

GENERAL STAFF MEETING
MINNESOTA GENERAL HOSPITAL
UNIVERSITY OF MINNESOTA

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EDITORIAL**CANCER: THE MENACE OF REPEATED EXAMINATIONS**

Two dangers, usually though not invariably fatal in their consequences, are a constant threat in the life cycle of a carcinoma: (1) the invasion and permeation of the lymphatics; (2) the invasion of the blood stream. Clinicians in general have long recognized the importance of the permeation of lymphatics by an epithelioma and of the early spread of sarcoma through the blood stream, but less well appreciated is the invasion of the blood vessels by the epithelial and glandular cancers.

As early as 1880, Weigert, by special straining methods, demonstrated microscopically that cancer cells directly invade the walls of blood vessels traversing the tumor. Schmidt later amplified these studies and presented fifteen instances in which he found emboli of the cancer cell in the small pulmonary arteries without macroscopic evidence of involvement of the lung. The primary carcinoma in these cases occurred in the prostate, uterus, ovary, bladder, rectum, bile passages,

The significance of these two studies, amply confirmed since, is obvious. Invasion of a blood vessel in the cancerous growth with subsequent metastases to the pulmonary capillaries may be present without clinical evidence. Such metastases may occur at any stage in the life cycle of the cancer, and no one can foretell or know when such a metastatic embolus is released into the blood stream. Perhaps it should be recognized that the treatment of cancer is an emergency measure almost as compelling as appendectomy for acute appendicitis, since it is fraught with even greater danger. A cancer cell, hanging on the brink of a swiftly moving blood stream, may be broken off at any moment and carried beyond reach of effective treatment. Numerous circumstances may hasten this ultimately fatal incident. Massage, the application of heat, iodine, or salves can serve only to increase the hazard of embolic metastases and to nullify completely any later attempts which may be made to control the disease.

Equally dangerous is the manipulation or handling of a malignant tumor by the examining physician. Quite unwittingly he may be party to the dissemination of the cancer by displacing cells into the lumen of an eroded blood vessel. Experimentally, Tyzzer demonstrated the evils of even gentle massage of malignant tumors grown in mice. Repeated short periods of massage of a total duration of only 3 to 5 minutes resulted in double the number of metastases outside the original tumor. Manifestly, any handling and examination of a cancerous lesion, such as a lump in the breast, must be ever so gentle and brief, and must be carried out by as few hands as possible.

The application of this obvious fundamental principle in the care of cancer has been conspicuously disregarded in our medical schools. One need only to follow, for example, a tumor of the breast through the gauntlet of examinations in the out-patient clinic at the hands of students, assistant residents, and visiting surgeons, and through a second gauntlet of careful hospital examinations by student, interne, and members of the house and teaching staff, to realize the possible harm that can be inflicted by repeated examinations before the arrival of the patient in the operating room.

Small wonder that recent statistics from a teaching hospital paint such a doleful picture and that only 12.2 per cent of 573 patients lived 10 years or more after the removal of the cancerous breast. On the other hand, comparable statistics from another clinic where comparatively few examinations are made indicate that 13 per cent of those with axillary involvement and 44 per cent of those without axillary involvement lived 10 years or more. The wide discrepancy in results cannot properly be attributed to type of case or type of operation. The reason lies most probably in the number, vigor, and trauma which are caused by repeated examinations.

Of course, it must be admitted that in any case of cancer of the breast one cannot set aside the probability that the patient herself long before admission to the hospital has been guilty of palpation, compression, and even massage of the tumor, but similar ill-advised maneuvers by examining physicians cannot be too severely criticized.

To safeguard the patient and to void being an unwitting party to the dissemination of death dealing cancer it is suggested that teaching hospitals and clinics observe the following rules:

1. A suspected carcinoma of the breast may be inspected but not palpated by student, interne, or assistant resident except by the flat hand gently applied to the tumor, which must not be squeezed or compressed by the fingers or otherwise handled.
2. Under no circumstances shall the glands in the axillary be felt or sought for except by the operating surgeon and then only with the gentlest touch.
3. The visiting surgeon or resident in charge shall determine the disposition of the case with the minimum examination possible --with inspection only, whenever the eye can determine the diagnosis.

In any campaign against cancer it is essential that doctors, students and teachers of students, should recognize the justice of these rules, and that every effort should be made and every means should be employed to determine the diagnosis of accessible tumors without unnecessarily endangering the life of the patient.

Moreover, it is obvious that an analysis of the results of different methods of treatment of carcinoma of the breast is incomplete, and the proper evaluation of such methods practically impossible without a knowledge of what has occurred in the interval between first recognition of trouble by the patient and her submission to medical treatment. The results in patient who submit to treatment after long delays, punctuated by massage

and local remedies, cannot be compared to results obtained in patients who are treated promptly after discovery of the lesion. A segregation of the two classes of patients should increase the accuracy of any statistical studies which may be undertaken to compare different methods of treatment of cancer of the breast.

