Staff Meeting Bulletin
Hospitals of the » » »
University of Minnesota

Typhoid Fever

Volume IX | Friday, November 19, 1937 | Number 7

STAFF MEETING BULLETIN
HOSPITALS OF THE . . .
UNIVERSITY OF MINNESOTA

Volume IX | Friday, November 19, 1937 | Number 7

INDEX

Published for the General Staff Meeting each week
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William A. O'Brien, M.D.

I. LAST WEEK

Date: November 12, 1937

Place: Recreation Room
Nurses' Hall

Time: 12:30 to 1:20 P.M.

Program: Movie: "Colorful Bombay"

Announcements

The Undescended Testis
C. E. Rea

Discussion: O. H. Wangensteen
Irvine McQuarrie
C. A. Stewart
C. E. Rea

Present: 170

Special Guests:
Homecoming Alumni

Gertrude Gunn,
Record Librarian

II. MOVIE

Title: How To Be a Detective

Released by: M-G-M

III. ANNOUNCEMENTS

American Association
of Medical Social Workers

SMORGASBORD

Sunday, November 21, 1937
4:30 to 8:00 P.M.

U. of M. Nurses Hall
Essex at Union Tickets 65¢

IV. GOSSIP

Health Service Director Ruth Boynton is a cousin of E. Boynton Pierce, better known as E. B. Pierce, General Alumni Secretary of the University of Minnesota.....Medical Fellow Karl d'Autremont Andresen, who prepared today's program is from Duluth, took his undergraduate work at Dartmouth and his medicine at Minnesota. His interest in typhoid fever was stimulated by personal study of the 3 cases reported today, an unusual experience as far as our recent records are concerned. The "d'Autremont" in his name is both a joy and a sorrow to him. It is his mother's family name from an ancestor who came to the United States from France. Karl's part of the family prospered and became law abiding citizens; the other branch is represented by the trio of d'Autremont brothers who blew up the mail car in the famous tunnel robbery about 5 or 6 years ago. You have undoubtedly heard the re-enactment of this episode on Gangbusters and other radio programs. While the Federals were searching for his infamous relatives they learned that his mother's brother was in Africa. Imagine his surprise when he was arrested as a suspect. The Federals were also interested in Karl when he signed his application for a narcotic license. Dr. Andresen wishes to inform one and all that his very distant relatives are not known to him.....Surgical Fellow Harry Hall is a nephew of Gardner Eustis, brother of William Henry Eustis, who gave us the children's building. Harry is famous in his own right as Minnesota's champion ticket taker, having officiated in this capacity at more events than any other member of our group. His size and eagle eye stood him in good stead as no one ever passed without the proper sign. His most famous bum's rush was given to Dr. William F. "Bill" Holman, Superintendent of Buildings and Grounds, who failed to properly identify himself when he got to Harry's gate.....Surgeon Wallace Parks Ritchie, one time boxing champion of Yale, is also famous in his wife's name as she is a cousin of Amelia Earhart .....Head Radiologist on leave L. G.

(Continued on Page 90)

V. TYPHOID FEVER

Karl d'A. Andresen

Typhoid fever is not as common at the present time as it was at the beginning of the century. Medical students and physicians do not see many cases and hence possess an incomplete knowledge of its variable symptomatology and complications. Because the classical symptoms and signs are not always present, cases of typhoid fever are often confused with other diseases.

It is interesting to note how the decrease in incidence of the disease is reflected in the clinical diagnosis of typhoid fever cases by physicians. Since 1910 over 142 cases of typhoid fever, exclusive of 14 cases of Paratyphoid "B" infection, have been observed in this hospital. In the 142 cases studied, a positive diagnosis was made by blood or stool cultures, or at autopsy. 104 of these cases were admitted prior to 1920 and 38 from 1920 until the present time.

Typhoid Fever Cases
University of Minnesota Hospitals

1910 - 1920	104
1920 - 1937	38
Total	142

Incorrect or No Diagnosis
(142 Cases)

Referring or admitting physician	44	30%
*Referring physician . . .	37	26%
Admitting physician . . .	26	18%
Both	19	13%

Incorrect or No Diagnosis
(104 Cases - 1910-1920)

Either or both referring and admitting physicians	23	22%
*Referring physician . . .	18	17%
Admitting physician . . .	18	17%

Incorrect or No Diagnosis
(38 Cases - 1920-1937)

Either or both referring and admitting physician	26	68%
*Referring physician	22	58%
Admitting physician	16	42%

*Figures re referring physician are probably actually lower. Cases in which referring doctor failed to commit himself at all are included.

