

Bulletin of the

**University of Minnesota Hospitals
and
Minnesota Medical Foundation**



**Adenomas in the Rectum
and Rectosigmoid**

BULLETIN OF THE
UNIVERSITY OF MINNESOTA HOSPITALS
and
MINNESOTA MEDICAL FOUNDATION

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I. THE SIGNIFICANCE, INCIDENCE AND TREATMENT OF ADENOMAS IN THE RECTUM AND RECTOSIGMOID

H. W. Christianson
Robert J. Tenner

Adenomas of the large intestine are true tumors and possess very definite malignant properties. Although the preceding fact has been generally recognized, sufficient emphasis has not been stressed on the importance, as well as potential danger, of these lesions. Discovery at the earliest moment and prompt eradication must be practiced if cancer is to be prevented in the rectum, and rectosigmoid region. This can be accomplished only by a thorough sigmoidoscopic examination.

All physicians and surgeons must be aware of the potential malignant nature of these tumors and their frequency of occurrence. All must be prepared to search for them, not depending on those few surgeons trained in proctology to cover this most important phase of diagnostic medicine.

There is no way of determining either by gross appearance or microscopic examination which adenomas will remain benign or which may later undergo malignant change. We do know they frequently undergo malignant change but the exact percentage is not known since adenomas are usually eradicated upon discovery. The occurrence of adenomas and malignancies in the large bowel are remarkably similar in respect to location, in that the number of carcinomas of the large bowel and the frequency of the location of intestinal adenomas are greatest in the sigmoid and rectum. A further relationship is noted in that the appearance of adenomas accompanies the general cancer age group. Swinton and Warren⁹ have demonstrated that malignancy has developed from an adenoma as shown by histological examination. The frequent co-existence of both benign and malignant processes in the same individual and the proximity of these growths further substantiates the close relationship between intestinal adenomas and malignancy.

We do not want to give the impression that all cancers of the rectum and colon arise from adenomas because this is not the case; but we do want to emphasize the importance of the so-called benign adenoma. Some authors have placed the incidence of malignant change at 20 per cent and others at 14 per cent.

Helwig⁸ stated that the same inherent growth factors which apparently cause the development of malignant disease, cause the formation of the benign but definitely premalignant tumors of the colon and rectum, particularly in advancing years.

Incidence

This study was made at the Cancer Detection Center, University of Minnesota, on patients submitted to sigmoidoscopic examination. The Center is designed to serve apparently-well persons over the age of 45, primarily to detect in them early cancer and pre-cancerous lesions.

The adenomas reported in this study refer to what appeared to the examiners to be a hyperplasia of the normal mucosa or true epithelial tumors.

From Table I it can be seen that 1639 patients have been examined in a year and a half period from March 1948 to September 1949. Adenomas or pre-cancerous lesions were found in 240 cases, or 14.6 per cent. Of these 240 cases, 68 (or 28 per cent) had two or more adenomata, whereas 72 per cent had single lesions. The adenoma occurred more frequently in the males, the ratio being 3:2. The average age in this series was 55.4 years. The number of growths discovered at the first visit was: single 135, multiple 52; whereas, adenomas discovered for the first time at the second or third visits (all patients are re-examined at 6 to 12 months' intervals) were: single 37, multiple 16.

Of all the patients who had adenomas, 73 have returned for a re-check. Of these, 31 cases were adequately cared for

by their private physicians. In 21 cases no treatment had been performed and these lesions were again demonstrated. In the remaining 21 cases, additional adenomas were discovered at the re-examination, which probably represent additional growths; but, of course, may have been overlooked at the initial examination. Biopsy was performed on the larger polypoid, irregular lesions. Thirty-eight biopsies were performed which were reported as 35 benign lesions and 3 malignant growths.

Barium enema, including air-contrast studies, were performed on all 240 patients. The study was negative in 218 instances, whereas in 22 cases some pathology was noted. Barium enemas were requested on all cases of adenomas, as noted above, and, in addition, on any cases where there was occult blood in the stools, blood-tinged mucus high in the bowel, severe angulations or diverticula as visualized through the sigmoidoscope. There were three cases found to have polypoid lesions of the colon by barium enema in which the sigmoidoscopic examination was negative.

