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Bulletin of the

University of Minnesota Hospitals
and
Minnesota Medical Foundation

Carcinoma in situ

Volume XXIV | Friday, October 24, 1952 | Number 4

BULLETIN OF THE
UNIVERSITY OF MINNESOTA HOSPITALS
and
MINNESOTA MEDICAL FOUNDATION

Volume XXIV | Friday, October 24, 1952 | Number 4

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I. "CARCINOMA IN SITU" OF THE CERVIX: A GENERAL CONSIDERATION

John L. McKelvey, M.D.

It has become evident to many students of the problems of cervical malignancy that serious confusion exists in the theoretical, diagnostic and practical aspects of the early stages of carcinoma of the cervix. The subject will be handled in a broad manner in preference to detailed histological description and statistical data. Data dealing with both of these aspects are already available in the literature. This discussion will deal only with the lesions of the squamous epithelium of urogenital sinus origin in the cervix.

Can one define carcinoma in situ of the cervix and what should the details of this definition be? Is it possible to objectively differentiate very early malignancy here from some of the lesions which may simulate it? Can one be certain of the localization of the malignant lesion above the basement membrane? In the presence of a reliable diagnosis of malignancy, is there a place for local conservative therapy?

It is interesting to look back to the older literature in this field. One is amused to find that almost exactly similar problems were faced by the students of the subject more than thirty years ago. There is still no better source of data on the subject than the presentation by Robert Meyer in the volume dealing with the histopathology of the uterus in the Henke-Lubarsch handbook. Most of the work was done in the German school and was characteristically detailed and critical. Robert Meyer states that he had followed the lesions which concern us for thirty years in individual patients. Schiller's work in the same field and with somewhat similarly prolonged observation, is well known to most students. These available data are not only reliable but in most instances are more critical and better controlled than those which are upsetting and confusing the gynecologist at present.

Their first problem in dealing with the early malignant lesions of the cervix was the setting down of objective standards which would allow accurate handling of the frequently occurring erosion healing. In skilled hands, there is now no difficulty with this. They then turned their attention to the lesion which is confusing us. But they were wise in approaching it from a somewhat different angle. They accepted no such term as carcinoma in situ but struggled to define carefully the characteristics of the earliest changes which could be recognized as carcinoma, and they suggested to us a definition of carcinoma which is still useful. It is a lesion which, in the absence of interference, will proceed to destroy the host. Patients who presented lesions which required interpretation were followed with repeated biopsies until the fate of the lesion was clear. It was upon data so obtained that the histologic characteristics of early malignancy were established. This is not to say that the possibilities of progress from study in this field are excluded. They are not. But it appears to this prejudiced observer that we might at least start where they left off.

Can one define the term carcinoma in situ of the squamous epithelium of the cervix? Both parts of the term are significant. Yet attention seems to have focused itself upon the second part. A carcinoma, whether in situ or not, must first of all be a cancer. One must be able to say of a particular lesion with reasonable certainty that it will destroy the host unless it be removed. Kottmeier[1] reports on 42 carcinomas in situ which were followed for ten years without treatment. Only 3 developed clinical carcinoma. Is this what we mean by carcinoma? One should not be too hasty in drawing the obvious conclusions about this. Who can say with certainty that some strange series of local events cannot destroy an occasional carcinoma in its early stages? Is it possible that a potential cancer cannot remain in a sort of state of suspended animation in this area for a long period of time? The fact that the early carcinomas of the cervix are being found in a group with a ten year younger average age than that of fullblown cancer

hosts is remotely suggestive. One wonders how many of these being reported as carcinoma in situ lesions were not carcinomas at all. To call atypical lesions malignant and treat them as cancers is only to fog our own critical intellectual processes and to harm the patient by putting the fear of cancer permanently in her mind.

The practical problem seems to have two distinctly different considerations. In the study groups from which reports are presently emanating, are the lesions which are designated carcinoma in situ really proven carcinomas? This is dangerous ground but if reality is to be achieved, it must be considered. The grouping called carcinoma in situ must not become a dumping ground for lesions which for one reason or another are not diagnosable as malignant. There is a fairly wide acceptance of the fact that this is the case as evidenced for example by the decision of the committee of the League of Nations to place so-called carcinoma in situ in a separate stage 0.