Usual Incorrect Diagnosis
1910 - 1920

Pneumonia
Miliary Tuberculosis
Endocarditis
Otitis media (children)
Pyelitis

Common Incorrect Diagnosis
1920 - 1937

Undulant fever
Miliary tuberculosis
Upper respiratory infection
Intestinal obstruction
Acute appendicitis
Arthritis
Colitis
Subacute bacterial endocarditis
Pyelitis
Internal injuries
Nephritis
Otitis media (children)
Malaria
Pneumonia

While the low incidence of typhoid fever today may cause confusion in diagnosis that is perturbing to the medical student and clinical instructor, it is a triumph from the public health aspect. Typhoid fever has been brought under control by attacking the problem from the standpoint of sanitation. Effective legislation, diligent work by public

health officials, plus the cooperation of physicians and the public have reduced the incidence of the disease to minor proportions. This has been accomplished by pasteurization of milk, protection of water supplies, the prophylactic use of typhoid vaccine, and the regulation of carriers.

Although typhoid vaccination confers an immunity to the disease, it is only relative, and does not necessarily protect the individual from an overwhelming dose of B. Typhosus, nor will it render a carrier free of B. Typhosus. Furthermore, vaccination against typhoid fever is not obligatory except in certain instances.

Although the disease is under control, the fatality rate is still high. This is well illustrated by the death rate from typhoid fever per 100,000 population in Minnesota (exclusive of Minneapolis, St. Paul and Duluth) from 1900 to 1904 was 19.8. In 1934 the death rate was 0.40. The case fatality rate, however, has remained about the same. This rate, figured for each year from 1917 until the present, has ranged roughly between 9% and 12% except in a few instances in which it was somewhat lower. These figures are in general accord with those obtained from other sources.

Typhoid fever once considered to be water and milk borne infection, is now generally regarded to be transmitted largely by carriers.

A typhoid carrier is one who harbors and eliminates the typhoid bacillus. Coleman groups carriers into 3 categories:

1. The convalescent carrier

2. The chronic carrier, estimated to be as high as 10% of all convalescents.

3. The healthy carrier, from whom a history of typhoid fever cannot be obtained.

*In this State, to quote the Minnesota Department of Health, "For administrative purposes, the term 'typhoid carrier' is used to mean a chronic carrier, i.e., a person with or without a complete or partial ('present' or 'atypical') Widal reaction, in whose stools, urine, or bile typhoid bacilli are found, provided that, in persons who have had typhoid fever, infection is proven at the end of nine months or later following establishment of convalescence," and "A person once proven a carrier is considered a carrier throughout life, unless, after a biliary tract operation, prolonged special studies lead to the conclusion that infection has disappeared."

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*Revision of this definition is now under consideration.

In Minnesota from 1914 until the present, 331 typhoid carriers, exclusive of 43 carriers kept in institutions, have been identified. It is noted that the proportion of women to men is almost exactly 2 to 1. This is in accord with Coleman's observations. 1318 cases of typhoid fever with 97 deaths can be traced to these carriers.

Of 331 Typhoid Carriers, Exclusive of 43 Carriers Kept in Institutions:

Number of carriers who have died	42
Number of carriers who have left Minnesota	28
Removed from list after cholecystectomy	6
Removed from list because of false representation re specimens (later died)	1
Total number of carriers removed from list	77

Adapted from State Board of Health chart.

It is known that convalescent carriers may discharge typhoid bacilli from the urine (this, generally estimated to be 25%, is considered by Coleman to be 40%), and from the feces. There are instances in which pathological discharges have contained typhoid bacilli. Such a case, described by Bigelow, had negative stools and urine, but B. Typhosus was isolated from discharging sinuses in the sternum. The urinary infection is amenable to treatment and tends to disappear early in convalescence. Leven, in a review of the literature, found that the great majority of carriers harbor the typhoid bacillus in the gall bladder, a few in the biliary ducts and liver, and in rare instances in the intestine.

Although many epidemics of the disease have been traced to carriers, examples of which are described by Sawyer, Geiger, Bigelow, and others, it is well to consider that a great many cases are sporadic in nature and appear in unexpected places. In many instances the so-called healthy carrier is at fault, as shown by Stebbins and Reed, Anderson, and McDaniel. These cases occur, for the most part, in households. The origin of the disease is traced to some member of the family or household who may or may not give a history of preceding infection.

