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Factitial Proctitis: A Clinical Study

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I. FACTITIAL PROCTITIS: A CLINICAL STUDY

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Factitial proctitis is a condition often seen following the treatment of pelvic viscera with radium and/or roentgen rays, and is characterized by all degrees of severity from mild inflammation of the anterior rectal wall to either complete destruction of the rectovaginal septum with resulting rectovaginal fistula, or the development of a stricture and subsequent intestinal obstruction.

The term "factitial proctitis" was first employed by Buie and Malmgren in 1930[1] and emphasizes the fact that the changes within the rectum are produced unintentionally or by artificial means.

This lesion is of major clinical importance to the radiologist and gynecologist as well as the proctologist, or for that matter, to any physician dealing with patients receiving irradiation therapy, since all might be called upon to treat this most distressing complication. One can readily appreciate the importance of establishing the proper diagnosis in any patient with bowel symptoms occurring any time after irradiation therapy for a pelvic lesion. Think how disastrous it could be to the patient for one to make an erroneous diagnosis of primary rectal malignancy or recurrence of the pelvic tumor with extension to the rectum simply because one was not aware of the true nature of the lesion, which is benign and can in most instances be adequately treated by conservative means.

It is not the purpose of this presentation to criticize or suggest new techniques of radiation therapy. In the opinion of Buie[2] the occurrence of this lesion does not imply that poor technique was employed. He stated that if the irradiation will destroy or impede the malignant process, the possibility of proctitis occurring should not hinder its use; hence he refers to the lesion as "a justifiable lesion."

There have been many reports in the literature of large series of cases of pelvic malignancies treated by irradiation with subsequent permanent damage to the rectum, usually in the form of strictures. As far as can be determined from a search of the literature, there has not been any prior study undertaken in which all patients undergoing irradiation therapy have been followed by means of repeated proctoscopic examinations whether symptoms suggestive of proctitis occurred or not.

This study is a result of observations made by Sherman[3] and others, that patients with chronic ulcerative colitis treated with Compound E (cortisone), to prevent stricture formation, often showed marked improvement in the appearance of the mucosal ulcerations. Applying the same reasoning to patients with factitial proctitis, cortisone was administered orally and topically with varying results. Eventually Compound F (hydrocortisone) applied topically was found to give encouraging results.

This is a report of some observations made over a 15 month period in the Proctology Clinic of the University of Minnesota Hospitals in a group of 141 patients undergoing irradiation therapy for pelvic malignancies. It has been our aim to see what changes occur in the rectal tissues as a result of the irradiation, and to institute therapy early in certain patients found to have proctitis in an attempt to prevent the later and more serious permanent rectal changes which otherwise tend to occur.

Historical Review

Not long after the introduction of roentgen rays in 1895 and the discovery of radium in 1898 the harmful effects of roentgen ray therapy made their appearance. In April of 1896, only a few short months following Roentgen's discovery, Daniel of Vanderbilt University described a case of epilation and

serious skin reaction which followed prolonged exposure to the rays.[4] In February 1897, Gilchrist, an American surgeon recorded the first instance of injuries to deeper structures when he described a patient in whom osteoblastic periostitis developed in the bones of the hand following prolonged exposures to x-rays for a severe dermatitis.[5] Six months later Walsh, in England, reported two more cases of deep tissue trauma following roentgen ray exposure and suggested that the trauma was due to heat rays, producing a kind of burn, and felt that individual predisposition played a vital part.[6]

Radium was first employed in medicine in 1901 and was at first used to treat only dermatologic conditions. In 1904 Robert Abbe reported before the American Surgical Association, that he had obtained 2¼ grains of radium from the Curies, which he used to treat 40 cases, mostly of superficial neoplasms. He showed that radium caused a retrograde change in malignant cells and observed that the heat produced was insufficient to produce destruction, but like roentgen rays, was capable of setting up an unusual type of inflammation.[7]

The treatment of carcinoma of the cervix by roentgen ray irradiation began about 1902, and the cross-fire technique was first adapted in the treatment of gynecological lesions. Kelly and Burnam of Baltimore in 1914[8] and 1915[9] reported excellent results in the treatment of uterine hemorrhage, fibroids and carcinomas of the cervix and vagina using radium. Their work gave tremendous impetus to the use of radium for the treatment of gynecologic and other pelvic lesions, both in this country and in Europe.