A further word regarding the adenomas as described in the study by the examiners is added. The size ranged from those elevated areas on the mucous membrane 1 or 2 millimeters in diameter which did not differ in appearance from the normal mucosa, to those of about 1 centimeter in diameter which had become reddened in color and assumed the lobulated raspberry appearance of a more typical adenomatous polyp. In other words, most adenomas are flat or sessile in their early stage of development and later become pedunculated. In some of these cases both types were described in close proximity to the other.

Treatment

All benign asymptomatic adenomas should be removed soon after the discovery of their presence. Those within reach of the 25 cm. sigmoidoscope may be removed safely either by direct fulguration or, where there is a definite pedicle, by ligation or high frequency

TABLE I

Summary of Sigmoidoscopic Findings at the Cancer Detection Center, University of Minnesota - March 1, 1948 to September, 1949.

1. Total number of patients examined	1639
2. Total number of patients found with adenomas	240
3. Percentage of total patients	14.6%
A. Adenomas found at 1st visit	187
(single)	135
(two or more)	52
B. Adenomas found at 2nd or 3rd visit	53
(single)	37
(multiple)	16
4. Patients with adenomas who have returned for checkup.	73
A. Adenomas not present.	31
B. Adenomas present	21
C. Additional adenomas described	21
5. Total number of biopsies taken (large questionable lesions were biopsied).	38
A. Benign	35
B. Malignant	3
6. Results of barium and air contrast enemas - total number-	240
A. Negative findings	218
B. Positive findings	22
1. Filling defect cecum-	3
2. Diffuse (familial) polyposis	2
3. Multiple polypi of rectum and colon	2
4. Constricted area sigmoid.	3
5. Large polypoid lesion suggestive of carcinoma	2
6. Polypi - one or more elsewhere in colon	10
7. Colonic polyps found by X-ray in which sigmoidoscopy was negative	3

electric snare. Local surgical excision is also adequate but is employed especially for lesions situated above reach of the endoscope. The sessile tumors are usually biopsied before they are destroyed by fulguration and the pedunculated growths which are removed are also preserved for microscopic study. Care must be exercised to avoid perforation of the bowel above the peritoneal reflection and also to avoid hemorrhage from the artery which is present in the stalk of the larger polyps. All but the very large benign polyps or those tumors above the peritoneal reflection may be removed as an office procedure. The equipment absolutely necessary includes adequate sigmoidoscopic instruments, biopsy forceps, specially designed cautery applicators and reliable suction for removal of smoke and fluid.

Thorough intense fulguration including the bowel wall, for lesions below the peritoneal reflection, is not looked upon with too much danger and may be indicated to insure total eradication of a sessile growth. The sessile growths above the peritoneal reflection that can be reached by the sigmoidoscope, if fulgurated, must be closely and frequently followed as there is a tendency to inadequately destroy these growths for fear of perforation. If there is doubt as to complete eradication or if they are firmly attached to the bowel wall and not just to the mucosa, they are best removed by the abdominal approach.

The pedunculated adenomas even with focal malignant changes but without evidence of invasions of the stalk or mucosa can be removed effectively by electrotherapy.

Adenomas showing invasion into the rectal wall should be regarded and treated as frank carcinomas and it must be borne in mind that treatment of cancer of the colon and rectum is radical resection.

In many cases, the fulguration of polyps or adenomas has been considered to be a failure because at a later date a carcinoma has been found. This is not the fault of the method of destruction,

but the fault of methodical follow-up procedure. In other words, these cases must be checked frequently for a long period of time. The factor that produced these growths is not destroyed by the fulguration of them. It may still be active and produce new ones. We have ample proof that this factor is still present because we have found many recurrences, not at the same site, but in various other parts of the bowel.

Thirteen years ago one of us (H.W.C.) assisted in an abdominal perineal operation for a carcinoma of the lower rectum. A few weeks ago, this patient returned because of bleeding from the colostomy. A proctoscopic examination was done through the colostomy, and a large pedunculated polyp with malignant changes was found near the splenic flexure. This growth was destroyed by fulguration. If this examination had not been done, the first operation would have been considered a failure. It undoubtedly would be charged to a recurrence of the first carcinoma.

All of this discussion leads to the proper procedure for the care of these patients who have an adenoma or a polyp. One should never dismiss a patient completely after fulguration or destruction of an adenoma or polyp. If the patient and the doctor are concerned with the prevention of a cancer, then a definite program of postoperative care must be carried out over a period of years.