Carriers are known to live our their life span without causing a single case of typhoid fever. Others have caused one or more cases, whereas a few, such as the famous "Typhoid Mary," and Sawyer's case, caused outbreaks of the disease wherever they went. The fact that the disease is not spread in greater proportions, according to Anderson and Mack, is due to the supposition that a case of typhoid fever contracted from a carrier represents the cumulative end of a series of variable factors interdependent of each other. If the chain of events is broken at any point, infection will not result. Thus:

1. Viable organisms from a carrier must be passed in the excreta. This is known to occur intermittently.
2. The organism must be transferred to the hands of the carrier. The hands are not contaminated in every instance.
3. The soiled hands must not be sufficiently cleansed.
4. Food must be handled within a time limit that does not allow natural destruction of the organism, such as by drying.
5. The food must be moist and of not too high a degree of acidity.
6. The temperature of the food must not be raised, by cooking or otherwise, above the thermal death point for B. Typhosus.
7. The infected food must be consumed by someone susceptible to infection by B. Typhosus.

Hence chance plays a major role in limiting the spread of the disease.

The Minnesota State Department of Health investigates every case of typhoid fever at the scene of the outbreak. Investigators look for carriers, and often find one. The task is not easy, although experienced investigators can sometimes pick a suspect, and later, by laboratory methods, verify their suspicions. Widal reactions, found by Leven, Heathman, Bigelow, and others, to be positive in about 70% of carriers, are done routinely on various contacts, but only as a lead. In the final analysis, the detection of a carrier depends upon a careful bacteriological examination of the feces.

Carriers living in Minnesota are prohibited from handling milk, butter, food and food products liable to be eaten without being cooked if such materials are offered for sale. Health authorities check creameries in which known or suspected carriers are employed. Precautions as to disposal of body discharges are observed. Personal cleanliness is stressed. Public Health laws back up investigators when carriers do

not cooperate.

Appropriations are made by the State to be used as a "Carrier Aid" fund. This includes expenses necessary for cholecystectomy, and for aiding carriers who have been removed from their accustomed employment because of their condition, and for other reasons. To date four cholecystectomies have been done at state expense and 20 carriers are receiving aid in amounts varying from $15 to $65 per month.

Summary

The incidence of typhoid fever has decreased markedly since the early part of this century, making it more difficult for physicians to recognize a case of the disease clinically. This decrease is due to sanitary regulations and control by the State Board of Health, as well as the identification of carriers. At the present time the problem of further control of typhoid fever is mainly that of the concentration upon the carrier.

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VI. CASE REPORTS

1. White married female, 29.
   Admitted 8-25-37
   Discharged 10-19-37

Present Illness

Upper respiratory infection 3 weeks prior to admission, with malaise, cough and prostration. Recovered slowly, but continued to feel tired and lose weight. Gradually developed non-pro-

ductive chronic cough and dyspnea. Past history essentially negative. No known exposure to tuberculosis.

Physical Examination

White female, dyspneic, slight cough, tired and weak. Flushed face, dulled sensorium, enophthalmos, hoarse voice. Carious teeth. Marked fetor oris. Chest normal. Heart rate regular, rate 110. Blood pressure 110/70. Faint systolic murmur at apex. Heart not enlarged. Abdomen negative. Liver and spleen and kidneys not palpable. Pelvis: old floor laceration. Extremities negative. Neurological: tremor of tongue and slight incoordination of movements of extremities. Temperature 101, respiration 26, Clinical diagnosis: Miliary Tuberculosis.

Laboratory

Urine normal. Hemoglobin 73%, Erythrocytes 4,100,000; leucocytes 5,000 with 58 neutrophiles and 42 lymphocytes. Sedimentation rate 100 1st hour and 120 at end of 2nd hour. Vital capacity 2.4 liters. Spinal fluid negative. Agglutination for B. Typhosus 1:400. B. Typhosus isolated from cultures of stools and material from duodenal drainage. On Sept. 30 and Oct. 4 stools and urine were reported as negative. X-rays: chest negative. Blood cultures sterile.

