (a) History: Diarrhea need not be present. Stasis may be found. Stools may be softer than usual, although a little blood attracts patient's attention.

(b) Stool shows mucus and pus, often blood. Even during remissions occult blood test is positive.

(c) Sigmoidoscopic examination shows changes in mucous membrane. Good

way of getting cultures and protozoologic specimen.

(d) Roentgenologic Aspects may be negative in mild restricted cases, sometimes resemble spastic colon. Typical form shows lack of haustra and tube-like colon. Sometimes string of sausages.

12. Prognosis: Cures, by different observers (15%, 20%, 59%, 63%, 70%).

Crohn highest figure with acriflavin?

Crohn wonders if the spontaneous natural curability of disease is not just about figure reported by various observers?).

No specific vaccine or sera employed by above observers in treatment save for Mayo Clinic. Figures do not convey real seriousness of severe types. Large numbers of mild proctitis, mild sigmoiditis are included. Results look very good indeed. Acute fulminating severe cases present high mortality regardless of treatment.

13. Treatment: Primarily medical, dietetic, medicinal, and local. Few

heal spontaneously. Severe cases, usually discouraging. Apparent cure, whatever agent, too often only followed by relapse. Surgical intervention in severe cases should take place early enough to do good (not moribund procedure). Appendicostomy and caecostomy are of little value?

Ileosigmoidostomy is impracticable when rectum and sigmoid are involved, but may be indicated when cecum and ascending colon are affected. Colectomy dangerous. Ileostomy is the operation of choice. Do not restore continuity until normal mucosa appears, blood, pus, and mucous are not found; otherwise recurrence may develop. Heliotherapy is helpful, heat for gas pains.. Foreign protein been used.

Remarkable results follow polyvalent anti-dysenteric serum (in some). Intramuscular injections of anti-pneumococcus serum, boiled milk, Bargaen's serum, vaccine, etc. Impression (authors) "No one who studies these cases conscientiously over a long period of time can fail to be profoundly discouraged as regards treatment whatever it may be in severe cases of ulcerative colitis. Until we know the real etiology and can establish prophylaxis or specific treatment, we feel that this unhappy state of affairs will continue to prevail".

Comment:

Good review of subject with special re-

ference to difficulty in establishing etiology (bacteriology). Shows critical viewpoint in taking into account two types of disease and natural course. Definition indicates scope of diagnosis is being enlarged to include milder forms (new to those who see only hospital, severe, types).

1. Reference: Larson, L.M., Proc. Staff Meeting Mayo Clinic, 6: 241-245 (Apr. 22) 1931.

2. Definition: Chronic ulcerative colitis relatively common, may be mild, symptoms not alarming, severe, depleting, and occasionally fatal. Etiology studied exhaustively (Bargaen) who, along with other investigators, believes diplostreptococcus demonstrable in lesions is of etiologic significance. Logan (1917) 117 cases said metabolic disturbance was among causes of condition.

3. Pathological picture (Buie):

Easily bleeding, granular, diffusely inflamed mucous membrane, process extends throughout entire wall. Any part, or all, of large bowel may be affected. Ileum rarely attacked; if involved, usually only lower portion in latter part of course in severe cases.

4. Diagnosis: Roentgenogram (barium enema) shows characteristic appearance; (diffusely narrowed, foreshortened, nonhaustrated colon). Occasionally, regional or migratory type present, difficult to distinguish extensive tuberculosis or malignancy? With clinical data, differential diagnosis usually possible.

History fairly typical. Discharge from rectum of pus, blood, and mucous, either with or without fecal matter. Usually dates back months or even years, (remissions and exacerbations), during a characteristic attack frequency of equal intensity day and night. Without treatment course usually progresses to chronic invalidism. Onset insidious with gradual increase in number of rectal discharges, or severe and fulminating, with marked prostration, anemia, cramps, fever, and general depletion. Death is often due to complications, including multiple polyposis with malignant degeneration, peri-

rectal abscess, severe intestinal hemorrhage, endocarditis, and perforation of bowel with general peritonitis.

5. Etiology: Many emphasize infectious nature although they are not absolutely certain as to the organisms responsible. Several clinical facts point to bacterial cause, e.g., complications (arthritis, iritis, stomatitis, cutaneous abscesses). Same organism found in lesions of bowel cannot often be identified in distant infections (metastasis from primary inflammation?). Definite improvement after foci removal with symptomatic cure although in some disease may follow operation (previously normal intestine). Colitis seems to be dissemination through system of organisms previously lodged in foci. Onset and recurrence of chronic ulcerative colitis frequently concomitant infection of upper respiratory tract. Any disease which lowers general resistance or local traumatization of the bowel likely to initiate the disease of its recurrences.