Quite the reverse is apparently true in practice and all of us have encountered this again and again. Since the first longhand version of this paper was prepared, a patient has been admitted to the University of Minnesota Hospitals who was curetted two years ago on a mistaken diagnosis of abortion. These original sections have been checked and show a clear squamous cell carcinoma which the local pathologist without a shred of justification diagnosed as carcinoma in situ. True to form, the original physician cauterized the cervix without questioning the diagnosis. Fortunately, he also cut some material from the cervix and this showed fairly extensive invading carcinoma. There is another patient in the hospital at present who carried a diagnosis of carcinoma in situ but who in reality has a League of Nations Stage three lesion. The biopsy happened to have been taken from the contact margin of the tumor. This is far from an isolated instance as you all know. It represents the interpretation which the practicing pathologist and clinician are all too often placing on the published data.

This automatically raises the question as to whether the early stages of this cancer can be recognized with certainty. Can this be differentiated from other and non-malignant lesions with atypical epithelium? This is not the place to go into details of cellular morphology. These have been presented repeatedly in the literature of the last thirty years. A series of changes are now generally accepted as representing malignancy. These include inability of the cells to differentiate into layers, irregularity of the cell and nuclear form and staining characteristics, and abnormalities of mitosis. One must be careful to distinguish from these proliferative changes, the regressive changes which result from inflammatory involvement and this is sometimes not easy. One must strongly object to the concept that these changes must involve the whole depth of the epithelium before a diagnosis of malignancy is justified.[2] These lesions have been demonstrated to be malignant by observation over a sufficiently long time to observe their extension to frank invasive carcinoma. This is the only acceptable proof of the reality of conclusions as to their significance.

There are a group of lesions which fall below the level of obviousness described above. These most often still have uninvolved epithelium above them and the absence of this is likely to be the result of artificial trauma at the time the specimen is obtained. Careful study of these is necessary. All of the material should be examined by serially sectioning the block. Further biopsies may be necessary. The lesion is characterized by lesser degrees of atypical cell form and staining characteristics. One is often pushed back here upon what we have been pleased to call functional diagnostic criteria. A malignant tumor here usually spreads along the basal epithelium at its margin replacing it as it invades. Contact areas may be recognized between the edge of this spread and the normal basal epithelium and between the spreading carcinoma and the normal epithelium above the basal layer. This is usually only seen in the early carcinoma. With greater

growth potential in more advanced tumors, the tumor may move forward in the epithelium in a large mass. In the early tumor, the carcinoma cells, having established themselves in the basal layer, then proliferate to produce more and more layers and to be thicker with less overlying normal eipthelium toward the center of the lesion. If one looks carefully enough at these contact areas between normal and malignant cells, he may find areas where the tumor cells are destroying the normal cells. This is usually not evident where only the basal layer has been replaced by tumor cells. It is much more likely to be seen where the tumor has proliferated to form at least several layers of cells. It will not be clearly seen in all areas of contact. Coagulation of the cytoplasm of the normal cells, changes in their nuclei and their eventual fragmentation and disappearance may be seen. Suitable staining will often show portions of the normal cell membrane and the cell processes behind the advancing margin of the tumor cells. These portions of the cell seem to be the most resistant to destruction. In contrast to this the contact areas between normal cells and non-malignant atypical cells such as those of the so-called basal hyperplasia show a sharp blunt margin without destruction of the normal epithelium. This margin tends to be at the outer edge of underlying inflammatory cell infiltration in the connective tissue beneath the epithelium. These functional criteria for diagnosis must be given more attention than has been accorded them. They are essential to the objective handling of very early chorionepithelioma for example but have a limited value in the adenomatous tumors.