Course

Clinical course uneventful until September 23 at which time she developed a sudden diarrhea, nausea and vomiting, intense pain in right upper quadrant, radiating to back on right and right scapular region. Had a severe chill followed by temperature elevation to 104.6. A mass, the size of a pear could be palpated below liver in mid-clavicular line. This was very tender. Conservative treatment instituted. Leucocytes now 16,500. Diagnosis was probable acute cholecystitis complicating typhoid fever. In the course of 5 days this mass decreased in size and from then on course was that of progressive improvement until discharge. Was advised to have cholecystectomy done in near future.

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2. White married female, 43.
Admitted 9-15-37,
Discharged 10-20-37.

Present Illness

Abrupt onset, one week prior to admission, of fever, malaise, arthralgia, mild diarrhea, nausea, vomiting, and several shaking chills. Later developed crampy abdominal pain. No dyspnea. Stools negative.

Physical examination

White female, prostrated. Temperature 104.2. Pulse 148. Respiration 22. Slightly dyspneic. Face flushed. Dehydrated. Tongue coated and tremulous. Chest negative. Heart: negative. Blood pressure 120/90. Abdomen generally tender. Liver enlarged to one finger breadth below costal margin. Spleen enlarged to two finger breadths below costal margin and very tender. No rose spots. Patient had a peculiar musty odor. Clinical diagnosis: typhoid fever.

Laboratory

Urine - many granular casts, a trace of albumin, numerous leucocytes. Hemoglobin 90%; leucocytes 4,600; neutrophiles 85, lymphocytes 14, monocyte 1. Non-protein-nitrogen 42.1. CO_2 combining power 42. Agglutination for B. Typhosus 1:400. Blood cultures from 9/15-9/28 on 6 occasions were positive for B. Typhosus. B. Typhosus isolated from feces and blood clot in stools. The day before discharge the organisms were found in urine.

Course

Stormy. Finally became afebrile on October 1st and remained so until discharge. Advised to use caution as to food handling in view of positive urine cultures.

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3. White single female, 35.
Admitted 10-23-37.
Is still in hospital.

Present Illness

Coryza, slight sore throat and congested feeling in chest 2 weeks prior to admission. Then had severe watery diarrhea which persisted for 1 week. Most of these stools were black. Became constipated a week ago. Day before admission again had watery diarrhea of black stools. Had chills followed by fever every day of first week of illness. Also headache, backache, anorexia and mental cloudiness, generalized abdominal tenderness and vomiting.

Physical examination

White female, thin, dehydrated, acutely ill. Temperature 102.2, pulse 108, respiration 24. Cyanotic flush to face. Lips parched and blackened by old bloody crusts. Tongue dry and brown coated. Chest clear. Heart not enlarged. Rate regular. No dicrotic pulse. Systolic murmur along left sternal border and apex. Low pitched systolic murmur over pulmonic area. Pulmonary second increased over aortic second. Blood pressure 128/75. Abdomen distended, tender. Liver down one finger, tender. Spleen down three fingers, tender. Rose spots on abdomen. Neurology essentially negative except for cloudy sensorium, fine tremor of fingers and tongue. Clinical diagnosis: Typhoid fever.

Laboratory

Urine: Plus 1 albumin. Hemoglobin 77. Leucocytes 5,300, neutrophiles 80, lymphocytes 19, monocyte 1. Sedimentation rate 1st hour 12 mm., 2nd hour 37 mm. Agglutination (atypical) 1:200. Blood cultures positive for B. Typhosus. B. Typhosus isolated from stools, stomach and duodenal contents and blood clot passed from rectum.

Course

Stormy. Old cholecystectomy incision broke down or became infected as result of small blister evidently due to hot packs. Gallop rhythm developed. Loud scratchy sound in systole and diastole over conus area. Findings of congestion and atelectasis in lower lobes. Episodes of bleeding from bowel. At present has improved somewhat although gallop rhythm persists.