6. Factors which predispose.

233 patients at Clinic (1930) were studied. Sex of no great significance. Age about same as for any other infectious disease. 73% between (20 and 50) youngest 22 months of age, oldest 73. Nationality and geographical distribution corresponded with Clinic registration.

(a) 233 cases (53%) show definite predisposing factor (seemed to have relation to onset of disease.) In remainder, came on independent of any other disturbance of health (about half). 124 cases, predisposing factor was definite infections in 52 (influenza 31, head colds 11, sore throat and appendicitis 2 each, otitis media, sinusitis, whooping cough, pleurisy, cholecystitis and epidemic jaundice 1 each).

Note: Infections of upper respiratory tract are main offenders (portal of entry) 3 patients noticed chronic ulcerative colitis followed removal of foci, 1 tonsils, and 2 teeth.

(b) 22%, 233 cases, local resistance of bowel lowered due to trauma or infection. Factors: Long history of constipation (laxatives and enemas) 18; attacks of diarrhea followed ingestion of improperly cooked food or polluted drinking water, 13; amebic dysentery

(stool and proctoscope) 8; epidemic diarrhea (undetermined etiology) 6; perirectal abscess, 3; hemorrhoidectomy, 2; operation for anal fistula, 2.

Others were: (Psychic factors, 6; pregnancy, 4; climate change, 3; urethral dilatation, 1; "Rid-O-Fat" patent medicine, 1; all probably represent a lowering of general resistance.)

(c) Flare ups: 60% ascribed cause; 38% were (head colds, 47; removal of foci, 15; influenza, 14; sore throat, 6; sinusitis, 2; chronic infectious arthritis, tuberculous arthritis, conjunctivitis, prostatitis, and cholecystitis 1). Do not believe flare up (removal foci) should deter. In each eventual benefit overshadowed temporary setback. 22 patients blamed psychic factor proof for recurrences, (seems to be definite significance in etiology). Murray, "The outstanding trait in colitis patients besides fearfulness is their emotional immaturity--it goes without saying that diarrhea is an infantile response to fear."

Agents of doubtful significance in flare ups, 23 (menstruation, 10; chilling, 6; hay fever, 2; pregnancy, 2; migraine, 1; ether anesthesia, 1; and smallpox vaccination, 1). Two stated drinking alcoholic beverages brought on symptoms. Only four could definitely trace trouble to dietary indiscretions.

(d) Conclusion: In more than half of cases of chronic ulcerative colitis, predisposing influence could be ascertained, both as regards initial attack and subsequent recurrences, and the majority of these infections were in upper respiratory tract. Fact would tend to bear further evidence of infectious nature of disease.

Bargen, J. A., in discussion, said: This type of report offers several valuable suggestions. It is worth while not only from standpoint of what may be learned about colitis but much more so from standpoint of method of study.

All 233 patients were questioned, observed, and investigated by Dr. Larson, personally. He wished to emphasize the following points: 1. Many workers have substantiated our original experimental studies; that is, diplostreptococcus has etiological significance in chronic ulcerative colitis. 2. Chronic ulcerative colitis is entity. 3. The disease occurs in the active period of life and

may take a severe toll. 4. Infections of upper respiratory tract frequently initiate the disease and even more frequently cause exacerbations of it. 5. Trauma of the colon, physical and mental fatigue, and other conditions which lower person's resistance, predispose. 6. Foci of infection, not only cause disease, but may act as smoldering volcanoes for patients afflicted with same. 7. Evidence at hand points to close similarity between the causative organism and organisms found in upper respiratory passages in course of infections in these regions.

Comment:

Method of clinical study is of interest but evaluation is difficult. Many diseases mentioned are difficult to diagnose and may represent response to colitis, e.g. "influenza". No references were made in abstract to many workers who substantiated original experimental study although this may appear in original. Neither is evidence given to show methods used to demonstrate similarity between the respiratory tract organisms and those in the colon.

V. CASE REPORT

CHRONIC ULCERATIVE COLITIS.

The case is that of a girl, 10 years of age, readmitted to the University Hospitals 4-11-31, and died 5-14-31 (33 days).

Tuberculosis

1922 - Mother died of tuberculosis.

Mastoid

1929 - Mastoiditis, left, with mastoidectomy. Wound discharged ten months.