Emile Holman, M.D., F.A.C.S.

From: Bulletin of the American Society for the Control of Cancer, XV:10-12, (March) '33.

II. ABSTRACTS

UNDULANT FEVER.

Abstr. Wallace Ritchie.

1. References:

- (1) Reimann, H.A.:
Infectious diseases.
Musser - Internal Medicine,
Lea & Febiger, 1932.
- (2) Hardy, A.V., Jordon, C.F.,
Borts, I.H., Hardy, G.C.:
Undulant Fever.
National Institute of Health,
Bulletin No.158, (Dec.) '30.
- (3) Hardy, A.V.:
(a) Undulant Fever.
J.A.M.A.93:891-897 (Sept.21)
'29.
(b) Undulant Fever.
J.A.M.A.92:853-860 (Mar.16),
'29.
- (4) Hardy, A.V., Hudson, M.G.,
Jordon, C.F.:
Skin a portal of entry. J. of
Infect. Dis., 45:4, 271-282,
(Oct.) '29.
- (5) Simpson, W.M.:
(a) Undulant Fever.
Ann. of Int.Med., 4:
238-259, (Sept.) '30.
(b) Surgical aspects of
Undulant Fever.
Am. J.Surg. 7: 597-604.
(Nov.) '29.

(6) Public Health Reports:

(a) 46, #26, (June 26,) '31.

(b) 45, #29, (July 18,) '30.

2. Synonyms:

Brucelliasias; Malta, Mediterranean or Gibraltar fever; Febris melitensis; Mittelmeer fieber; Bang's disease (1).

Term "Malta fever" changed to undulant fever 1897. Although it removes geographic restriction, it is not altogether satisfactory as disease as seen in U.S. is seldom characterized by typical undulating type of fever (1). Generally accepted term is "undulant fever".

3. History:

(1) Hughes (for ref. see 2) points out that Hippocrates gave description of fevers which detailed characteristics of this infection.

(2) Increasing prevalence observed by medical officers in Malta during years 1854-1860.

1897 -- David Bruce isolated causative organism -- called "micrococcus melitensis".

1904-1907 -- Commission working on disease in Malta decided to use goats for laboratory animals as smaller animals were not obtainable. As preliminary step the animals were tested for susceptibility. Much to commission's surprise five of the six goats showed high agglutination titer for micrococcus melitensis. Result of prohibition of use of goat's milk by military forces showed striking decrease in incidence of disease. Until recently considered an established fact that undulant fever had its sole source in goats (2).

Almost simultaneously with discovery of micrococcus melitensis was discovery of causative agent of contagious abortion in cattle by Bang (1897). Known thereafter as "bacillus abortus". Twenty years later Evans (for ref. see 5a) demonstrated striking similarity of morphologic and cultural characteristics of two organisms--micrococcus melitensis and bacillus abortus.

Meyer and Shaw (for ref. see 5a) proposed that abortus-melitensis organisms should be designated by name of Brucella--in honor of David Bruce.

There are three common varieties:

(1) Brucella melitensis-variety melitensis, type derived from goats (caprine type).

(2) Brucella melitensis-variety abortus.

a. Bovis or bovine type -- derived from cows.

b. Suis or porcine type -- derived from hogs.

Evans showed that 2 organisms are indistinguishable morphologically, biochemically, and by ordinary agglutination reactions. Several tests have been employed to differentiate three varieties none of which are constantly reliable (1).

The 3 varieties of Brucella are small, non-encapsulated, non-motile and gram negative. Coccoid and bacillary forms occur as well as intermediary oval shapes (2).

4. Relative Pathogenicity for man.

There have been many observations with varying results. It is generally conceded that Brucella abortus (bovine) is less pathogenic for man than caprine (or porcine). Relative frequency of contagious abortion in cattle as compared with frequency of undulant fever in man seems to substantiate this view. (State that 90% of herds of Connecticut are infected, 86% of herds of Pennsylvania, etc.) Hirschboeck (for ref., see 5a) (1) reports that of 16,319 cattle tested at University of Minnesota Farm School, 30% gave strong serological reactions while 6% reacted positively in lesser dilutions.

In general, porcine (suis) and caprine (melitensis) strains are more pathogenic than the bovine (abortus) strain.

There is good evidence that cows become infected with porcine and caprine strains and may transmit organisms through milk (6a).

Question of pathogenicity still undecided.

5. Incidence:

Marked increase in number of cases recognized since 1922. Not necessarily an increase in number of cases however.

<u>Year</u>	<u>No. reported</u>
1922	1
1923	0
1924	2
1925	8
1926	42
1927	206
1928	635
1929	1501 (Simpson) (952 officially reported).