The program, as we have developed it, is as follows:

1. The adenoma or the polyp is destroyed. If malignancy is found in the body of the polyp and if the stalk is not invaded, it can be destroyed by fulguration or by the electrical snare. The question arises - "How can you tell if the stalk has been invaded?"

We have observed hundreds of polyps and we have found that, as the stalk is invaded, the pedicle is shortened. The pedicle consists mostly of normal mucosa because of the pull on the polyp by the usual peristalsis

of the bowel. If the polyp is sessile with malignant changes, it should be cared for in a radical manner. If not sessile, the body of the polyp should be removed or destroyed by fulguration. One should always keep in mind that the pedicle is mostly made up of normal mucosa, and if this is destroyed close to the bowel wall an ulcer will remain because of usual retraction of the mucosa; however, if the pedicle is destroyed a short distance above the bowel wall, an ulcer will be avoided.

2. The patient should be checked in two to three weeks to make sure that the growth has been sufficiently destroyed.
3. The patient should be checked again in three months. During this period, additional polyps or adenomas may have developed. These should be destroyed. As a rule, they are very small and hence are easily destroyed by one treatment.
4. Another sigmoidoscopic examination should be done in six months.
5. Colon roentgenograms should be made with the double contrast method as soon as adenomas or polyps are discovered by sigmoidoscopy.
6. Sigmoidoscopic examinations and colon x-rays should be done every year thereafter. We feel that if the above procedures are carefully adhered to in cases of polyps or adenomas, the patients' chances of succumbing to a cancer of the rectum and rectosigmoid are negligible.

References

1. Bacon, H. E., Broad, G. G.
Review of Gastroenterology.
Vol. 15, #4, p.284, (Apr.) '48.
2. Brust, J. C. M.
Proc. Staff Mtgs. Mayo Clinic,
Vol.9:625; (Oct.) '34.
3. Buie, L. A.
Practical Proctology.
W.B.Saunders Co., Phila. & London, '38.
4. Bockus, Henry L.
Gastroenterology, Vol.II.
W.B.Saunders Co., Phila. & London, '47..
5. Fansler, Walter A.
So.Dak.Jour.Med. & Pharm., (July) '48.
6. Fansler, Walter A. and Frykman,
Howard M.
Bull. Univ. Minn. Hosp., Vol. XX,
p.172, No. 8 (Nov.) '48.
7. Jackman, R. I.
Proc. Staff Meetings, Mayo Clinic,
Vol.16, No. 11, '41.
8. Helwig, E. B.
Surg., Gynec. & Obst., Vol.84, p.36,
(Jan.) '47.
9. Swinton, N. W., Warren, S.
J.A.M.A. Vol.113;1927, (Nov.) '39.
10. Turell, Robert and Lyons, Albert S.
Internat. Abst. Surg. Vol.89:No.2,
p.105 (Aug.) '49.

II. MEDICAL SCHOOL NEWS

Coming Events

November 10-12 - Continuation Course in Pediatric and Traumatic Surgery for General Physicians.

Wednesday, November 16 - 3:00 p.m. - Dr. Frank H. Lahey, Boston, Massachusetts - "A Surgical Clinic" - Medical Science Amphitheater.

November 17-19 - Continuation Course in Obstetrics for Specialists.

November 28-December 3 - Continuation Course in Child Psychiatry for General Physicians and Pediatricians.

* * *

Faculty News

Dr. Wallace D. Armstrong, Professor and Head of the Department of Physiological Chemistry, announces that Drs. Bryant R. Dunshee and Leon Singer have recently joined the staff of that department as Instructors. Dr. Dunshee comes to this university from the University of Wisconsin, and Dr. Singer comes to us from the University of Florida.

* * *

Continuation Course in Surgery

General physicians from the upper Midwest will come to the Center for Continuation Study on November 10, 11, and 12 to attend a course in Traumatic and Pediatric Surgery. Among the special problems which relate to surgery in the pediatric age group will be "The Child as a Surgical Patient" and "Anesthesia for Children".

A round table discussion will be devoted to "The Acute Abdomen in Childhood". General and specific problems in relation to fractures and trauma

in infants and children will also be discussed.