Anemia

Summer 1929 - Anemia discovered and treated.

10-20 (?) -29 - Wound stopped draining.

Colitis

11-4(?) -29 - Developed pain in abdomen, diarrhea, blood in stools, and had six to seven stools daily. Large quantity of blood at times.

12-3-29 - Stools became formed again.

Hospital

12-7-29 - Admitted to University Hospitals. Physical examination: Markedly anemic with sub-icteric tinge. Mastoid scar, left, with slight tenderness in lower portion. Left ear drum perforated, slight serous drainage. Bilateral tonsil tags. Posterior cervical glands on right and left. Heart - Systolic murmur over entire precordium. Abdomen - Distended and tympanitic. Liver and spleen palpable and tender. Marked tenderness over descending and pelvic colon. Rectal - negative. Diagnosis: Ulcerative colitis, probably from chronic infection. Laboratory: Hb. 18, rbc's 1,850,000, wbc's 6,450, P 76, L 20, and M 4. Marked hypochromasis, anisocytosis, and polychromatophilia. Stools negative for ova, parasites, and blood. Wassermann - negative.

Diet

12-8-29 - High protein, low residue, and bland diet with buttermilk t.i.d.

12-9-29 - 250 cc. transfusion. X-ray chronic mastoiditis, left. X-ray of sinuses and chest - negative.

12-12-29 - Proctoscopic - many bleeding points in rectal mucosa. No ulcerated areas.

X-ray

12-16-29 - X-ray - left mastoid shows large defect due to operative procedure. Right shows slight haziness of mastoid cells of outer portion, especially over sinus. Significance doubtful.

12-19-29 - X-ray of sinuses and right mastoid - thickened mucous membrane, right maxillary. Right mastoid negative. Hb 57%.

Barium enema

12-20-29 - Barium enema. Colon shows loss of haustration, especially in distal portion. Considerable irregularity of sigmoid. Appearance suggests fairly marked degree of colitis localized chiefly in sigmoid. A few areas of ulceration can be made out.

12-23-29 Fluoroscopic of chest - negative.

1-7-30 - 275 cc. blood transfusion. Respiratory infection cleared up.

1-26-30 - Hb 60%, rbc's 3,750,000.

Improving daily.

2-1-30 - Discharged from University Hospitals.

Dispensary

2-28-30 - Temperature normal. Still has blood in stools. Advised to eat rice, milk, bananas, and jello. Advised tea and mercurochrome enema once daily, and mineral oil.

3-7 - Feels fine now. Put on general diet. Enemas advised two times a week.

3-14 - Passing blood again by bowel since resumption of regular diet. Feels well. Vegetables and fruits continued. Tea enemas, mineral oil, and milk of bismuth.

3-21 - Weight about same. Still passing blood by bowel and having some abdominal cramps. Has 3-4 stools daily. Complains of sore throat.

3-28 - Feeling much better. Passing very little blood by bowel. Using tea enemas and mercurochrome.

4-4 - Improved. Liver, chicken, and fish are added to diet.

4-11 - No blood in stools. Has gained four pounds.

4-25 - Had a little blood in stool for first time yesterday. Add vegetables to diet.

5-2 - Small amount of blood in stool today. Avoid coarse vegetables. Is taking mineral oil. Barium enema advised.

5-5 - Barium enema. Comparison was made with the films made on 12-20-29. The loss of haustrations in the distal colon is not nearly as marked at this time, suggesting marked improvement since the last examination. The colon now appears fairly normal. Conclusion: Minimal colitis, markedly improved.

5-9 - Blood in stool. Has been eating vegetables. String beans in stool. About four stools daily. Continued on bland diet. Advised puree and sieve vegetables.

5-19 - Has lost two pounds. Membrane in fossae where tonsils were removed. Throat cultures were negative.

5-28 - Has lost three pounds more. Enemas advised two times a week. Has hemorrhoids and is using suppositories.

Readmitted

6-2-30 - Readmitted to University Hospitals. Physical examination = no new findings. The patient is very pale

and anemic. Laboratory - Hb. 42, rbc's 3,100,000, wbc's 8,050, P 39, L 60, and M 1. Hypochromasia, anisocytosis, poikilocytosis, and anochromasia with decided shift to left. Urine - except for wbc's occasionally and small amount of albumen, urine remained practically negative throughout stay in Hospital. Stool - frequent stool examinations usually showed blood and mucus. T 100.8; P 82.