Undulant fever is a reportable disease (Hardy) in 32 states, not reportable in 7, no information about 9 (6a). Reportable in Minnesota.

Difficult to tell relative sectional incidence but Hardy states (32) that we may say "with no probability of error that undulant fever occurs either sporadically or endemically in all states."

In the United States, endemic foci of caprine (goat) variety exist in southwestern states; elsewhere the bovine or porcine types predominate.

Disease is recognized in Europe, Russia, China, South Africa and Russia (1).

In Denmark and Sweden, it appears that Brucella infections are more common than typhoid fever (1).

6. Age and Sex:

Largest number of cases found in young and middle-aged adult males which

suggests strongly the possibility of occupational contact infection. Only 3 out of 125 cases from 0 - 9 years (in Hardy cases).

7. Occupation:

124 cases (Hardy). 56 farmers, 8 farmer's wives, 12 packing house workers, 3 stock buyers, 2 workers in dairy product plants, 1 butcher (82 cases having more or less direct contact with livestock, meats or dairy products. 12 housewives, 5 students, 5 children, 3 mechanics, 2 nurses, 1 each of 15 different occupations ranging from a physician to an imbecile. Disease more prevalent in rural communities than in large cities.

8. Seasonal variations:

Highest incidence in summer months, April through September (6a).

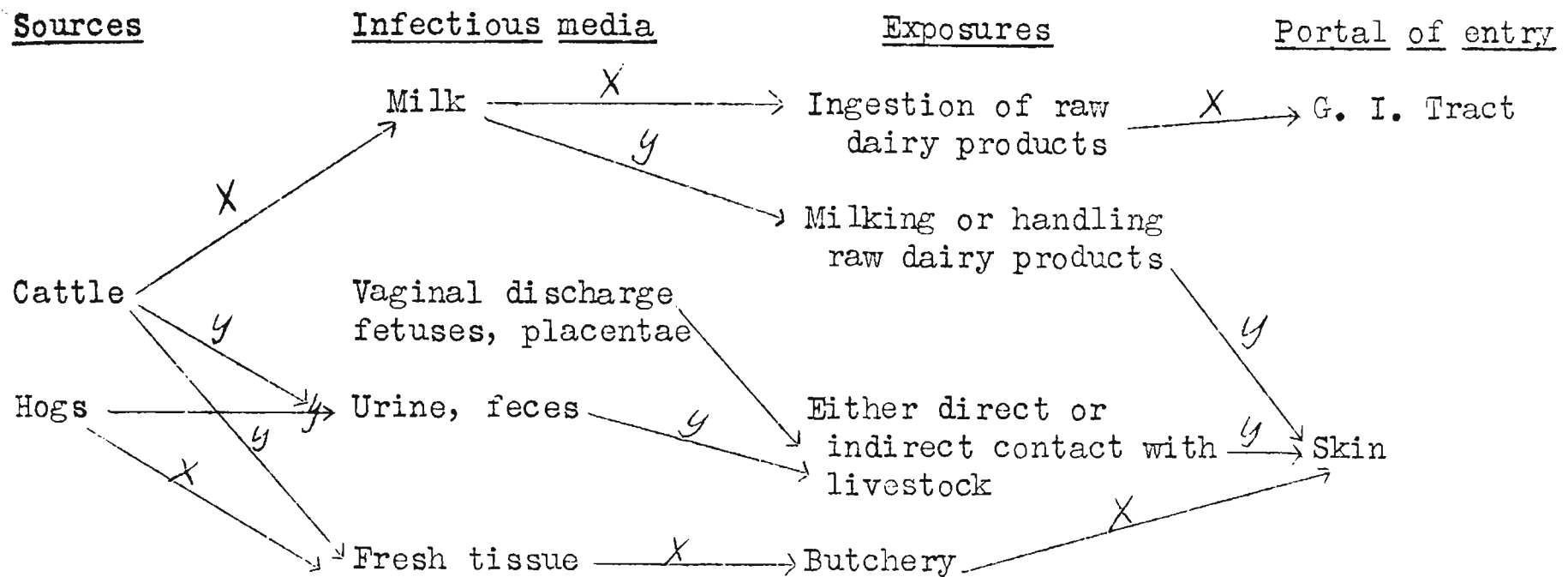
9. Sources of Infection:

Hardy divides cases into 3 types. (2)

a. Those without direct contact with livestock or carcasses, majority lived in cities. In this group, cases seemed clearly to be related to ingestion of raw dairy products.

b. Rural cases having direct contact with livestock. Weighing all evidence information indicates that the sources were equally divided between hogs and cattle. Most of the infections derived from cattle, though not all may be explained by ingestion. Those derived from hogs depended upon, probably, direct or indirect contact, the portal of entry presumably being the skin.

c. Urban cases having direct contact with livestock or carcasses. Conclusions drawn were that contact with carcasses of cattle is rarely followed by undulant fever, but that cases in contact with hogs more readily contracted disease.