The registrant physicians will attend and participate in the Orthopedic X-ray Conference and Fracture Clinic. Advanced registration figures indicate that the enrollment limit will be oversubscribed.

* * *

Progress Note

Construction on the Variety Club Heart Hospital is moving along briskly. The brick exterior of the third floor of the new addition to the University of Minnesota Hospitals is almost completed.

The Heart Hospital will provide hospital beds for children and adults with heart disease, an out-patient heart clinic, laboratories for cardiovascular research, and offices for members of the professional staff. Originally planned as a three-story structure, the hospital will have, when completed, four floors, due to the fact that the University received a grant from the U. S. Public Health Service for the construction of additional space and facilities for research in cardiovascular diseases.

* * *

New Minn. Medical Foundation Members

Manley F. Juergens, M.D., Thief River Falls
 James Bratholdt, M.D., Watertown
 Jno. C. Jacobs, M.D., Willmar
 V. G. Borland, M.D., Fargo, N. Dakota
 P. H. Fowler, M.D., Plain, Wisconsin
 F. E. Weed, M.D., Park River, N. Dak.
 H. D. Patterson, M.D., Slayton
 E. J. Beithon, M.D., Wahpeton, N. Dak.
 Crookston Clinic, Crookston
 James L. Benepe, M.D., St. Paul
 Anoka State Hospital, Anoka

III.

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
CALENDAR OF EVENTS

November 6 - November 12, 1949

No. 264Sunday, November 6

9:00 - 10:00 Surgery Grand Rounds; Station 22, U. H.

10:30 - 11:00 Subject to be announced; Rm. M-109, U. H.

Monday, November 7

8:00 - Fracture Rounds; A. A. Zierold and Staff; Ward A, Minneapolis General Hospital.

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; M-109, U. H.

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

11:00 - 11:50 Physical Medicine Seminar; E-101, U. H.

11:00 - 11:50 Roentgenology-Medicine Conference; Veterans Hospital.

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

12:00 - 1:00 Physiology Seminar; The Effect of Meals on Electrocardiogram, on Normal Subjects, and in Cardiac Patients; Ernest Simonson; 214 M. H.

12:15 - 1:20 Obstetrics and Gynecology Journal Club; Staff Dining Room, U. H.

12:30 - 1:20 Pathology Seminar; Early Carcinoma of Cervix Diagnosed by Cytology Smears; E. C. Segard; 104 I. A.

12:30 - 1:30 Surgery Problem Case Conference; A. A. Zierold, C. Dennis and Staff; Small Classroom, Minneapolis General Hospital.

1:30 - 2:30 Surgery Grand Rounds; A. A. Zierold, C. Dennis and Staff; Minneapolis General Hospital.

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

4:00 - Public Health Seminar; Subject to be announced; 113 Medical Sciences.

4:00 - Pediatric Seminar; 6th Fl. W., Child Psychiatry, U. H.

5:00 - 5:50 Clinical Medical Pathologic Conference; Todd Amphitheater, U. H.

5:00 - 6:00 Urology-Roentgenology Conference; D. Creevy, O. J. Baggenstoss and Staffs; M-109, U. H.

Tuesday, November 8

- 8:15 - 9:00 Roentgenology-Surgical-Pathological Conference; Craig Freeman and L. G. Rigler; M-109, U. H.
- 8:30 - 10:20 Surgery Conference; Small Conference Room, Bldg. I, Veterans Hospital.
- 9:00 - 9:50 Roentgenology Pediatric Conference; L. G. Rigler, I. McQuarrie and Staffs; Todd Amphitheater, U. H.
- 10:30 - 11:50 Surgical Pathological Conference; Lyle Hay and E. T. Bell; Veterans Hospital.
- 12:30 - Pediatric-Surgery Rounds; Sta. I, Minneapolis General Hospital; Drs. Stoesser, Wyatt, Chisholm, McNelson and Dennis.
- 12:30 - 1:20 Pathology Conference; Autopsies; J. R. Dawson and Staff; 102 I. A.
- 1:00 - 2:30 X-ray Surgery Conference; Auditorium, Ancker Hospital.
- 2:00 - 2:50 Dermatology and Syphilology Conference; H. E. Michelson and Staff; Bldg. III, Veterans Hospital.
- 3:15 - 4:20 Gynecology Chart Conference; J. L. McKelvey and Staff; Station 54, U. H.
- 3:30 - 4:20 Clinical Pathological Conference; Staff; Veterans Hospital.
- 4:00 - 5:00 Pediatric Rounds on Wards; I. McQuarrie and Staff; U. H.
- 4:00 - 5:00 Physiology-Surgery Conference; Experimentally Induced Gastro-intestinal Cancers, Review of Results; Drs. C. Hitchcock and R. Huseby; Eustis Amph., U. H.
- 5:00 - 6:00 X-ray Conference; Presentation of Cases by Drs. Nessa and Anderson, St. Cloud; Todd Amphitheater, U. H.

