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University of Minnesota Hospitals
and
Minnesota Medical Foundation

Peritoneoscopy

Cumulative Index
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BULLETIN OF THE
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I. PERITONEOSCOPY

James B. Carey, Jr., M.D.

Peritoneoscopy is a useful and very helpful procedure in properly selected diagnostic problems. This report concerns our experience with this procedure during the past 15 months together with a brief discussion of historical aspects, indications and contraindications.

History

Kelling, at Hamburg, Germany in 1901 first demonstrated[6] peritoneoscopy by inserting a cystoscope into the abdomen of a dog. In about 10 years reports of successful examinations in patients began to appear.[4] The procedure became popular in Germany after War I when patients could not afford diagnostic laporotomies and hence peritoneoscopy was done whenever possible in the out-patient clinic.

The modern era of peritoneoscopy began with Ruddock[7] of California in 1934. He designed an improved instrument and described 200 examinations. By 1937 Ruddock's peritoneoscope and his technique were finally perfected[8] and were being used at many medical centers in this country.

The Procedure

The actual technique of peritoneoscopy is simple, being only slightly more involved than the ordinary paracentesis. Preoperative measures should include bleeding, clotting and prothrombin times and 1 liter of blood typed and cross matched. A simple brief explanation of the purpose and nature of the examination is usually sufficient to obtain the consent and confidence of the patient. Elaborate, detailed discussions of the procedure are poorly understood by the candidate and provoke apprehension. Preoperative medication depends upon the patient's condition; most will tolerate 75-100 mg. of demerol, but this is not used in patients having severely impaired liver function. Since many candidates have liver disease, barbiturates are seldom used.

The patient's abdomen is prepared with ether, tincture of zephiran and sterile drapes. The point of entry is selected usually lateral to, or just below, the umbilicus and infiltrated with 1% xylocain down to the peritoneum. A small incision, about 0.5 inch, is made through which a trocar is introduced and a tense pneumoperitoneum established by means of a hand bulb attached to the trocar. The trocar is then replaced by a larger cannula which carries the peritoneoscope.

Structures seen include the anterior abdominal wall, lower portions of the liver, fundus of the gallbladder, lower pole of the spleen (if enlarged), anterior wall and lesser curvature of the stomach, omentum, loops of bowel, parts of the female genitalia and dome of the urinary bladder. Examination of the upper abdomen is facilitated by the Fowler position and that of the pelvic cavity by the Trendelenburg position.

If biopsy is desired a special forceps with its own lens and lighting system is put through the cannula in place of the examining scope. These forceps will remove a piece of tissue slightly less than a cubic centimeter in size from the surface of the liver.

When the gallbladder can be seen, cholangiograms[5] are easily obtained by introducing a 6 inch #20 needle through the abdominal wall overlying the gallbladder and then, under peritoneoscopic vision, piercing the bladder wall. Bile is aspirated and 5-25 cc. of 35% diodrast injected. The needle is withdrawn and roentgenograms obtained at intervals to follow the course of the contrast material. Dehydrocholic acid, nitroglycerin or both may be given to facilitate passage of the diodrast into the duodenum.

When the procedure is completed, the air is expelled and the incision closed with a skin clip. The time required for inspection and biopsy is usually 10-15 minutes, an additional 5-10 minutes is required for injecting the gallbladder. When the patient is returned to the ward he may be up and about and eat as desired. If a biopsy has been done he is required

to stay in bed at least 24 hours during which hourly blood pressures and pulse are recorded. Postoperative analgesics are not needed but the patient is told about moderate shoulder strap pain which may result from air under the diaphragm and is no cause for alarm.

Indications

Proper selection of candidates is one of the important factors in the success of peritoneoscopy. Unlike chest or gastrointestinal roentgenograms, a negative peritoneoscopic examination usually contributes little toward limiting the diagnostic possibilities since only portions of the various organs can be seen and if these do not contain the pathology on their surface, disease elsewhere in the unseen areas obviously cannot be excluded.