Mode of transmission (Hardy): (2)

X = usual mode of transmission
Y = unusual mode of transmission

10. Mode of Entrance:

While great majority of human cases of infection have resulted from ingestion of unpasteurized milk and dairy products the disease also affects packing house workers, meat handlers, veterinarians as a result of the handling of infected tissue (5a).

Hardy has conducted (4) animal experiments which seem to indicate the *Brucella abortus* like *Bacterium tularensis* possesses ability to penetrate unbroken skin.

11. Pathology:

Pathological studies are extremely scarce because of few fatalities. The changes described are extremely variable. Most constant finding is enlarged spleen and liver. In one case, lymph follicles of spleen were sparse and hypoplastic. Marked hyperplasia of pulp and increased amount of blood in the sinuses. Liver showed small round cell perivascular infiltrations around the portal vessels. Others formed granulomata in the spleen resembling miliary tuberculosis. In an experimentally infected guinea pig, a "tubercle" was found in the liver, also hepatic abscesses. Endophlebitis and thrombophlebitis of larger veins were present in some cases, resembling changes in typhoid.

Outstanding findings have been splenic and hepatic enlargement, "Tubercles" in liver and spleen, and thrombophlebitis in vessels.

Vegetative endocarditis and acute nephritis have been reported?

12. Laboratory procedures: (1 & 2)

A. Bacteriology. Certain modifications of regular technique to be noted.

(1) Blood cultures: Clinician must use at least 10 cc. of blood as organisms are scarce. Prolonged incubation of great importance. Broth cultures occasionally reveal growth on 4th day, if subcultures are made. May be 4 weeks if subcultures are not made.

All subcultures should be made in duplicate, one to be incubated in air, the other in a sealed jar containing 10% CO₂ by volume. Recommends two blood cultures in broth so that this can be carried out. *Abortus* variety grows better in CO₂.

Brucella may be grown in various enriched media. Found that fresh beef liver broth and agar (P.H. 66) most satisfactory.

(2) Urine cultures: Poor results, recommend guinea pig inoculation.

(3) Stool cultures: To a dilute suspension of feces, there is added an amount of positive immune serum adequate to produce agglutination. After two hours of incubation, the clumps are thrown down by centrifugation. Sediment is washed in saline solution and inoculation then made on solid media.

(4) Guinea pig inoculation: Brucella isolation often only possible through animal inoculation. Guinea pigs most satisfactory.

Whole blood given intraperitoneally.

Sputum and sediment of urine and feces best injected subcutaneously in groin.

Agglutination test may be performed after 4 weeks, on serum from blood of test animal removed by intracardiac puncture.

Positive animals sacrificed between 6th and 8th week. Spleen, liver, enlarged lymph glands removed aseptically. Cut surface is smeared on solid media. Growth usually results.

B. Serological procedures.

Technical procedure outlined by Hardy (2). Owing to relatively prolonged period of onset in this disease, ordinarily a positive test will be found at time of first consultation.

Interpretation of Results:

Titers of	Regarded as:
less than 1 - 40	negative.
Titers of 1 - 40	" doubtful
Titers of 1 - 80	" weakly positive
Titers of 1 -160 and 1 -320	" positive
Titers of 1 -640 and 1-1280	" strongly positive

It must be remembered by clinician that infections with positive serological tests but without clinical manifestation occur and that they may be associated with other diseases.

Well-known that in some cases where agglutination is no higher than 1 - 80, positive blood cultures have been obtained (6b).

Also well established that certain individuals may acquire agglutinating powers as a result of frequent exposure to the infection either by ingestion or contact. In 72 practicing veterinaries of Illinois, 3 gave agglutination in 1 : 80, 1 : 160; 1 : 640, 13 others gave some agglutination in smaller dilutions and none had ever had a clinically recognized attack of undulant fever (6b).

Therefore, diagnosis cannot be made by laboratory man alone but by attending physician with help of serological data.

C. Skin test (1): Inject .05cc. of a very light suspension of Brucella intracutaneously. A positive reaction appears in 12 to 48 hours. Healing occurs in 10 - 30 days. Test said to be specific. Not used by all investigators.

13. Clinical:

Many writers state that diagnosis of undulant fever entails great difficulties and that the first thought of the disease usually emanates from the laboratory, but in 90 cases collected by Simpson in nearly one-half the clinical diagnoses made first.

Reimann classifies five clinical varieties for convenience in discussion.

(1) Latent form - emphasized by Spengler. Amoss' demonstration of Brucella in gall-bladder furnishes evidence that Brucella may be found quiescent in certain foci.

(2) Ambulatory types - about 1/4 of cases. Only symptoms are weakness, lack of endurance or irritability. Patients can remain at work.