GOSSIP (Continued from Page 84)

Rigler postcards from Texas that he and his family are having a fine trip..... ..The storehouse was all agog the other day when they received a requisition from the University Hospitals signed by R. Chilcote Schenck. On investigation it was found to be Bob Schenck, the Hospital Steward. Bob, who is the son of a minister, was a one-time accompanist for Rubinoff. He turned down an offer to be Rubinoff's manager to come to the University Hospitals.....Miss Ether "Bill" Harrington, Superintendent Raymond Michael Amberg's secretary, is the daughter of Health Commissioner F. E. Harrington of Minneapolis. When she was a baby, her father was struck by her resemblance to the good luck charm Billiken. This does not exactly date her as the Billiken was popular for some time and is today used by sportswriters as the nickname for the St. Louis University Football team.....At the annual meeting of the Minnesota Public Health Association held at the Nicollet Hotel Friday, October 12th, American Medicine's Voice Morris Fishbein shared honors with the amazing Brainerd High School Choir of 75 voices. When Morris was a youngster, he took elocution. The Fishbein family were very proud to hear that he had been selected to represent his school at the Convention of a lodge. When he appeared before the audience of 2,000 people, he went through all the motions of delivering his piece, but no sound came. His mother shouted "louder" from her seat in the hall, but nothing happened. Today he is one of America's most accomplished speakers with a repertoire of 18 talks (not titles for the same talk). While in Minneapolis and St. Paul over the weekend he delivered 5 talks in 1 day, which is some sort of record..... ..Pediatrician Susan Coons Dees is the wife of Urologist Dees, Exchange Fellow from Johns Hopkins at Ancker Hospital in

St. Paul where he is serving under Urologist F. E. B. Foley. When the news magazine Time published a premature release of the treatment of gonorrhea by Drs. Colston and Dees, the item was copied all over the world. Dr. Dees has received letters from every corner of the globe, asking for some of the miracle medicine to be used in a great variety of conditions. Latest to hear the news is C. A. Pollack of the French Foreign Legion in Algeria, who has started to use it in the treatment of blennorrhagie in the soldiers. He is using the French equivalent of the drug, according to the last issue of Time..... ..Head Obstetrician and Gynecologist J. C. Litzenberg winds up 46 years of attendance at University of Minnesota football games at the Wisconsin game tomorrow. While a student Dr. Litzenberg played in the band, leading the first section as a drum major and playing the bass drum in the second band. He recalls being hired during the Harrison campaign to serenade the voters' booths. At one of the booths two small boys were intrigued by the player of the slide trombone, as they thought he was swallowing part of the horn when he drew it toward him. The player was later Professor Shepardson of the Engineering College. Two ladies sitting back of me at one of the games last year were also discussing Drum Major Litzenberg, wondering how he looked in his uniform. They probably did not realize that Litz was a perfect 36 in those days.....Minnesota's Comptroller William Theophilus Middlebrook, Wesley's Superintendent Paul G. Fesler of Chicago, and former general manager of Bauer and Black, now Vice-President Harry L. Wells, of Northwestern University, sat spellbound, (who didn't?), at staff meeting last week, listening to Surgeon Charles Ethan "noteless" Rea deliver his Homecoming oration on The Undescended Testis. .....There are said to be 12,000 practicing physicians in New York City..... ..Urologist Gilbert Thomas is flying to South America to deliver the official greetings of the University of Minnesota and the Urologists of North America to his colleagues in South America.

The Dean's office has fixed up a very elaborate message for him to take along. .....Ed. Meyerding, Secretary of the Minnesota Public Health Association, was honored (by 300 of his friends) last week at a surprise party. The honored guest saved the evening by getting off the theme "It is better to remember your friends before they are dead."....Surgeon Charles B. Kraft and Nurse Phyllis R. Jensen will soon trip down the aisle to that good old tune so popular with many people. The date of the wedding has not yet been announced but it will probably be before Christmas. Although formal invitations have not been issued, every one is invited. Please bring a gift..... ..Winnipeg Surgeon Oliver Waugh wrote last week for Wisconsin-Minnesota football tickets for his pre-medic son and three of his companions. They are driving from Winnipeg this afternoon and expect to reach Minneapolis before daybreak. Barring blizzards and what-have-you, they will probably get here at the scheduled time. According to Coach Bierman, Canadians are becoming interested in good old football as it is played in the States. He gets requests from small towns for coaches for amateur teams with the usual provision that the coach should also be an expert player himself. After all, the Canadians are very honest about the various divisions of amateurs and professionals.....Have you noticed the good old college colors on the covers the last three weeks (gold and black - Iowa, maroon and gold - Minnesota, and cardinal - Wisconsin - today)? Next week is Thanksgiving and we hope you will have a grand day. Staff meeting will be held one week from today as the University does not have a Friday holiday. To make up for this next week is going to be an extra special surprise meeting. Please do not tell anybody about it.....

Happy Days!!