The chief indications for peritoneoscopy are: unexplained ascites, liver disease or epigastric masses. Suspected carcinoma of the gallbladder is a less common but equally good indication. The demonstration of liver metastases frequently provides helpful information in planning treatment. Lesions of the female genitalia are better examined by culdoscopy.

Contraindications

Abdominal distention from intestinal obstruction is an absolute contraindication to peritoneoscopy. An adequate pneumoperitoneum cannot be established and the danger of bowel perforation is prohibitive. The acute abdomen is also a contraindication. The rigid abdominal wall frequently prevents a sufficient pneumoperitoneum and the danger of spreading possible infection is too great. The patient's general condition is sometimes a contraindication such as the severely debilitated elderly subject with diminished vital capacity or advanced terminal disease.

Liver biopsies cannot be obtained if the patient has a bleeding tendency including elevated prothrombin times not responding to vitamin K. Greatly increased biliary pressure also precludes biopsy since the wound may continue to ooze bile for days causing bile peritonitis, fistulae or bleeding. Lesions in the retroperitoneal structures such as pancreas, aorta, kidneys or retroperitoneal nodes cannot be seen and peritoneoscopy in these conditions is of no value unless liver metastases are being sought.

Complications

Abdominal adhesions are the most frequent complication causing failure of peritoneoscopy because they prevent adequate visualization. Attempts to divide or break up such adhesions with the scope invite the danger of intraabdominal hemorrhage. Loops of bowel may be bound to the abdominal wall at the site of laporotomy scars and consequently the peritoneoscope should never be inserted through or close to previous incisions. Other occasional minor complications include subcutaneous emphysema localized about the incision or a small ecchymosis in this area. Such conditions are painless and disappear quickly.

Results

Many authors in describing the results of their peritoneoscopic examinations have compared the peritoneoscopic diagnosis with the clinical diagnosis[9] or the gross observation with the microscopic.[5] Others have evaluated results on the basis of whether or not the purpose of the examination was accomplished. The criteria for this, however, is somewhat difficult to establish in all cases and comparison with the clinical diagnosis or biopsy does not always provide enough conclusive information for an absolute evaluation. Perhaps the most reasonable manner of appraising the procedure is to compare the peritoneoscopic examination and biopsy with a subsequent laporotomy or autopsy which has been done soon enough to correctly represent the pathology present at the time of peritoneoscopy. An additional valid criterion would exist with patients in whom the subsequent course of the disease becomes so characteristic that the diagnosis can be easily established with certainty beyond all doubt.

Of the 46 examinations in the past 15 months, 31 had adequate follow-up, in terms of the criteria above, to allow conclusive comparisons to be made. Laporotomy, autopsy or both was done in 14 and the clinical course in the remaining 16 sufficiently characteristic for a clear cut diagnosis. Of these 31 cases, peritoneoscopy was correct in 30; in 21 of these 30 the procedure was diagnostic and in 9 the examination made helpful but not diagnostic contributions. The error occurred in a jaundiced male with a palpable gallbladder, ascites and weight loss. Pinkish nodules on the liver were thought to be metastases but no biopsy was obtained because of the greatly increased biliary pressure. Laporotomy disclosed cirrhosis and a common duct stone. This case varifies the obvious contention that the diagnostic accuracy is increased when biopsies are obtained.

Although percentages are perhaps not appropriate for such a small number of cases, none the less in 68 per cent of adequately followed cases the procedure was proved to be diagnostic and helpful contributions to a diagnosis were obtained in an additional 29 per cent. Thus 97 per cent of the examinations were diagnostic or helpful. Of the remaining 15 examinations, in which subsequent information was not thought to be conclusive, the peritoneoscopic diagnosis was the same as the discharge diagnosis in 6 patients and provided correct but supplementary information in 7 patients. Two of the examinations were unsuccessful because of adhesions. The small number of inconclusive or erroneous examinations are the inevitable result of the inability to visualize the various blind areas and also certainly the result of limitations on the part of the examiner.