Proctoscopic

6-6 - Proctoscopic and hemorrhoidectomy. Mucosa thickened, fibrous, and somewhat polypoid in character. In the distal 10 cm. of the rectum, there were several flat, ragged, indolent appearing ulcers with indurated overhanging margins. The ulcerations were bluish in color. At the mucocutaneous junction anteriorly was a large fibrous external hemorrhoid which was ulcerated on its inner aspect. There were numerous large external hemorrhoids entirely surrounding the anal opening. There are a few small, very fibrous internal hemorrhoids. It was noted that the mucosa of bowel is very friable and bled easily on examination. Probably is the origin of the bleeding which has been noted recently. Procedure: The large skin tag with its ulcerated inner aspect was excised and the defect thus left was closed with several catgut sutures. Good postoperative recovery.

Dysentery

6-8 - Agglutination test for Flexner-Shigo bacillus and administration of polyvalent serum intravenously suggested.

6-9 - Blood transfusion.

6-11 - X-ray of chest - negative.

Complains of pain in abdomen and rectum daily. Medications: Bismuth subcarbonate gr. v t.i.d. Stern's liver extract capsules gr. iii t.i.d. Syrup of iron citro chloride drams i t.i.d. Codeine sulphate gr. \overline{ss} (M) occasionally. Bismuth subsalicylate gr. x used instead of carbonate also.

6-18 - Hb. 55% has increased 15 points since blood transfusion two weeks ago. Pain and diarrhea; pus and blood still persist in stools. Pain and diarrhea are relieved by bismuth salicylate. Placodes also effective in relieving pain and inducing sleep. Irritable and uncooperative at times. Temperature varies between normal and 103°.

Proctoscopic

7-1-30 - Proctoscopic examination - complete denudation of rectal mucosa and epithelium. Proctoscope passed under gas anesthesia. Rectum and sigmoid show large areas of ulceration plus formation of polypoid masses and tags of mucosa which projects into lumen of bowel along the entire length of the visualized bowel. Appearance is that of ulcerative colitis. Advise daily injections of 1-3000 acriflavine with patient in inverted position and kept so for 15 minutes. Later may substitute 10% argyrol. Apply 10% argyrol and thymol to ulceration about anal canal.

7-5-30 - Diet changed from bland to high carbohydrate. Medication as advised above.

Edema

7-17-30 - Temperature practically normal now. Considerable pain on evacuation this morning. Right leg and foot very edematous; left leg and foot slightly edematous.

7-28-30 - Rbc's show moderate hypochromasia, anisocytosis, and poikilocytosis. Neutrophils are slightly toxic. Leucocytes are slightly increased in percentage and show some functional changes. Platelets appear to be slightly reduced on smear. Since blood is only toxic, it may be possible to increase Hb. on Bland's pills (10) daily.

8-15 - Has lost 10# in last 6 months. Barium enema. Colon filled out fairly well and showed only slight improvement of ulcerative colitis since last examination. The proximal colon still appears fairly normal.

Transfusion

8-22-30 - Temperature is normal; pulse 150 to 100. Seems comfortable and had medication now, bismuth salicylate gr. x t.i.d. Bland's pills capsules ii daily. Rectal irrigation using acriflavine 1-3000 followed by 2% mercurochrome. Blood transfusion caused rise of Hb. 80% and caused nausea and vomiting for a day, then marked improvement.

8-28 - Examination of teeth by Dental Department - slight gingivitis. Advised prophylaxis.

8-30 - Bismuth and Bland's pills stopped. Irrigation being continued.

9-2 - Castor oil oz. 55. Irrigations discontinued.

9-3 - SS enema, barium enema. Findings much same as last reported. Process still present appears too not abstained.

9-4 - No medications now. Special high caloric, bland's diet, Happy and contented.

9-8 - Discharged from Hospital. Temperature normal.

Dispensary

9-29-30 - Temperature normal. Weighs 67#. O. K. now. Diet - eggs, vegetables, custards, bananas, and cereals.

10-20 - Looking fine. A little blood in stools in two occasions. Weight 60#.

11-17 - Weight 61-1/4#. Having some gas pains. Small amount of blood in stools past two days. Advised metaphen enemas.

12-1 - Weight 59-1/2#. Blood in stools again. Vegetables omitted from diet. Mineral oil advised.

12-8 - Weight 61-1/2#. Temperature normal. Enemas continued.

12-22 - Weight 59-1/2#. Temperature 97.8 Coughing. Has acute nasal pharyngitis. Lungs negative.