Again, lesions showing the epithelial patterns of this early form of malignancy have been followed without treatment and shown to slowly progress to clinical cancer. They have been reported[2] with appropriate illustrations to which the reader is referred. They can certainly be called carcinoma. They are in situ in the areas seen but whether this holds true for other unseen areas is always a matter of doubt until the whole surgically removed specimen is available for serial section.

There is no doubt but that there are precancerous changes which precede the last described pattern. How early in the life of the tumor these are present is not known. There are a number of reports of identical twins who have both developed squamous cell carcinoma of the cervix as adults. The University of Minnesota material includes such a pair. This would suggest an inherited potential at least. Under any circumstances, this otviously means that there will be changes which precede those which we can recognize as malignant or rule out as benign. It is in this direction that investigative attention should be focused.

There are hyperplastic lesions of the portio epithelium which are certainly not malignant. These include an atypical form of exaggerated erosion healing and the so-called basal hyperplasia. There are also some atypical patterns which are not understood. These last are characterized by a regularity of the cell and nuclear pattern. They have a very frequent and relatively massive underlying inflammatory cell infiltration which has impressed the author. The functional conflict with the normal epithelium is missing. Are numbers of these included in the carcinoma in situ group? One cannot speak with certainty for others and to voice a suspicion might be interpreted as lèse-majesté. But it is in this area that danger lies.

One should not label and treat a lesion as carcinoma unless he has reasonable evidence that it will proceed to destroy the host. The positive histological criteria of malignancy are pretty well established. The remainder should be considered for what they are. Basal hyperplasia, and the exaggerated erosion healing in the absence of racemose glands can be recognized. The few which are not specifically diagnosable should not be called carcinoma but should be held for study. Only so will we learn.

Howard Taylor has recently put together data from New York State in an attempt to find out what is the reality of the malignancy of what is being diag-

nosed as carcinoma of the cervix in situ there. He has shown that the incidence of clinical carcinoma of the cervix in New York state is 32 per 100,000 females per year. Among women over 40 years of age, this rises to 63 per 100,000 such females. If it can be assumed that intraepithelial carcinoma (carcinoma in situ) could be diagnosed at any single examination during the five years before overt carcinoma of the cervix is diagnosed, then the maximum incidence of carcinoma in situ in symptomless women should be five times that of overt cancer of the cervix or 300 per 100,000 (0.3%). The assumption on which this is based is open to argument but since there are reports in the literature of incidences up to 3% of carcinoma in situ in asymptomatic patients, the difference is so great that the conclusion seems likely to be real. This would seem to support Taylor's conclusion that in many places, carcinoma in situ is likely to be really malignant in only 10% to 20% of the lesions diagnosed as carcinoma in situ.

It is necessary to consider now a much more earthy part of the problem. When can one say with assurance that a carcinoma is localized? Certainly not when an ordinary biopsy specimen shows it to lie above the basement membrane in the areas which happen to be sectioned. Any further consideration of the problem inevitably must be prefaced by the question -- is it really malignant? All non-malignant lesions will be localized. When the above histologic criteria for malignancy are used, it has been the author's experience that a decision as to the localization of the tumor above the basement membrane has often enough been faulty. It is a dangerous field in which to gamble since the patient's life is at stake. The majority of these very early carcinomas are no doubt localized. One can only say that the more careful and extensive the study given to a lesion, the more frequently an original conclusion of likely localization has to be revised.

Actually, what goes on in study groups where highly skilled and meticulous men are carefully and critically evaluating their decisions, has nothing in common with the practical application of this concept of carcinoma in situ. This is a game in which the rules should exclude those who cannot or will not make their own histological evaluations. Otherwise it becomes a dreadfully dangerous pastime. It is essential that the player be a chronic worrier and that he become so suspicious of even his own carefully drawn conclusions as to believe that almost nothing is final. This, as you well know, is not what is currently happening in the broad field of practice. An ordinary biopsy is followed by someone else's diagnosis of carcinoma in situ. More or less local or partial therapy is carried out and a year or two later, a clinic tries to pick up the pieces. Somehow or another, the practitioner must be convinced these are study programs which are being reported and that the diagnosis of carcinoma in situ, if there be such an entity, is the result of hours of work by highly skilled people.