Metastatic Disease

Peritoneoscopy is of no value in excluding metastatic disease of the liver or omentum. Of the 15 patients with proved hepatic metastases, 6 (40%) had metastases in such positions that they could not be seen with the scope but were subsequently found at operation or autopsy soon enough after the peritoneoscopy to make it unlikely that the metastases occurred after the examination and not before. Peritoneoscopy is of considerable value, however, in establishing the presence of hepatic metastases. A fairly good appraisal of the extent of metastatic disease and a biopsy of the desired area can usually be obtained. Hence in a patient suspected of having hepatic metastases, peritoneoscopy can provide a real contribution when such metastases are seen and biopsied but failure to see the metastases does not exclude them.

Biopsy

Biopsy improves the accuracy of diagnosis and such is attempted whenever possible. In one instance an apparently cirrhotic liver with a nodular surface eventually proved to be metastatic adenocarcinoma when the biopsy was examined. The characteristic hobnail or cobblestone surface of the cirrhotic liver is usually easily distinguished from the discrete metastatic nodule. Between these two extremes, however, there is a no man's land in which the nodules of "regenerating" tissue in cirrhosis may be grossly indistinguishable from diffuse advanced metastases and in such instances the diagnosis should be reserved until the biopsy can be examined. Anderson in his thesis[1] describes instances in which the gross appearance of cirrhosis was confused with lymphosarcoma, adenocarcinoma, leukemic infiltration, passive congestion and a normal liver. These are the exceptions, however, and the gross pathology usually permits a diagnosis which is confirmed by biopsy.

Of the 40 patients in whom biopsies were obtained the gross descriptions agreed with the microscopic in 28 and disagreed in 8. In 4 of the livers described as normal, fatty changes were found in 2 and hemosiderosis in 2. These are conditions which frequently produce no change in the gross appearance and hence do not contradict the gross description.

Mortality and Morbidity

Mortality and Morbidity

Peritoneoscopy has proved to be a safe diagnostic procedure. Fatal accidents are rare and most reports give mortality rates well below 1 per cent. There are, however, a relatively large number of patients (8.2% in Anderson's series)[2] who die in the hospital following peritoneoscopy. This is because candidates for this procedure have diseases which are associated with a high death rate regardless of the reason for hospitalization. Investigating this matter, Anderson found that approximately 2.5 per cent of patients with cirrhosis died in the hospital with medical treatment alone and that 10.7 per cent of patients with carcinoma died in the hospital following simple paracentesis. In our own smaller series, no less than 9 patients died in the hospital following peritoneoscopy although only one of these deaths actually resulted from the procedure itself. Since it is a fact that approximately 1 out of every 10 patients will die in the hospital following peritoneoscopy and because of the general tendency of the public and even physicians to ascribe, or at least relate, a death to any operative procedure during the same hospitalization, those requesting or performing peritoneoscopy should reflect for a moment on the value of the procedure as opposed to the future course of the patient. Of course such considerations are always made for any patient but with regard to the group who are candidates for peritoneoscopy it is especially appropriate.

There was one death in our series of 46 peritoneoscopies, a 70 year old male who bled from a liver biopsy. Autopsy showed carcinoma of the pancreas with biliary obstruction, bile casts in the renal tubules, pulmonary metastases and hemoperitoneum. The elevated biliary pressure was a contraindication to liver biopsy not fully appreciated when this examination was performed early in the series. The bleeding occurred 7 days following the biopsy. Although the advanced cancer, semi-comatose condition and general debility probably contributed to the rapid shock which developed and could not be halted in time for surgical intervention, none the less, responsibility for the mortality must be attributed to the liver biopsy.

Summary and Conclusions

Peritoneoscopy is a safe diagnostic procedure and fatal accidents are rare. The chief indications are unexplained ascites, liver disease, epigastric masses and suspected carcinoma of the gallbladder. Unsuitable candidates are those with abdominal distention from intestinal obstruction, acute abdomens or extensive abdominal adhesions. Biopsies should not be done in the presence of bleeding tendencies or greatly elevated biliary pressure.

The procedure is diagnostic in over two-thirds of the patients examined and contributes helpful information in an additional one-fourth. These results are similar to the experience of others who have published larger series.