The similarity of roentgen rays and radium, both as to physical characteristics and to biological effects suggested that the two could be combined effectively or interchanged in treating neoplastic diseases, and their combined use became popular around 1918.

The first published report of rectal symptoms following irradiation therapy appeared in 1915 when Furth and Ebeler[10] reported five patients in whom rectal symptoms developed following treatment by radium only, for extra-rectal pelvic lesions. In two of their patients strictures developed and in one a rectovaginal fistula.

Berard and Creyssel in 1930[11] reported on the occurrence of 5 cases of rectal stenosis occurring in a series of about 200 patients treated by irradiation. They believed that the stenosis resulted from a combination of preceding chronic inflammation of the pelvic tissues, which is present in all patients with pelvic malignancies, and the subsequent irradiation, which has a more profound effect upon chronically infected tissues, producing shrinkage of those tissues. Thus in their opinion the stricture is due to perirectal stenosis and not direct involvement of the mucosa.

In the same year Buie and Malmgren[1] reported a series of 65 cases seen at the Mayo Clinic over a nine year period. They described for the first time the proctoscopic picture and clinical findings. They called attention to the ever-present telangectasia, even in healed cases, and pointed out that the lesion is self-limiting and ultimately heals in from 12 to 24 months with or without treatment.

Jones in 1935[12] described what he called a new clinical entity requiring surgical intervention months or even years after the regression or cure of cervical cancer by irradiation therapy. He reported a series of 520 cases of cervical cancer in 7 of which strictures and obstructions developed. He emphasized the importance of differentiating between the benign strictures and recurrent or metestatic carcinoma.

In 1937 Bacon[13] reported 39 patients with factitial proctitis all of whom received radium, with or without the supplemental use of roentgen rays. He stated that radium is the causative factor, since he had never observed a case following the use of roentgen rays alone. He also noted that

although bleeding was the most common symptom, rarely did profuse hemorrhage occur.

Corscaden, Kasbach and Lenz in 1938[14] reviewed their observations in 444 patients in 139 of whom symptoms referrable to the lower bowel developed. They stressed the importance of doing roentgenological examinations to aid in the diagnosis of irradiation injuries and pointed out that of 35 patients examined by barium enema[21] showed demonstrable changes in the mucosal pattern, and the sigmoid colon was the most common location of injury.

In the same year Todd[15] in a paper on rectal ulceration following irradiation described two types of reaction which he called intrinsic and extrinsic. The former lesion is limited to the actual rectum and the latter is principally a perirectal lesion. Since both types may resemble primary carcinoma of the rectum in both symptoms and signs, he referred to these chronic late irradiation reactions as "pseudocarcinoma."

Aldridge in 1942[16] classified intestinal reactions into three types of tissue reaction, depending upon the location and the extent of the injuries, as 1) acute localized proctitis or proctosigmoiditis; 2) ulceration of the mucosa and wall of the intestine and 3) formation of varying amounts of perirectal fibrous tissue. He pointed out that any one or a combination of these types of tissue reaction may develop in the same patient.

Wigby[17] classified intestinal reactions into three groups also, but based on symptomatology. Those with only diarrhea he called first degree reactions, those with blood and frequent loose stools were second degree reactions and those developing stricture necessitating colostomy he called third degree.

Kallet and Thorstad[18] in 1944 grouped the radiation sequellae into four groups: 1) radiation proctosigmoiditis, 2) entrapment, 3) extension and 4) fistula formation. Entrapment includes those cases of stenosis and stricture which result from gradual compression of the sigmoid and upper rectum by the firm fibrotic mass of the frozen pelvis.

Lange in 1945[19] showed that repeated skin applications of radon ointment, which emits therapeutic alpha particles, produced capillary hyperemia, increased capillary permeability, local capillary dilitation and accelerated blood flow, without irritation or erythema. Ricketts and Campbell[20] applied these findings to the treatment of post-irradiation ulcers with beneficial results, with complete healing by scar tissue and epithelization. Stricture formation was arrested, pain, hemorrhage and infection were controlled, but telangectasia persisted. Although the results were encouraging, the treatment was difficult, requiring up to 20 or more supervised weekly 8 hour applications, which proved cumbersome.

Aune and White[21] reviewed 670 cases of carcinoma of the cervix treated by irradiation. There were 23 cases of bowel injury, six of which occurred in the ileum, and represented 26.1% of their cases of bowel injury.

More recently, Sherman in a preliminary report dealing with this study[3] suggested a new classification of factitial lesions based entirely upon the proctoscopic appearance of the bowel, which will be decribed later.