This leads on to the question of practical handling. It seems clear that squamous cell carcinoma of the cervix can be histologically diagnosed with accuracy in an early preinvasive stage and this may be considered a first group. Some other lesions can be recognized and have been demonstrated by long observation to be benign and form a second group. There is a third small borderline group in which an objective decision is not possible. Such a term as carcinoma in situ is only applicable to the first of these groups. Those of the second group are benign and require no treatment aimed at malignancy. They do justify observation which will include repeated biopsy to protect the patient against our mistakes of judgment and to learn more of the natural history of these lesions. The third group is fortunately small. To label and treat these as carcinomas when the proof is lacking is only to ask for confusion. What one does with these patients is a matter of judgment. At the University of Minnesota, the policy has been to watch them with repeated biopsies with the very occasional radical removal of a uterus when this did not seem to lead to a conclusion.

There is another reason for avoiding the term carcinoma in situ for those lesions in which proof of malignancy is lacking. The patient is, under such circumstances, presented with a life-long fear which may well be completely unjustified and unnecessary. Cancer-ophobia without something to fix it in the patient's mind is bad enough. When a term such as carcinoma in situ is used, the patient may well be permanently haunted.

From what has been said above, it must be clear that the author is not prepared to accept the validity of his own diagnosis of localization of a proved carcinoma to an individual area above the basement membrane. Lesions of the first group which is comprised of those in which very careful study allows a positive diagnosis of carcinoma which appears to lie above the basement membrane only are treated by radical therapy once the diagnosis is established. Irradiation therapy is the method of choice although one could not too seriously object to radical surgery for this early lesion.

The term carcinoma in situ is fixed in the medical mind in association with an ill defined series of lesions which are assumed to be on the surface where one can deal with them locally. We shall be hard put to it to change this concept short of destroying the term, which is a pity. Since the problem is to try desperately to learn to determine the reality of earlier forms of real malignancy and to protect the patient from incomplete therapy on the one hand or unnecessary therapy and the established fear which goes with it on the other, it would seem wise to drop the term carcinoma in situ as it applies to the squamous epithelial lesions of the cervix. We do not use the term. Early carcinoma could replace it for the proven malignancies. Basal hyperplasia and inflammatory or erosion healing hyperplasia may be used for the lesions which justify these. This will focus attention upon the relatively rare atypical lesions, the vast majority of which clearly do not lead on to clinical malignancy. The hope is that we shall eventually be able to break these down as we shall not while we continue to mix them with the early carcinomas.

References

1. Kottmeier, H. L.
Am. J. Obstet. and Gynec. (supplement) Vol. 61A: 138. 1951.

2. Meyer, Robert
S. G. and O. 73: 14 and 129. 1941.

II. MEDICAL SCHOOL NEWS

Coming Events

October 30-31	Continuation Course in Medical Economics for Physicians
Oct. 31 - Nov. 1	Special Homecoming Program for Physicians
October 31	Special Lecture; "Inside the British Health Plan;" Dr. James Rogers Fox; Owre Amphitheater; 4:30 p.m.
November 13-15	Continuation Course in Fractures and the Surgery of Trauma for General Physicians
November 21	J. B. Johnston Lectureship in Neurology; "Hypophysectomy in Man" Professor Herbert Olivecrona, Professor of Neurosurgery, Stockholm, Sweden; Museum of Natural History Auditorium; 8:00 p.m.
November 21-22	Continuation Course: Conference on Pemphigus and the Bullous Dermatoses for Dermatologists
December 4-6	Continuation Course in Endocrinology for General Physicians
December 15-17	Continuation Course in Gynecology for Specialists

* * *

Continuation Course

Medical Economics will be the subject of a continuation course to be presented by the University on October 30 and 31. The one-and-a-half day session will be held in the Auditorium of the Museum of Natural History and will concern itself with various medico-legal problems, bookkeeping practices, office planning, investment programs, and other topics of interest to all physicians. Two outstanding guest speakers will participate in the program: Dr. Frank Dickinson, Director, Bureau of Medical Economic Research, American Medical Association; and Dr. Philip Lewin, Professor of Bone and Joint Surgery, Northwestern University. The remainder of the faculty for the course will include staff of the University of Minnesota Medical School and the Mayo Foundation.