(3) A form with intermittent fever. Commonest type in United States, due

to bovine or porcine type, characterized by insidious onset and a prolonged fever exhibiting in its rise and decline a single large wave lasting from 6 weeks to 7 months.

(4) A form with undulating fever: Observed in about 15% of U.S. cases. Caprine (goat) infections are characterized by this type. Usually more severe and are accompanied by joint effusion and neuritis.

(5) Malignant or fulminating type: characterized by a sudden onset and evidence of an overwhelming infection. Rare.

Hardy gives good summary of the course of the disease in his series of cases.

Reimann's presentation of symptomatology includes main points presented by Hardy and Wilson in their reports.

(1) Onset - may be insidious (usually) or sudden.

Patients become vaguely aware of an afternoon or evening rise of temperature and begin to notice tiredness, weakness and vague aching pain. In all of Hardy's cases with rapid or insidious onset with exception of two which began abruptly with rigor, the above symptoms were found in varying degree. Other initial symptoms were headache, chilliness, anorexia, general aching. Most frequently patients sought medical care because of a suspicion of fever.

(2) As disease progresses, profuse, drenching nocturnal perspiration is prominent feature. Often peculiar fetid, sweetish odor of perspiration is noted. Even at this stage, patient may not be incapacitated although his fever may rise to 103°F. Delirium seldom occurs or stupor as seen in typhoid fever (1).

Majority of patients compelled to remain in bed. Rest usually gives relief.

After a period averaging from 6 weeks to 4 months (1/3 of time spent in bed), temperature gradually reaches normal. Over-exertion at this time may cause relapse (1).

In some cases disease present for year. Simpson notes a case of 8 years duration.

Resume of symptoms shown by 300 cases of Hardy's (4).

- a. Weakness present in all.
- b. Sweating (most distinctive feature) 84%.
- c. Chills, associated with period of invasion, 77%.
- d. Pain. General aching 5% (prominent), present mildly in 50%, headache (early stages), abdominal pain in 18% of Simpson's cases (5a).

Nausea, vomiting and constipation frequently noted.

Resume of Signs: (1, 2)

- a. Fever: In intermittent type, morning temperature from 98-102, evening 101-104; may reach 106. After a long single wave, the level lowers and terminates by lysis.

In undulatory type, fever is step-like increase until fastigium is reached. Daily remissions are less marked.

- b. Nutritive changes. Weight loss is present, 20-30 lbs.
- c. Majority of patients do not appear ill.
- d. Low blood pressure often found late in disease.
- e. Spleen palpable in about one-third of cases, sometimes tender.
- f. Skin eruption sometimes noted, occasionally simulating rose spots.
- g. Pulse usually varies directly with temperature.
- h. Urine, no distinctive characteristics.
- i. Leucopenia the rule though rarely of marked degree. Secondary anemia with both Rbc and Hb. decrease. Differential count usually reveals decreased Pm percentage.

Diagnosis:

Undulant fever should be considered in all cases of prolonged fever of obscure origin (1). Important not to focus too much attention on isolated symptoms but to consider clinical picture as a whole. Diagnosis made by signs, symptoms and laboratory test heretofore described.

Differential diagnosis:

Hardy (2) noted erroneous diagnoses in 300 cases. Three most common were typhoid, influenza, tuberculosis.

(1) Typhoid and paratyphoid, Widal and isolation of organism.

(2) Influenza (20% erroneous diagnoses) usually because of label of "influenza" for all indefinite fever.

(3) Tuberculosis offers real difficulty. Laboratory tests will settle the question.

(4) Malaria.

(5) Pyogenic septicemia.

(6) Subacute bacterial endocarditis.

May have this secondary to fever.

(7) Acute rheumatic fever.

(8) Tularemia. Usually no difficulty except in rare cases. Further difficulty in that Brucella antigens may be agglutinated in diagnostic titers by the serum of tularemia patients. Therefore, if test is performed for undulant fever only, agglutination of Brucella may lead to an erroneous diagnosis. If there has been a history of possible exposure to B. tularensis, agglutination for this should also be performed.

a. Appendicitis and cholecystitis.

Simpson (2) has record of 12 appendectomies and 2 cholecystectomies having been performed in cases of undulant fever.

Prognosis:

Hardy fatality 3%. Deaths occurred in ambulatory as well as malignant variety.

Duration cannot be predicted, average duration 3 months.

Guarded prognosis if infection is known or believed to be of suis type.

Safe to give fair prognosis in cases attributed to bovine variety.

Treatment:

1. Available therapeutic procedures of proven value and of first importance are:
 - a. Rest
 - b. Liberal diet
 - c. Adequate fluids
 - d. Symptomatic treatment
 - e. Exercise in convalescence
 closely guarded so that elevation of temperature about 100 F. are prevented.
2. Therapeutic measures of unproven value:
 - a. Specific vaccine, unsettled (used in our case).
 - b. Use of non-specific protein, not recommended.