12-23 - Blood in stools almost daily now. Stools not well formed. Advised (1) enema with soap of sodium riconcilate, and (2) lactate.

12-30 - Looks better. Had cramps after soap and lactate.

1-6-31 Weight 60-1/2#. Feels much better. Diet now includes ground spinach and finely mashed carrots.

1-13 - Stools well formed. No pain. Resume of treatment now being carried on every other evening - takes a mercurochrome enema, 20 minutes later takes 2 oz. of 2% Larson's soap in 8 oz. of water. Diet now is potatoes, carrots, macaroni, custards, tapioca, cereals, cream of wheat, cooked milk and cream, and bananas. Is taking lactose drams ii t.i.d.

1-20 - Abdominal exercises advised.

1-27 - Weight 62-1/2#. Pulse 128. Now taking biscuits of 50% wheat germ. Trace of blood in stools, 2 days after biscuits.

2-6 - Enemas discontinued.

2-13 - Weight 61-3/4#. Still taking lactose.

2-20 - Weight 62-3/4#. Sees a little blood in stools now.

2-27 - Blood in stools at times. Mother thinks blood is from urine. No pain.

3-6 - Weight 60#. Temperature 97: pulse 100.

3-13 - Less blood in stools. Sleeps better but headaches occasionally. Patient

appears pale with slight icteric tinge. Advised spinach soup and small amount of spinach leaf.

3-20 - Weight 59-3/4#. Temperature 98.4; pulse 90.

3-27 - Weight 58-3/4#. Complains of pain when eating and on urination. Tincture of belladonna gtt. iii t.i.d.

4-7 - Weight 54#. Hb. 28%. Temperature 98.4. Complains of pains in abdomen and bloody stools. Advised to enter Hospital.

Readmitted

4-11 - Readmitted to University Hospitals. Complains of some pain in lower abdomen, specially on left side. Heart tones clear, regular, and no murmurs. Abdomen - slight fullness and slight tenderness in lower left quadrant. Laboratory: Urine - except for occasional wbc's, urine has remained practically normal. Frequent stool examinations usually showed blood and mucus. Hb. 65, wbc's 4600, rbc's 3,620,000, L 72, E 1, and M 1, P 26. Hypochromasia, anisocytosis, and slight poikilocytosis.

4-13 - X-ray of chest shows no evidence of pathology. Barium enema shows marked ulcerative colitis as previously reported.

4-14 - Paragoric 1 cc. b.i.d. Cod liver oil drams 1 b.i.d. Orange juice. Blaud's pills ii daily. Rectal irrigations with acriflavine 1-3000 followed by 2% mercurochrome daily.

Transfusion

4-15 - Blood transfusion 300 cc. Is on typhoid diet.

4-17 - Poor night due to many watery stools. Temperature 99 to 100.

4-20 - 20,000,000 typhoid organisms for protein reaction, intravenously. Temperature varies 96.4 at 6 P.M. to 102 at 7:30 P.M.

4-22 - Feels better.

Protein shock

4-23 - 20,000,000 typhoid organisms for protein reaction, intravenously. Reaction not indicated.

4-24 - Looks pale and weak. No complaints. Hb. 70. Still having diarrhea. Urine normal.

4-26 - X-ray of long bones, right elbow, right knee joint appear normal. Complains of stomach hurting. Given oil retention enemas daily.

Negative

4-29 - Pus taken for autogenous vaccine from ulcers in rectum. Report from Department of Health state that no dysentery, typhoid or para-typhoid bacilli have been found in stool or feces. Condition seems somewhat improved. X-ray of teeth shows affection of pulp in one of the molars. Extraction advised.

5-1 - Molar extracted under gas. Culture was taken from root of tooth. Calcium chloride gr. x b.i.d. being given. Repeated irrigation because of soreness of rectum. Has frequent liquid stools.

5-2 - Ankles edematous. Very uncomfortable.

Pain

5-7 - Still complaining of the abdominal pain and diarrhea. Very weak and tired.

5-9 - Bismuth subcarbonate gr. xx t.i.d. Is still getting paregoric, cod liver oil, organe juice, calcium chloride, and rectal irrigations, with oil retention enemas daily.

5-11 - Has severe continuous abdominal pain. Is very uncomfortable. Codeine sulphate gr. 1/8 given by mouth. 350 cc. of citrated blood given by transfusion followed by 500 cc. of intravenous saline.

5-12 - Complains of difficulty in breathing, otherwise feels good.