* * *

Faculty News

Dr. Leo G. Rigler, Professor and Head of the Department of Radiology, spent a busy two weeks in South America during the latter part of September. Between September 15 and 27 he gave a series of 20 lectures on roentgen diagnosis to physicians at the National University Medical School at Bogota, Colombia. He also presented five lectures to the faculty of the Medical School of the University of Antioquai in Medellin, Colombia.

The Department of Surgery was exceedingly well represented at the recent meeting of the Clinical Congress of the American College of Surgeons which was held in New York City. Dr. Owen H. Wangensteen, Professor and Chairman, Department of Surgery, acted as Chairman for a forum of fundamental surgical problems. Papers were presented at this forum by several members of our Surgery Department including Doctors F. John Lewis, George E. Moore, Irving Enquist, Arnold Kremen, Frederick S. Cross, Yoshio Sako, Morley Cohen, Walter P. Eder, Gerald L. Haines, Ronald W. Krumbach, Lester L. Bissinger, and Gilbert S. Campbell.

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DON'T FORGET THE HOMECOMING PROGRAM OCTOBER 31-NOVEMBER 1

III. UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
WEEKLY CALENDAR OF EVENTS

Physicians Welcome

October 27 - November 1, 1952

Monday, October 27

Medical School and University Hospitals

9:00 - 9:50 Roentgenology-Medicine Conference; L. G. Rigler, C. J. Watson and Staff; Todd Amphitheater, U. H.

9:00 - 10:50 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; W-612, U. H.

10:00 - 12:00 Neurology Rounds; A. B. Baker and Staff; Station 50, U. H.

11:30 - Tumor Conference; Doctors Kremen, Moore, and Stenstrom; Todd Amphitheater, U. H.

11:30 - 12:30 Physical Medicine Seminar; Heart Hospital Auditorium.

12:15 - Obstetrics and Gynecology Journal Club; Staff Dining Room, U. H.

12:30 - 1:30 Physiology Seminar; 214 Millard Hall.

1:30 - 2:30 Pediatric-Neurological Rounds; R. Jensen, A. B. Baker and Staff; U. H.

4:00 - 5:30 Seminar on Fluid and Electrolyte Balance; Gerald T. Evans; Todd Amphitheater, U. H.

4:30 - ECG Reading Conference; James C. Dahl, et al; Staff Room, Heart Hospital.

4:30 - Public Health Seminar; 15 Owre Hall.

4:30 - 6:00 Physiology 114A and Cancer Biology 140 -- Research Conference on Cancer, Nutrition, and Endocrinology; Drs. Visscher, Bittner, and King; "Hormone Excretion," M. Frantz; 129 Millard Hall.

5:00 - 6:00 Urology-Roentgenology Conference; C. D. Creevy, O. J. Baggenstoss, and Staff; Eustis Amphitheater.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Eldon Berglund; Newborn Nursery, Station C.

10:30 - 12:00 Tuberculosis and Contagion Rounds; Thomas Lowry; Station M.

11:00 - Pediatric Rounds; Erling Platou; Station K.

12:30 - Surgery Grand Rounds; Dr. Zierold; Sta. A.

1:00 - X-ray Conference; Classroom, 4th Floor.

Monday, October 27 (Cont.)

Minneapolis General Hospital (Cont.)

2:00 - Pediatric Rounds; Robert A. Ulstrom; Stations I and J.

Ancker Hospital

8:30 - 10:00 Chest Disease Conference.

1:00 - 2:00 Medical Grand Rounds.

Veterans Administration Hospital

8:00 - 9:00 Neuroradiology Conference; J. Jorgens, R. C. Gray; 2nd Floor Annex.

9:00 - G. I. Rounds; R. V. Ebert, J. A. Wilson, Norman Shrifter; Bldg. I.