Prophylaxis:

In cities having only portion of their milk supply pasteurized, undulant fever has picked out the user of raw milk with as much precision as small-pox picks out the unvaccinated (6b).

The problem of eradication is veterinary one of great magnitude.

It should be recognized that most of the older and many comparatively recent textbooks describe the type of undulant fever caused by the caprine variety of melitensis. This group comprises only about 15% of the cases in the U.S. The undulating type of fever is the main characteristic. A true description of the disease will therefore place this type of fever further in the background as it is not typical of all cases.

Impressions:

1. Stimulation of interest in undulant fever occurred in 1918 when Evans shows the organism. Micrococcus melitensis was closely related to organism of infectious abortion in cattle.
2. Recognition of fact that undulant fever was not only a disease contracted from goats but could be

contracted from hogs and cattle increased the diagnosis of undulant fever many times.

3. *Brucellas melitensis* variant *melitensis* (goat) is more pathogenic than organism obtained from cow or hog.

4. Undulant fever is a widespread disease.

5. Contracted either from infected milk or direct contact with infected tissue.

6. Pathological studies extremely scarce because of low mortality.

7. Laboratory procedures are agglutination tests, blood cultures and guinea pig inoculation; all important in assisting clinical diagnosis but not making diagnosis alone.

8. Differential diagnosis most important from typhoid, influenza and tuberculosis. Because of abdominal pain in 20%, surgical operations sometimes done.

9. Ultimate prognosis is good.

10. Specific treatment not established.

11. Case reported fairly typical of type of undulant fever most prevalent - that due to bovine type of infection.

III. CASE REPORT

UNDULANT FEVER.

Since 1928, there have been 10 cases of undulant fever in the Minnesota General Hospital, 2 of which are in the hospital at the present time.

Case is that of white male, 27 years old, admitted to Minnesota General Hospital 12-15-31, discharged 12-23-31 (8 days), readmitted 2-11-32, discharged 2-13-32 (2 days). Total stay 10 days.

Well - Tired - Fever - Sweat - Bed

11-15-31 - Felt tired and weak throughout day. Went to bed early and rose next morning feeling well. Later in day,

developed fever, perspired, and went to bed.

11-17-31 - Arose in morning, felt well, went to work. Forced to go back to bed early in evening with fever, sweating and weakness and fatigue. No cough or any signs of cold. Remained in bed for next 5 weeks. Intermittent type of fever, usually 102 - 103 in afternoon and normal in evening and morning. Persistent night sweats. Somewhat constipated during 5 weeks in bed. Enemas taken daily. For first few days after onset of weakness and fatigue, had several crampy pains across abdomen and then they disappeared. Occasional light headaches.

Past history

Essentially negative. Lived on a farm and drank a great deal of raw milk. Seen during course of illness by physician who first thought of typhoid and then undulant fever.

Admitted

12-15-31 - Physical examination: Head - negative. Throat - tonsils somewhat injected. Chest - lungs clear to percussion and auscultation; heart - blood pressure 96/56, normal in size and shape, no murmurs. Abdomen - no tenderness, liver not palpable, spleen palpable. Reflexes - normal. Rectal - negative. Laboratory: Blood - Hb. 82%, wbc's 5,000, rbc's 4,010,000, Pmn's 38%, L 61%, M 1%. Progress: Temperature 100.4. Pulse 110. Respirations 22. Urine - 1.010, sugar and albumen negative, few wbc's.

Positive Agglutination - Skin Test

12-16-31 - Agglutination test - dilution of 1:320 and partial dilution 1:640. During stay in hospital, temperature ranged from 100.5 to 98, daily variation being about 1°.

12-17-31 - Skin test - 24 hours later, indurated (reddened) area about 3 or 4 cm. in diameter; 48 hours later, increased to about 5 cm. in diameter. Area of sloughing and shortly afterward a pustule in center was noted. This was all superficial.

Vaccine

12-21-31 - Vaccine, 1/4 cu. cm.
12-23-31 - Vaccine repeated. No

chills following administration.

Remainder of treatment during stay was symptomatic. Discharged to continue convalescence at home.

Interval history

In bed constantly since discharge. Allowed to get up and go out-of-doors twice. Free from fever for 2 weeks. Before this, fever was not present every day and seldom went above 99. No vaccine therapy for approximately 2 weeks. When patient first went home, local physician gave him 2 vaccine treatments at 3-day intervals. From that time until 2 weeks ago received 1 treatment per week. Still has weak spells. Some pain still present in abdomen. Constipation much improved.