Wednesday, November 9

- 8:00 - 8:50 Surgery Journal Club; O. H. Wangensteen and Staff; M-515, U. H.
- 8:30 - 9:30 Clinico-Pathological Conference; Auditorium, Ancker Hospital.
- 8:30 - 10:00 Orthopedic-Roentgenologic Conference; Edward T. Evans, Room 1AW, Veterans Hospital.
- 8:30 - 12:00 Neurology Rehabilitation and Case Conference; A. B. Baker; Veterans Hospital.
- 11:00 - 12:00 Pathology-Medicine-Surgery Conference; Medicine Case; O. H. Wangensteen, C. J. Watson, and Staffs; Todd Amphitheater, U. H.
- 12:00 - 1:00 Radio-Isotope Seminar; 113 Medical Science Bldg.
- 3:30 - 4:30 Journal Club; Surgery Office, Ancker Hospital.
- 4:00 - 5:00 Infectious Disease Rounds; University Hospitals; Todd Amphitheater.
- 5:00 - 5:50 Urology-Pathological Conference; C. D. Creevy and Staff; E-101, U. H.

Thursday, November 10

- 8:30 - 10:20 Surgery Grand Rounds; Lyle Hay and Staff; Veterans Hospital.
- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; M-109, U. H.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 10:30 - 11:50 Surgery-Radiology Conference; Daniel Fink & Lyle Hay; Veterans Hosp.
- 11:00 - 12:00 Cancer Clinic; K. Stenstrom & A. Kremen; Todd Amphitheater, U. H.
- 11:30 - 12:30 Clinical Pathology Conference; Steven Barron, C. Dennis, George Fahr, A. V. Stoesser & Staffs. Large Classroom, Minneapolis General Hosp.
- 12:00 - 1:00 Physiological Chemistry Seminar; Synthesis of Purine Nucleosides; P. F. Richardson; 214 M. H.
- 1:00 - 1:50 Fracture Conference; A. A. Zierold and Staff; Minneapolis General Hospital.
- 2:00 - 3:00 Errors Conference; A. A. Zierold, C. Dennis and Staff; Large Classroom, Minneapolis General Hospital.
- 4:15 - 5:00 Bacteriology and Immunology Seminar; Bacteriological Aspects in Diphtheria Diagnosis; Miss Mary Giblin; 214 M. H.
- 4:30 - 5:20 Ophthalmology Ward Rounds; Erling W. Hansen and Staff; E-534, U. H.
- 5:00 - 6:00 X-ray Seminar; Review of meeting, Medical Aspects of Nuclear Energy; C. O. Hansen; Todd Amphitheater, U. H.

Friday, November 11 -- H O L I D A YSaturday, November 12

- 7:45 - 8:50 Orthopedics Conference; Wallace H. Cole and Staff; M-109, U. H.
- 8:00 - 9:00 Pediatric Psychiatric Rounds; Reynold Jensen; 6th Floor, West Wing, U. H.
- 8:00 - 9:00 Surgery Literature Conference; Clarence Dennis and Staff; Small Classroom, Minneapolis General Hospital.
- 8:30 - 9:30 Surgery Conference; Auditorium Ancker Hospital.
- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; E-221, U. H.
- 9:00 - 10:30 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amph., U. H.
- 9:00 - 11:30 Surgery-Roentgenology Conference; Todd Amphitheater, U. H.
- 9:00 - 11:30 Neurology Conference; Recent Advances in Electroencephalogram and Electromyogram; Veterans Hospital.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E0221, U. H.
- 10:00 - 12:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.
- 11:00 - 12:00 Anatomy Seminar; Development of Chromoscopic Tests of Hepatic Function; W. Lane Williams; 226 I. A.