11:30 - X-ray Conference; J. Jorgens, Conference Room, Bldg. I.

2:00 - Psychosomatic Rounds; Bldg. 5.

3:30 - Psychosomatic Rounds; C. K. Aldrich; Bldg. I.

Tuesday, October 28

Medical School and University Hospitals

9:00 - 9:50 Roentgenology-Pediatric Conference; L. G. Rigler, I. McQuarrie and Staff; Eustis Amphitheater, U. H.

9:00 - 12:00 Cardiovascular Rounds; Station 30, U. H.

12:30 - 1:20 Pathology Conference; Autopsies; J. R. Dawson and Staff; 102 I. A.

12:30 - 1:30 Physiology 114D -- Current Literature Seminar; 129 Millard Hall.

4:00 - 5:00 Pediatric Rounds on Wards; I. McQuarrie and Staff; U. H.

4:30 - 5:30 Clinical-Medical-Pathological Conference; Todd Amphitheater, U. H.

4:30 - ECG Reading Conference; James C. Dahl, et al; Staff Room, Heart Hospital.

5:00 - 6:00 X-Ray Conference; Presentation of Cases from Ancker Hospital; Drs. Aurelium, Peterson, and Ogden; Eustis Amphitheater, U. H.

Ancker Hospital

8:00 - 9:00 Fracture Conference; Auditorium.

8:30 - 9:30 Medical-Roentgenology Conference; Auditorium.

1:00 - 2:30 X-ray - Surgery Conference; Auditorium.

Tuesday, October 28 (Cont.)

Minneapolis General Hospital

10:00 - Pediatric Rounds; Spencer F. Brown; Stations I and J.

10:00 - Cardiac Rounds; Paul F. Dwan; Station I; Classroom.

10:30 - 12:00 Medicine Rounds; Thomas Lowry and Staff; Station F.

12:30 - Grand Rounds; Fractures; Sta. A; Willard White, et al.

12:30 - Neuroroentgenology Conference; O. Lipschultz, J. C. Michael and Staff.

12:30 - EKG Conference; Boyd Thomes and Staff; 302 Harrington Hall.

1:00 - Tumor Clinic; Drs. Eder, Cal, and Lipschultz.

1:00 - Neurology Grand Rounds; J. C. Michael and Staff.

Veterans Administration Hospital

7:30 - Anesthesiology Conference; Conference Room, Bldg. I.

8:30 - Infectious Disease Rounds; Dr. Hall.

8:45 - Surgery Journal Club; Conference Room, Bldg. I.

9:00 - Liver Rounds; Drs. Nesbitt and MacDonald.

9:30 - Surgery-Pathology Conference; Conference Room, Bldg. I.

10:30 - Surgery Tumor Conference; L. J. Hay, J. Jorgens; Conference Room, Bldg. I.

1:00 - Chest Surgery Conference; Drs. Kinsella and Tucker; Conference Room, Bldg. I.

2:00 - 2:50 Dermatology and Syphilology Conference; H. E. Michelson and Staff; Bldg. III.

3:30 - 4:20 Autopsy Conference; E. T. Bell and Donald Gleason; Conference Room, Bldg. I.

Wednesday, October 29

Medical School and University Hospitals

8:00 - 9:00 Roentgenology-Surgical-Pathological Conference; Paul Lober and L. G. Rigler; Todd Amphitheater, U. H.

11:00 - 12:00 Pathology-Medicine-Surgery Conference; Medicine Case; O. H. Wangensteen, C. J. Watson and Staff; Todd Amphitheater, U. H.

Wednesday, October 29 (Cont.)

Medical School and University Hospitals (Cont.)

12:30 - 1:20 Radioisotope seminar; Employment of Radioisotopes in Dental Research; George Yamane and Robert Sausen; 110 Botany Bldg.

1:30 - 3:00 Physiology 114B -- Circulatory and Renal System Problems Seminar; Dr. M. B. Visscher, et al; 214 Millard Hall.