Readmitted

2-11-32 - Physical examination: Head - negative. Throat - slightly injected. Neck - few palpable glands in anterior cervical. Chest - lungs clear to percussion and auscultation; heart - blood pressure 110/70, normal in size and shape, no murmurs. Abdomen - some tenderness beneath umbilicus on deep palpation; spleen questionably palpable. Extremities - small scar on right forearm where a skin test was performed. Laboratory: Urine - negative. Blood - Hb. 80%, wbc's 6,350, Pmn's 47%, L 41%, M 8%, E 4%. Agglutination test - present in dilution of 1:640 when tested with Br. melitensis (abortus) antigen; absent in dilution of 1:10 and above when tested with Bact. tularensis antigen.

Discharged

2-13-32 - During the 2½ day stay, temperature varied from 97 to 98.6, highest being at 4 o'clock.

Comment

This case is typical of type of undulant fever acquired from the bovine type of Brucella melitensis, heretofore described as the most common type of undulant fever in this country. It has definite onset of weakness, night sweats and intermittent fever. The onset is not insidious or extremely abrupt. The last blood cultures are negative and guinea pigs inoculated but it was found that the set of the control guinea pigs showed agglutination as well as the guinea pigs inoculated with the blood. Case is interest-

ing because of the use of undulant fever vaccine. No definite conclusions can be drawn as to the value of the vaccine although the history suggests that the course of the disease was somewhat modified by the use of the vaccine.

INFORMATION DESIRED FOR CASE REPORT ON UNDULANT FEVER.

Date:
Physician:
Residence:
Patient's Name:
Age:
Sex:
Residence:
County:
Occupation:
Date of first symptoms:
First symptoms consisted of:
Agglutination with Br. melitensis (abortus) antigen.
Does patient use raw milk or cream:
Is patient a Milk Drinker:
If so, name of dairy owner:
Any history of abortion in herd:
Has patient had any contact with cattle or hogs:
Any history of abortion in hogs:
Physician's view of probable source:
Remarks:

IV. MEETING

Date: March 16, 1933.
Place: Interne's Lounge, 6th Floor, West Building.
Time: 12:15 to 1:18 P.M.
Program: Tumors of Colon.
Present: 94
Discussion: L. G. Rigler
O. H. Wangenstein
Louis Sperling
F. R. Vanzant
Richard Johnson
R. W. Koucky
Harry W. Christianson

Theme:

L.G.R.: Films made without barium to show gas. Rather interesting appearance. First film showed gas accumulation right side of abdomen. Cecum greatly distended. Few loops of small bowel also showed distention. Left side no gas. Film taken later showed most of gas which was present on right over on left. Ascending colon visualized by gas. Difficult to make out position of colon. Suggested obstruction but change of position of gas from time to time indicated it was probably spastic basis. Chest plate showed mass in superior mediastinum (goiter). Abdominal plates made after cecostomy tube put in, accumulation of fecal material indicating colon patent up to that point.

O.H.W.: Interesting report prepared for discussion. I suppose intestinal colic is easiest to identify. In colon you have closed loop obstructions because of ileocecal valve. Valve usually precludes distention of small intestine. Most vicious obstruction encountered is this type. Simple obstruction of small intestine results in few perforations of the small bowel. I have seen this. In the colon see it right along due to over-distention.

As concerns this case: Even at autopsy pathologist failed to find tumor in bowel until he cut it open. Same situation at operation. At operation failed to find anything in colon. Hesitated to do cecostomy. Note in x-ray plates there was not a continuous gaseous shadow from one end to the other. Most probable diagnosis thought to be spastic colitis. Knowing that colonic perforation sometimes occurs in spastic obstruction, I did a cecostomy.

A few days later showed a patient to clinic as case in which we failed to make diagnosis of acute obstruction in the colon. While patient was there, talked it over with Dr. Rigler, and we decided that barium enema should be done in all. Another woman came in who had picture much like this. Barium went through and showed distention, not organic obstruction. After attack was over, not distended. After attack was reexamined and obstruction found. Difficult in some

of these atypical cases to make diagnosis.

Preparation of patient for operation: to avoid peritonitis is debatable subject. We are not agreed as to whether specific local immunity is established. Dr. Scott and I have been trying to sterilize bowel. We have taken loop of gut, brought both loops up to surface, washed out loop every day for months, continuity of intestines reestablished, got peritonitis. It is important to get rid of obstruction. Our experience with this case leads me to believe cecostomy for obstruction is a poor operation. Obstruction decompressed; 11 - 12 days later died of perforation of gut. Dr. Carlson did cecostomy the other day on another case but it did not drain well. Important to get feces out of colon. Make complete division of fecal stream in region of transverse colon (best point).

L.S.: In acute obstruction of the colon pressure measured at time of operation has been between 12 and 30 cm. of water. Experimentally in laboratory, pressures of even 10 cm. of water maintained over a sufficient period of time (24 to 30 hours) results in definite pathological changes in bowel wall. The increased intraluminal pressure can explain gangrenous changes in the cecum and perforations which occur in these cases.