Materials and Methods

All of the patients with carcinoma of the cervix in this study were treated by external irradiation using either the 400 KVP X-ray machine or the Cobalt-60 Unit, followed by use of intracavitary radium, according to the method devised by McKelvey, Stenstrom and Gilliam.[22] League of Nations Stage I and II lesions received approximately 3000r to tissue, using the 400 KVP machine and 3500r to tissue in Stage III lesions. Those treated with

the Cobalt Unit receive from 3300r to 4000r to tissues in the center of the pelvis. Since the introduction of the Cobalt Unit cases of Stages I, II, and III are alternated between the Cobalt Beam and the deep X-ray machine.

The radium is given as a simultaneous intracervical and intravaginal application in a dose of 5000 mgm/hr., over a 100 hour period.

All patients on the Gynecology service that are candidated for radiation therapy are referred to the Proctology clinic prior to the onset of therapy and a complete proctologic examination is carried out and the findings recorded. The patients are seen again at the completion of their course of external irradiation, or before, if symptoms suggesting proctitis develop. The patients are generally seen again six weeks after completion of the radium therapy, or sooner if symptoms have developed. If no changes are noted at this time and the patient offers no bowel complaints, she is seen at three month intervals. Should symptoms of proctitis develop the patients are seen at two week intervals for as long as necessary.

The distribution of the type lesions seen in the group of 141 patients included in this study is shown on Table I. It will be noted that 90% of the group had carcinomas of the cervix.

Most of the patients that developed factitial proctitis were treated with topical applications of 2½% hydrocortisone in a water soluble base, in doses of 75 mgm twice a day. The patients are instructed to cleanse the rectum with warm water or saline morning and night, using an infantbulb syringe, following which they instil the proper amount of medication via a four inch rectal applicator, with instructions to retain the medication as long as possible. More recently, in an attempt to develop an adequate control series, the patients developing proctitis are being alternated, with every other one being followed closely, but without specific treatment.

It appears that the effects of hydrocortisone topically in the rectum are purely a local phenomena. In order to show the lack of significant absorption and systemic effects using 2½% hydrocortisone creme topically in the

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TABLE I

DISTRIBUTION OF TYPE CASES
October 1, 1953 - December 31, 1954

Carcinoma of cervix (Including 7 cases adenoca)		127
Other pelvic conditions		14
Adenoca of endometrium	6	
Squamous cell ca vagina	3	
Adenocarcinoma of ovary	2	
Teratoma of ovary	1	
Pseudomucinous cystadenoca of ovary	1	
Serous cystadenoca of ovary	1	
Total		141

rectum, seven patients have been followed by eosinophile counts and 17 keto-steroid or 17 hydroxy-corticosteroid urinary excretion studies before, during and immediately after a two day trial at therapy with 75 mgm 2½% hydrocortisone twice daily. No significant changes were noted in either the eosinophile counts or the urinary excretion of 17 keto-steroids or 17 hydroxy-corticosterones.

The distribution of the gynecological lesions in the 48 patients found to have proctitis is shown in Table II.

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TABLE II

DISTRIBUTION OF GYN LESIONS IN 48 PTS. WITH PROCTITIS

Gyn lesion	No.	%
LNS I	15	31.25
II	24	50.0
III	6	12.5
Unclassifiable on basis of previous treatment	3	6.25

Pathology

Desjardins[23] in a rather thorough experimental study of the effects of irradiation on tissues of the gastro-intestinal tract concluded that the results of the two types of radiation are essentially the same.

Todd[15] is of the opinion that the underlying process is that of an ischemic necrosis, with the ulceration representing an area of infarction. In areas of ulceration there is total loss of the mucus membrane. The submucosa is intensely infiltrated with plasma cells and a few scattered eosinophiles. The arteriolar walls show some medial thickening, with complete occlusion of the lumen in some places, suggesting an obliterative endarteritis. The muscular coats and the serosa are likewise infiltrated with plasma cells, but to a lesser degree than in the submucosa.

As healing occurs the mucosa is replaced by thin atrophic fibrous tissue, with numerous capillaries present on the surface, as well as deeper. These newly formed surface vessels give the characteristic telangectatic appearance, and accounts for the persistent bleeding.