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Acknowledgments: The help and advice of Dr. Hoffbauer, who originally did most of the peritoneoscopies several years ago, is greatly appreciated.

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II. MEDICAL SCHOOL NEWS

Coming Event

June 17 — Special Lecture; "Lysogeny and the Concept of Provirus;" Dr. Andre Lwoff, Professor and Head, Department of Microbial Physiology, L'Institut Pasteur, Paris, France; Owre Amphitheater; 4:30 p.m.

* * *

Drs. Lazarow and Frantz to Join Faculty

On July 1 two distinguished scientists will join our Medical School Faculty. Dr. Arnold Lazarow will succeed Dr. E. A. Boyden as Professor and Head of the Department of Anatomy, and Dr. Ivan D. Frantz, Jr. will become the George S. Clark Research Professor of Medicine.

Dr. Lazarow comes to us from Western Reserve University School of Medicine where he has been Associate Professor of Anatomy since 1948. A graduate of the University of Chicago, where he obtained both the M.D. and the Ph.D. in Anatomy in 1941, Dr. Lazarow has been associated with Western Reserve's Department of Anatomy in various capacities since 1943. There he has been recognized as an outstanding teacher and investigator. Much of his experimental work has concerned diabetes mellitus which he has studied extensively from histological, histochemical, and biochemical standpoints.

A member of Phi Beta Kappa, Alpha Omega Alpha, and Sigma Xi, he also holds membership in the American Association for the Advancement of Science, the American Association of Anatomists, the Society for Experimental Biology and Medicine, the American Diabetes Association, and the Society of General Physiologists. He and Mrs. Lazarow have two children.

Those of us who were privileged to hear him speak earlier this year were impressed by the high quality of his meticulously carried out studies and by the clarity with which it was presented. It is with real pleasure that we welcome Dr. Lazarow to our Faculty. We know that a worthy successor to a most distinguished scholar has been selected.

Dr. Ivan Frantz, Jr., a 1941 graduate of Harvard Medical School, is at the present time Associate in Medicine at Harvard Medical School, Tutor in the Biochemical Sciences at Harvard University, Assistant Physician at Massachusetts General Hospital, and Consultant in Biophysics at Massachusetts Institute of Technology. He has been associated with Harvard Medical School since his discharge from the Navy in 1946. His research work has dealt primarily with various phases of protein and cholesterol metabolism.

Dr. Frantz is a member of the American Society for Clinical Investigation, the American Association for Cancer Research, and the American Society of Biological Chemists.

We are indeed pleased that a man of the caliber of Dr. Frantz has been selected for the Clark Professorship. Like Dr. Lazarow he is a most welcome addition to our faculty.

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(Continued on next page)

Dedication

Plans for the Dedication of the Mayo Memorial Building are developing nicely. The Dedication Exercises will take place next October 21 and 22, the Dedication Banquet on the evening of Thursday, October 21. In addition to State and University officials, a number of distinguished visitors will participate in the ceremonies. Among them will be Doctors Francis J. Braceland, Osborne A. Brines, Donald J. Cowling, Rene J. Dubos, A. C. Furstenberg, Alan Gregg, Charles A. Janeway, Frank H. Krusen, Jack Masur, Chassar Moir, Robert R. Newell, I. S. Ravdin, Leonard A. Scheele, William H. Sebrell, William P. Shepard, Henry W. Woltman, and Mrs. Lucile Petry Leone. We would like once again to urge all students, faculty members, and friends of the Medical School to reserve these dates.

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Senior Class Officers

At a recent meeting of the Class of 1955, the following officers were elected: President - Dennis Kane; Vice President - Paul O. Sorkness; and Secretary - James G. White. We are pleased to extend congratulations to these men for the recognition their fellow-students have given them.

* * *

Faculty News

Dr. Reynold A. Jensen, Professor, Departments of Psychiatry and Pediatrics, has been named to the Committee on Medical Education of the American Psychiatric Association. He recently was a guest speaker at the University of Nebraska Medical School where he spoke on "Anxiety in Children" and "The Physician's Role in a Program of Preventive Mental Health Services."