L.G.R.: Call attention to fact that we have been doing many difficult cases. In our experience, most patients have been in terrible condition; therefore diagnostic accuracy (x-ray) very poor. Unable to give barium enema with any degree of facility because patients expelled it. Distended with gas and difficult to put anything else into them. X-ray diagnosis of carcinoma of rectum pretty poor sort of thing; much better to make diagnosis by digital examination. It is difficult to visualize rectum, especially if carcinoma is low down. In the types from Out-Patient Department we see in relative-

ly good condition diagnosis is not difficult to make but type coming into hospital acutely ill makes diagnosis from x-ray standpoint very difficult.

F. R. V.: In certain rural districts in France custom in cherry season to have certain day selected when everybody eats a lot of cherries and swallow seeds. Narrowing in colon precipitates obstruction when pits come through.

R. J.: Severe anemia. Toxic element responded to treatment poorly. Very resistant to ordinary forms of treatment. Cod-liver oil with large doses of iron helps.

R. W. K.: Table on page 277, third column: Correction "Number not followed up".

H. W. C.: Description of tumor stated that it could be felt digitally. It may still be up in the sigmoid and prolapse down. At Mayo Clinic we found that 20% of rectal carcinomas had been operated upon for hemorrhoids a short time previously. In many cases only symptom of carcinoma was bleeding, and doctors thought due to hemorrhoids. These ulcers looked more like tuberculosis than amebic.

Gertrude Gunn,
Record Librarian.

V. ANNOUNCEMENTS

1. Radiology Seminar

Demonstration of New Charts Related to X-ray Therapy by Dr. W. K. Stenstrom, University Hospital X-ray Department, Room M-515, Friday March 24, 4:45 P.M.

2. Ideals of Osler

A recent issue of "Hygeia" contained the following from the writings of Dr. William Osler:

"I have had three personal ideals. One to do the day's work well and not to bother about to-morrow. It has been urged that this is not a satisfactory ideal. It is; and there is not one which the student can carry with him into practice with greater effect. To it, more than

anything else, I owe whatsoever success I have had -- to this power of settling down to the day's work and trying to do it to the best of one's ability and letting the future take care of itself.

The second ideal has been to act the Golden Rule, as far as in me lay, toward my professional brethren and toward the patients committed to my care.

And the third has been to cultivate such a measure of equanimity as would enable me to bear success with humility, the affection of my friends without pride, and to be ready when the day of sorrow and grief came to meet with courage befitting a man."

From: "The Diplomat"; 5:87; No. 3, (Mar.) '33.

3. News

More Errors -- The scene is laid in the downtown office of one of our staff members. Both patients are named Olson, one has gonorrhoea, the other acne. The acne patient is shown into the venereal treatment room, the venereal patient into the x-ray therapy room. The acne patient has an unusually clear urine and is given a final stiff dose of silver nitrate solution; the gonorrhoeal patient is apparently coming along so well as far as his acne is concerned that he receives the final x-ray treatment. 48 hours elapse. The acne patient comes in smiling, insisting that the treatment for his kidneys was just what he needed for his skin trouble; the venereal patient is anxious to know what the x-ray showed. Curtain.

Add to the Cause of Burns.

One of our staff members has a lake cottage. His wife instructed him to bring out a chicken in a fireless cooker which the cook in the town

house has prepared. Our hero starts out on his journey on Saturday noon little knowing what is in store for him. He is probably dreaming about his profit on stocks and bonds (Time - 1929), when he hits a bump. The fireless cooker flies up in the air, the lid comes off and Mr. Chicken socks him right in the back of the neck, causing a severe burn.

How many know - that one of our prominent staff members was Chief Physician to the Gypsy tribes of Minneapolis a few years ago while in practice over town. His stern manner well suited his exalted position. Never once did they play horse with him or short change him as he demanded his pay in a loud voice before visiting the patient. But pride goeth before a fall. His last official visit before the tribe took to the road was for the settlement of a few bills which had not yet been paid. The money was counted out and he beamed and acknowledged payment in full. When he got back to his office, he discovered that he had been "gypped" for they had folded back a bill in the middle of the roll.

One year late -- We have prided ourselves in attempting to get late literature for abstract for these meetings. Our experience with Dr. Adson revealed that we were one year behind as he told us how his present views differed from those now on record. Today's discussion is no exception for Veterinarian Fitch promises to upset the applecart as far as Hardy's is concerned. But this is not so bad as the lag between worthwhile scientific discovery and application which is about 10 years.

Next week -- is regular Spring Vacation and no meeting will be held. Meetings will be resumed the following Thursday and continue until the close of school in the Spring quarter. Plans are already being made for next year. We have our eye on a new meeting place which will be a revelation to all who have been crowded and inconvenienced during the past year. The Citizen's Aid Society who again sponsored this year's bulletin are favorable to the continuation of their support. All who have suggestions for improvement please communicate with us at any time.