4:00 - 5:30 Physiology 114C -- Permeability and Metabolism Seminar; Nathan Lifson; 214 Millard Hall.

4:30 - ECG Reading Conference; James C. Dahl, et al; Staff Room, Heart Hospital.

5:00 - 5:50 Urology-Pathological Conference; C. D. Creevy and Staff; Eustis Amphitheater, U. H.

8:00 - 10:00 Dermatological-Pathology Conference; Review of Histopathology Section; R. Goltz; Todd Amphitheater, U. H.

Ancker Hospital

8:30 - 9:30 Clinico-Pathological Conference; Auditorium.

2:00 - 4:00 Medical Ward Rounds;

3:30 - 4:30 Journal Club; Surgery Office.

Minneapolis General Hosptial

9:30 - Pediatric Rounds; Max Seham; Stations I and J.

10:30 - 12:00 Medicine Rounds; Thomas Lowry and Staff; Station D.

11:00 - Pediatric Seminar; Arnold Anderson; Classroom, Station I.

11:00 - Pediatric Rounds; Erling S. Platou; Station K.

12:30 - Pediatric Conference; Highlights of the Meeting of the American Academy of Pediatrics; L. F. Richdorf and Sidney Scherling; Station I, Classroom.

1:30 - Visiting Staff Case Presentation; Station I, Classroom.

Veterans Administration Hospital

8:30 - 10:00 Orthopedic X-ray Conference; E. T. Evans and Staff; Conference Room, Bldg. I.

8:30 - 12:00 Neurology Rehabilitation and Case Conference; A. B. Baker.

4:00 - Combined Medical-Surgical Conference; Conference Room, Bldg. I.

7:00 p.m. Lectures in Basic Science of Orthopedics; Conference Room, Bldg. I.

Thursday, October 30

Medical School and University Hospitals

8:00 - 9:00 Vascular Rounds; Davitt Felder and Staff Members from the Departments of Medicine, Surgery, Physical Medicine, and Dermatology; Heart Hospital Amphitheater.

9:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.

11:00 - 12:00 Cancer Clinic; K. Stenstrom and A. Kremen; Todd Amphitheater, U. H.

12:30 - Physiological Chemistry Seminar; Metabolic Interrelationships between Histadine and Glutamic Acids; Noel Simmons; 214 Millard Hall.

1:30 - 4:00 Cardiology X-ray Conference; Heart Hospital Theatre.

4:00 - 5:00 Physiology-Surgery Conference; Todd Amphitheater, U. H.

4:30 - 5:20 Ophthalmology Ward Rounds; Erling W. Hansen and Staff; E-534, U. H.

4:30 - ECG Reading Conference; James C. Dahl, et al; Staff Room, Heart Hospital.

5:00 - 6:00 X-ray Seminar; Radiology in Bogota; Leo G. Rigler; Eustis Amphitheater; U. H.

7:30 - 9:30 Pediatric Cardiology Conference and Journal Club; Review of Current Literature 1st hour and Review of Patients 2nd hour; 206 Temporary West Hospital.

Ancker Hospital

4:00 - Medical Pathological Conference; Auditorium.

Minneapolis General Hospital

9:30 - Neurology Rounds; Heinz Bruhl; Station I.

10:00 - Pediatric Rounds; Spencer F. Brown; Station K.

10:00 - Psychiatry Grand Rounds; J. C. Michael and Staff; Sta. H.

11:00 - Pediatric Rounds; Erling S. Platou; 7th Floor.

1:00 - Fracture - X-ray Conference; Dr. Zierold; Classroom.

1:00 - House Staff Conference; Station I.

Veterans Administration Hospital

8:00 - Surgery Ward Rounds; Lyle Hay and Staff; Ward 11.

8:00 - Surgery Grand Rounds; Conference Room, Bldg. I.

11:00 - Surgery-Roentgen Conference; J. Jorgens; Conference Room, Bldg. I.

Thursday, October 30 (Cont.)

Veterans Administration Hospital (Cont.)

2:00 - 4:00 Infectious Disease Rounds; Conference Room, Bldg. I.