Dr. W. D. Armstrong, Professor and Head, Department of Physiological Chemistry, was in Washington, D. C. on May 27 and gave testimony before the Committee on Interstate and Foreign Commerce against the bill which would have the effect of forbidding the fluoridation of public water supplies.

Dr. Graham Grant, Director of the Student Health Service at the University of Wales, Cardiff, Wales, was a Health Service visitor the week of May 17. He spoke about the Health Service at the University of Wales on Tuesday, May 18, at the weekly staff meeting of the Students' Health Service.

Dr. C. D. Creevy, Professor, Department of Surgery, and Director, Division of Urology, attended the meeting of the South Dakota State Medical Association in Huron, South Dakota, on May 17, where he spoke on "Urological Diagnosis in General Practice." He also spoke on "The Recognition of Atypical Renal Neoplasms" and "The Disadvantages of Ureterosigmoidostomy" at the meeting of the Ogden Surgical Society in Ogden, Utah, on May 26 and 27.

Dr. William T. Peyton, Professor, Department of Surgery, and Director, Division of Neurosurgery, attended the meeting of the Society of Neurological Surgeons in New York on April 23 and 24. He also attended the meeting of the Harvey Cushing Society in Santa Fe, New Mexico, on May 6, 7, and 8, where he spoke on "High Cervical Cordotomy."

(Continued on next page)

Dr. Frederick H. Van Bergen, Assistant Professor, Division of Anesthesiology, was the guest speaker at the Indiana State Society of Anesthesiologists on May 5 at Indianapolis and presented a paper on "The Role of the Anesthesiologists in the Management of the Polio and Tetanus Patient." He also spoke at the meeting of the Wisconsin State Society of Anesthesiologists in Madison on May 9 on the same subject. He was the Moderator for the Minnesota State Medical Association's Symposium on Anesthesiology on June 7 in Duluth. Other participants in the Symposium were Doctors F. C. Jacobson, James H. Matthews, John S. Lundy, and O. Sidney Orth. Dr. Matthews presented a paper on the subject "Cardiac Arrest During Anesthesia."

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Thank you, Miss Lavers

Before writing FINIS to this volume of the Bulletin, we wish to thank Miss Elva Lavers and her very competent staff for all they have done to make its publication possible. The inconveniences we have caused them are many -- copy submitted well after the deadline, inclusion of complex tables and charts, material containing large numbers of handwritten corrections, to mention a few. Yet each issue of the Bulletin has appeared on time and each has demonstrated the highest quality of workmanship. Our very real appreciation is extended to you, Miss Lavers, and to your co-workers for another year's work well done.

* * *

'Til Fall

With publication of today's issue, the Bulletin begins its annual summer vacation. After a very busy spring we are sure that the contributors as well as the editor will welcome this customary respite. We do, however, find ourselves already anticipating with pleasure the re-opening of school next fall and the resumption of publication of the Bulletin.

The caliber of the papers presented during the past year was excellent. We wish to thank the contributors who spent much time and effort on the preparation of manuscripts. We note with pleasure, too, that staff meeting attendance showed an increase in comparison with last year's.

Next fall will see many changes in the Medical School. By then the opening of the Mayo Memorial Building, so long awaited, will have become a reality. A good many of us will have moved into new offices and laboratories. Our new, expanded facilities, we are sure, will serve as effective stimulus for all of us.

Yes, next fall will be an exciting time. We hope that the summer will provide the rest, relaxation, and diversion which we need. Our best wishes for the summer go to all students, members of the faculty, and members of the Minnesota Medical Foundation.

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III. UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

WEEKLY CALENDAR OF EVENTS

Physicians Welcome

June 14 - 19, 1954

Monday, June 14

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 Hitchcock, Zimmermann, and Stenstrom; Todd Amphitheater, U. H.

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

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

1:30 - 3:30 Dermatology Hospital Rounds; H. E. Michelson and Staff; Dermatology-Histopathology Room, M-434, U. H.

4:30 - Infectious Disease Rounds; Station 43, U. H.