Review of Clinical Material

1. Incidence.

Figures concerning the incidence of bowel complications following X-ray and radium therapy for pelvic malignancies vary greatly. Buie and Malmgren[1] reported an incidence of 3.13%, whereas Wigby[17] reported that 57% of the cases in his series showed bowel reactions of varying degrees. Todd[15] reported a 5% incidence, Corscaden, Kasbach and Lenz[14] recorded 8.7%, while Aldridge claimed 16.9% incidence of intestinal injury.

In our series of 141 cases there were 48 instances of bowel damage, an incidence of 34.04%. This is a high figure, but includes many cases of proctitis that received their irradiation prior to the date of the onset of

our study. Many other cases treated prior to our study were not seen, for apparently only those who had symptoms appeared. Therefore, a more accurate determination of the incidence should include only those which occurred in patients treated from October 1, 1953, through December 31, 1954. During this period 102 new cases receiving irradiation were seen with the development of 15 cases of factitial proctitis in that group, giving an incidence of 14.7%. (Table III). Obviously, since the symptoms of proctitis may not appear until as late as 5 to 7 years after the therapy, this figure is probably incorrect too.

2. Etiology.

That factitial proctitis, sigmoiditis or ileitis is a complication of radiation therapy, there is no doubt. Whether the radium, roentgen rays or the radioactive cobalt beam is the offending agent is open to debate. Bacon[13] believes that radium is the causative agent. Maas[24] reported several cases occurring after the use of roentgen rays alone. In our own experience, one case developed during cobalt therapy, prior to the insertion of radium, and showed the typical early mucosal changes of factitial proctitis. Ten of the 15 cases developing in patients treated in

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TABLE III

1.	TOTAL NO. CASES	141
	NO. CASES PROCTITIS	48
	INCIDENCE IN TOTAL SERIES	34.04%
2.	NO. CASES IRRADIATED FROM 10/1/53-12/31/54	102
	NO. CASES FACTITIAL PROCTITIS	15
	*INCIDENCE IN CASES IRRADIATED FROM 10/1/53-12/31/54	14.70%
3.	NO. CASES CARCINOMA OF CERVIX TREATED FROM 10/1/53-12/31/54	88
	INCIDENCE OF PROCTITIS IN CASES OF CARCINOMA OF THE CERVIX TREATED FROM 10/1/53-12/31/54	17.04%
4.	NO. CASES PROCTITIS TREATED BY COBALT FROM 10/1/53-12/31/54	10 (66.66%)
	NO. CASES PROCTITIS TREATED BY 400 KVP FROM 10/1/53-12/31/54	5 (33.33%)

the past 15 months occurred in patients who received cobalt. All 15 received radium. It is generally conceded, however, that a combination of X-rays or cobalt and radium are the causative agents.

Undoubtedly there are other factors which must be taken into account, such as previous inflammatory disease with fixation of a loop of small bowel or sigmoid in the cul-de-sac, overdosage or irradiation, slipping of the intracervical radium tandem, inadequate packing away of the rectum during radium therapy or a retroverted uterus.

The smallest dose of radium known to have produced a factitial proctitis was 800 mgm hours, in one of Buie and Malmgren's cases, whereas much greater doses have not resulted in damage. Obviously there is an individual variation to the amount of radiation tolerated.

3. Age

The youngest patient in the series was 20 years old and the oldest was 78, the average being 50.9 years for the entire group.

Of the 48 patients with proctitis the youngest was 29 years old, the oldest was 77, and the average age for this group also was 50.9 years.

4. Onset

The shortest interval from the start of treatment to the development of symptoms of true proctitis was in a patient receiving cobalt therapy, who developed severe diarrhea during the third week of treatments, with proctoscopic evidence of rectal mucosal changes.

The longest interval elapsing until onset of symptoms was 5 years and 5 months, in a patient who subsequently developed a stricture. The average time of onset of symptoms was $3\frac{1}{2}$ months following treatment.

5. Proctoscopic Appearance

The proctoscopic picture of factitial proctitis is characteristic. The most important single finding is telangectasia. The presence of exposed minute surface vessels which bleed easily is enough to cause one to suspect the diagnosis. Telangectasia is present in the earliest cases as well as those of long standing which are spoken of as being "healed." Telangectasia persists for years and is the cause of the prolonged rectal bleeding. This finding may be noted along the anterior wall anywhere from the dentate line to the rectosigmoid junction, but is most marked along the mid-anterior wall, which is closest to the cervix. In the sigmoid the telangectasis may involve the entire circumference of the bowel. Two cases of lower sigmoid telangectasia have been noted so far in this series.