4:00 - 5:00 Infectious Disease Conference; W. Spink; Conference Room, Bldg. I.

Friday, October 31

Medical School and University Hospitals

8:00 - 10:00 Neurology Grand Rounds; A. B. Baker and Staff; Station 50, U. H.

9:00 - 9:50 Medicine Grand Rounds; C. J. Watson and Staff; Todd Amphitheater, U.H.

10:30 - 11:50 Medicine Rounds; C. J. Watson and Staff; Todd Amphitheater, U. H.

10:30 - 11:50 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Department, U. H.

*11:45 - 12:50 University of Minnesota Hospitals Staff Meeting; SPECIAL HOMECOMING PROGRAM - "The Medical School in Relation to Medical Practice in the State" Dr. Charles G. Sheppard, Hutchinson, Minnesota; Powell Hall Recreation Lounge.

1:00 - 2:50 Neurosurgery-Roentgenology Conference; W. T. Peyton, Harold O. Peterson and Staff; Todd Amphitheater, U. H.

3:00 - 4:00 Neuropathological Conference; F. Tichy; Todd Amphitheater, U. H.

4:00 - 5:00 Physiology 124 -- Seminar in Neurophysiology; Ernst Gelhorn; 113 Owre Hall.

* 4:30 p.m. Special Lecture; "Inside the British Health Plan," Dr. James Rogers Fox; Owre Amphitheater, U. H.

4:30 - ECG Reading Conference; James C. Dahl, et al; Staff Room, Heart Hospital.

5:00 - Urology Seminar and X-ray Conference; Eustis Amphitheater, U. H.

Ancker Hospital

1:00 - 3:00 Pathology-Surgery Conference; Auditorium.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Wallace Lueck; Station J.

10:30 - Surgery Conference; Oswald Wyatt; Tague Chisholm; Station I., Classroom.

12:00 - Surgery-Pathology Conference; Dr. Zierold, Dr. Coe; Classroom.

1:00 - 3:00 Clinical Medical Conference; Thomas Lowry; Classroom, Station M.

Friday, October 31 (Cont.)

Minneapolis General Hospital (Cont.)

1:15 - X-ray Conference; Oscar Lipshcultz; Classroom, Main Building.

2:00 - Pediatric Rounds; Robert Ulstrom; Stations I and J.

Veterans Administration Hospital

1:00 - Pathology Slide Conference; E. T. Bell; Conference Room, Bldg. I.

10:30 - 11:20 Medicine Grand Rounds; Conference Room, Bldg. I.

Saturday, November 1

Medical School and University Hospitals

7:45 - 8:50 Orthopedic X-ray Conference; W. H. Cole and Staff; M-109, U. H.

9:00 - 10:30 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amphitheater.

9:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; Heart Hospital Amphitheater.

9:15 - 10:00 Surgery-Roentgenology Conference; L. G. Rigler, J. Friedman, Owen H. Wangensteen and Staff; Todd Amphitheater, U. H.

10:00 - 11:30 Surgery Conference; Todd Amphitheater, U. H.

10:00 - 12:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.

11:30 - Anatomy Seminar; The "Scientific Revolution" and its Contribution to Anatomy; E. A. Boyden; 226 Institute of Anatomy.

Ancker Hospital

8:30 - 9:30 Surgery Conference; Auditorium.

Minneapolis General Hospital

11:00 - 12:00 Medical - X-ray Conference; O. Lipschultz, Thomas Lowry, and Staff; Main Classroom.

11:00 - Pediatric Clinic; C. D. May and Floyd Denny; Classroom, 4th Floor.

Veterans Administration Hospital

8:00 - Proctology Rounds; W. C. Bernstein and Staff; Bldg. III.

8:30 - 11:15 Hematology Rounds; Drs. Hagen, Goldish, and Aufderheide
11:15 - 12:00 Morphology . . . . . Dr. Aufderheide

* Indicates special meeting. All other meetings occur regularly each week at the same time on the same day. Meeting place may vary from week to week for some conferences.