5:00 - 6:00 Physiology-Surgery Conference; Todd Amphitheater, U. H.

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

Ancker Hospital

8:30 - 10:00 Tuberculosis and Chest Conference; Auditorium.

2:00 - 3:00 Surgery Journal Club; Classroom.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Richard Raile; Station K.

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

11:00 - Orthopedic and Fracture Rounds; Drs. John Moe and Arthur Zierold; Station B.

11:00 - Pediatric Seminar; Erling Platou; Classroom, Station M.

12:30 - Surgery Grand Rounds; Dr. Zierold; Station E.

1:30 - 2:30 Tuberculosis Conference; J. A. Myers; Station M.

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

Monday, June 14 (Cont.)

Veterans Administration Hospital

9:30 - Infectious Disease Rounds; Drs. Hall, Zinneman, Lubin and Sherman.

1:30 Cardiac Conference; Drs. Berman, Smith, Hoseth, Simonson, and Wexler; Conference Room, Bldg. I; Rounds immediately following conference.

Tuesday, June 15

Medical School and University Hospitals

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

12:30 - 1:20 Pathology Conference; Autopsies; J. R. Dawson and Staff; 102 Institute of Anatomy.

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

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

5:00 - 6:00 X-ray Conference; Presentation of Cases from Heart Hospital; Joseph Asta; Eustis Amphitheater, U. H.

Ancker Hospital

9:00 - 10:00 Medical X-ray Conference; Auditorium.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Elizabeth Lowry; Station J.

10:00 - Psychiatry Grand Rounds; R. W. Anderson; Station H.

11:30 - 12:00 Neurology-Neurosurgery Conference; Classroom, Station M.

12:30 - 2:30 Dermatology Rounds on Clinic; Carl W. Laymon and Staff.

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

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

3:30 - Pediatric-Psychiatry Rounds; Jack Wallinga; Station I.

Veterans Administration Hospital

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

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

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

1:00 - Review of Pathology, Pulmonary Tuberculosis; Conference Room, Bldg. I.

Tuesday, June 15 (Cont.)

Veterans Administration Hospital (Cont.)

1:30 - Combined Medical-Surgical Chest Conference; Conference Room, Bldg. I.

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

4:00 - Thoracic Surgery Problems; Conference Room, Bldg. I.

Wednesday, June 16

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-Pediatrics Conference; Todd Amphitheater, U. H.

12:30 - 1:20 Radioisotope Seminar; Underground Cobalt Unit, U. H.

1:00 - 2:00 Dermatology Clinical Seminar; F. W. Lynch; 300 North Clinic.

1:30 - 2:30 Physiology 114B--Transport Seminar; Nathan Lifson and M. B. Visscher; 271 Lyon Laboratories.

1:30 - 3:00 Pediatric Allergy Clinic; Albert V. Stoesser and Lloyd Nelson; W-211, U. H.

3:30 - 4:30 Dermatology-Pharmacology Seminar; 3rd Floor Conference Room, Heart Hospital.

4:30 - 5:50 Dermatology-Infectious Disease Seminar; J. D. Krafchuk; 3rd Floor, Conference Room, Heart Hospital.

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

5:30 - 7:30 Dermatology Journal Club and Discussion Group; Hospital Dining Room.

7:30 - 9:30 Dermatology Seminar; Review of Interesting Slides of the Week; Robert W. Goltz; Todd Amphitheater, U. H.

Ancker Hospital

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

12:30 - 1:30 Medical Journal Club; Library.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Henry Staub; Station I.

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

Wednesday, June 16 (Cont.)

Minneapolis General Hospital (Cont.)

12:00 - Surgery-Physiology Conference; Arthur Zierold and E. B. Brown; Classroom.

12:30 - Pediatric Staff Meeting; Classroom; Station I.

1:30 - Pediatric House Staff Seminar; Erling Platou; Station I.

1:30 - Pediatric Rounds; Erling Platou; Classroom, Station I.

Veterans Administration Hospital

8:30 - 10:00 Orthopedic X-ray Conference; E. T. Evans and Staff; Surgical Conference Room, Bldg. 43.