Transfusion

5-13 - Medications now - cod liver oil t.i.d., calcium chloride gr. x t.i.d. Rectal irrigations have been discontinued. 300 cc. citrated blood given by transfusion. Patient has involuntary defecation. Is very weak and restless. Ankles and legs very edematous. Patient talks irrationally. In stupor most of afternoon. Temperature 97.6 to 102.2, rectally. X-ray of abdomen two days ago showed no evidence of perforation of the bowel.

5-14 - Pulse very weak. Responds very slowly. Entire body very edematous. Caffeine gr. iii (H) and adrenalin M (H) gr. x given often from every 5 minutes to 15 minutes from 8:30 A.M. to 9:40 A.M. Extremities cold. Respirations rapid. Fingers cyanotic. Pupils of both eyes dilated. Respirations very labored. Pupils do not react to light. Pulse imperceptible, 11:50 A.M. Exitus.

Autopsy

The body is that of a poorly nourished, fairly well-developed, female child, 76 cm. long, weighing approximately 65#. Rigor is present. Hypostasis is purplish and posterior. There is a 2+ edema of the right leg and 1+ of the left. There is no cyanosis. The skin is a brownish-red. The pupils are equal and regular, measuring 4 mm. in diameter. There are puncture wounds in the antecubital spaces and in the anterior axillary lines on both sides.

The fat on the anterior abdominal wall is about 2.0 mm. thick. As the peritoneum is entered, a yellowish-green fluid containing whitish flecks exude from the lower portion of the abdomen. The right diaphragm is at the 4th rib, the left at the 4th interspace. The PERITONEAL CAVITY is found to contain about 800 cc. of the fluid mentioned above. The APPENDIX is 4 cm. long, subcecal, and free.

The LEFT PLEURAL CAVITY contains about 300 cc. of brownish-red fluid. The PERICARDIAL SAC contains about 75 cc. of clear fluid.

The HEART weighs 125 Gm. The foramen ovale is closed. The valves are normal. The coronary arteries show no changes. The ROOT OF THE AORTA is normal.

The RIGHT LUNG weighs 175 Gm., the LEFT 150 Gm. They are grayish-pink, dappled with black areas 1 to 3 mm. in diameter. On cross section, there is no evidence of congestion at the bases.

The SPLEEN weighs 150 Gm. and on cross section the trabeculae are prominent. The pulp is purplish-red and has a fairly firm consistency.

The LIVER weighs 100 Gm. and is light brownish-yellow. The surfaces made by cutting evert slightly and are also brownish-yellow. There are tiny darker brownish areas, .5 mm. in diameter, dappling the surfaces. The organ cuts with slightly increased resistance.

The GALL-BLADDER appears normal. A dark brownish fluid passes downward through the ducts on pressure over the fundus.

GASTRO-INTESTINAL TRACT. The walls of the colon appear thickened. There are no signs of perforation on external examination. On removing the sigmoid and cecum from the posterior wall, the tissues beneath are found to be thickened and edematous, and a purulent fluid exudes

from the cut surfaces over the psoas and ileo-psoas muscles. On opening the colon, there are longitudinal elongated ulcers with rounded margins some of which show marked undermining. The ulcers vary in size from those 5 cm. by 1 cm. to those .5 cm. in diameter, most of them are in the rectum and sigmoid, and a few in the descending colon and cecum. The small intestine shows a hyperemia near the ileo-cecal valve. The wall of the sigmoid colon is fully 4 cm. thick in places and the cut surface shows yellowish-green areas as though infiltrated with purulent material.

The PANCREAS shows no abnormal changes.

The ADRENALS show slight postmortem autolysis of the medulla.

The LEFT KIDNEY weighs 110 Gm., the RIGHT 115 gm. The capsule strips easily. The surfaces made by cutting are pale and evert slightly. The cortical striations do not stand out as clearly as in the normal organ.

The BLADDER shows slight congestion of the mucosa.

There is a fibrinous exudate like that over the coils of the intestine over the uterus, tubes, and ovaries.

The organs of the HEAD and NECK are not examined.

Diagnosis

1. Chronic ulcerative colitis.
2. Suppurative cellulitis of colon and retroperitoneal tissues, of the false and true pelvis.
3. Fibrino-purulent peritonitis.
4. Serosanguineous pleural effusion, left.
5. Slight pericardial effusion.
6. Fatty metamorphosis of the liver.
7. Cloudy swelling of the kidneys, liver, and spleen.
8. Puncture wounds.