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

9:00 - Gastro-Intestinal Rounds; Drs. Wilson, Zieve, Hay, Brakel, Nesbitt and O'Leary.

11:00 - Gastroenterology Conference; Conference Room, Bldg. I.

12:30 - Medical Journal Club; Doctors' Dining Room.

12:30 - X-ray Conference; J. Jorgens; Conference Room, Bldg. I.

1:30 - 3:00 Metabolic Disease Conference; Drs. Flink, Schultz and Brown.

3:30 - Urology Pathology Slide Conference; Dr. Gleason; Conference Room, Bldg. I.

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

Thursday, June 17

Medical School and University Hospitals

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

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

12:30 - 1:30 Electrocardiography Conference; Ernst Simonson; Staff Room, Cardiac Clinic, Heart Hospital.

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

*4:30 p.m. Special Lecture; "Lysogeny and the Concept of Provirus;" Dr. Andre Lwoff, Professor and Head, Department of Microbial Physiology, L'Institut Pasteur, Paris, France; Owre Amphitheater.

Ancker Hospital

8:00 - 10:00 Medical Grand Rounds; Auditorium.

Minneapolis General Hospital

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

9:30 - Pediatric Contagion Rounds; R. B. Raile; Station K.

*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.

Thursday, June 17 (Cont.)

Minneapolis General Hospital (Cont.)

10:00 - Psychiatry Grand Rounds; R. W. Anderson and Staff; Station H.

11:30 - 12:30 Clinical Pathological Conference; John I. Coe; Classroom.

12:30 - 2:30 Dermatology Rounds and Clinic; Carl W. Laymon and Staff.

1:00 - Fracture - X-ray Conference; Drs. Zierold and Moe; Classroom.

1:00 - House Staff Conference; Station I.

Veterans Administration Hospital

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

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

8:30 - Hematology Rounds; Drs. Hagen and Fifer.

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

1:30 - 4:30 Infectious Disease Conference and Rounds; Wesley W. Spink; Conference Room, Bldg. I.

Friday, June 18

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 - 1:50 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Department, U. H.

11:00 - 12:00 Vascular Rounds; Davitt Felder and Staff Members from the Departments of Medicine, Surgery, Physical Medicine, and Dermatology; Eustis Amphitheater, U. H.

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

1:30 - 2:30 Dermatology Grand Rounds; Presentation of Cases from Grouped Hospitals (University, Ancker, General and Veterans) and Private Offices; H. E. Michelson and Staff; Eustis Amphitheater, U. H.

2:30 - 4:00 Dermatology Hospital Rounds; H. E. Michelson and Staff; Begin at Dermatological Histopathology Room, M-434, U. H.

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

3:30 - 4:30 Dermatology-Physiology Seminar; 3rd Floor Conference Room, Heart Hospital

4:00 - 5:00 124 Advanced Neurophysiology Lecture; Werner Koella and Ernst Gellhorn; 111 Owre Hall.

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

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

Ancker Hospital

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

Friday, June 18 (Cont.)

Minneapolis General Hospital

9:30 - Pediatric Rounds; Elizabeth Lowry; Station J.

10:30 - Pediatric Surgical Conference; Tague Chisholm and B. Spencer; Classroom, Station I.

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

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

1:30 - Pediatric Contagion Rounds; L. Wannamaker; Station K.

Veterans Administration Hospital

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

1:00 - Chest Pathology Follow-up Conference; E. T. Bell; Conference Room, Bldg. I.

2:00 - Autopsy Conference; E. T. Bell; Conference Room, Bldg. I.

Saturday, June 17

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; Eustis Amphitheater, U. H.

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.

Ancker Hospital

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

Minneapolis General Hospital

8:00 - Urology Staff Conference; T. H. Sweetser; Main Classroom.

9:00 - Psychiatry Grand Rounds; R. W. Anderson; Station H.

9:30 - Pediatric Rounds on all Stations; R. B. Raile.

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

Veterans Administration Hospital

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

8:30 - Medical X-ray Conference; Conference Room, Bldg. I.

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