When viewed proctoscopically, the earliest changes of factitial proctitis resemble a mild to moderate erythema with some edema of the mucosa. The more severe the degree of proctitis, the more marked are the changes noted. As the proctitis progresses in severity the mucosa loses its normal smooth glossy appearance and becomes glanular. When rubbed with a cotton swab the surface bleeds easily. In those cases which do not progress beyond this stage of involvement and are chronic, the granular appearance becomes more pronounced and assumes a cobble-stoned appearance.

As the proctitis advances the surface of the bowel, usually on the mid-anterior wall, appears to become involved with a pale, yellowish, stellate shaped membrane with the surrounding area markedly inflammed for varying distances. Eventually the pale area gives way to an erosion of the surface which progresses to an ulceration that has a characteristic appearance. The ulcer may be oval or stellate shaped and frequently is covered with a thick, tenacious, dirty-grey

slough. When this slough is removed there is seen a yellowish or pearly-grey thick base somewhat depressed about the edges, giving the appearance of a plaster mold. The mucosal edges about the ulcer are often markedly inflammed and bleed readily. Occasionally there are seen numerous telangectatic vessels radiating from the edges of the ulcer, resembling numerous spider legs. Should healing start to occur at this time the ulcer base begins to assume a less depressed appearance and gradually the ulcer becomes smaller by the inward growth of the mucosal edges. When healing is complete there remains a pale stellate scar, surrounded by telangectasis, in place of the ulcer.

Although most writers state that the ulcers occur on the mid-anterior wall and are single, we have seen instances of ulcers occurring at the dentate line, on the right lateral wall, near the rectosigmoid junction, and one case of a circumfrential ulcer in the upper rectum. Multiple ulcers have occurred twice in this series. The ulcers may vary in size from several millimeters to 3 or 4 centimeters in diameter.

If healing does not occur following the stage of ulceration, varying degrees of proctitis may ensue and this seems to involve all layers of the rectum giving the wall a thickened appearance with resulting stenosis of the lumen, which may progress to marked stricture formation.

Occasionally an ulcer will continue to penetrate the anterior rectal wall so that on subsequent examinations the center of the base seems to become deeper each time it is viewed, until eventually the ulcer perforates, through its center, into the vagina resulting in a rectovaginal fistula. The fistula always occurs at the site of previous ulceration. Occasionally the opening is large enough to allow the passage of a standard 5/8 inch proctoscope into the vagina before realizing the presence of the fistula. The fistula edges usually appear rolled and are pale and firm and it may be impossible to tell if one is dealing with infiltrating carcinoma or inflammatory tissue. In such instances multiple biopsies of the fistula edges should be taken. So far none of the fistulas seen and biopsied have shown carcinomatous involvement.

6. Classification of Factitial Proctitis

There have been many attempts at classifying the stages of factitial proctitis[13,15,16,17,18] but all such attempts are based upon the pathological changes. Sherman[3] on the basis of observations early in this study, in order to facilitate a better understanding of the degree of involvement offered a new classification based entirely on the proctoscopic appearances, and which we have used throughout this study. The classification is as follows:

Grade I	(a) Localized erythema and telangectasis. Friable mucosa that bleeds easily. No ulceration or stricture.
	(b) Diffuse erythema with accompanying periproctitis.
Grade II	Ulceration with a greyish tenacious slough, usually involving the anterior rectal wall.
Grade III	Stricture plus proctitis and ulceration, either of the latter co-existing in varying degrees.
Grade IV	Proctitis, ulceration, rectovaginal fistula or stricture, or bowel perforation.

7. Symptoms

The symptoms in order of frequency as they occurred in this series are bleeding, diarrhea, pain, constipation, abdominal cramping, rectal tenesmus and excessive mucoid discharges. Table IV shows the incidence of each of these symptoms, both as to total number of cases experiencing each

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TABLE IV

OCCURRENCE OF SYMPTOMS IN PATIENTS WITH PROCTITIS (48 CASES)

	No.	%	Primary Symptom No.	%
Bleeding	23	47.92	12	25
Diarrhea	14	29.17	10	20.83
Pain	6	12.50	3	6.25
Constipation	4	8.34	3	6.25
Cramps	4	8.34	2	4.17
Tenesmus	4	8.34	1	2.08
Mucus	2	4.17	1	2.08

No symptoms - 19 cases - 39.58%

symptom as well as the incidence of each as the primary or presenting symptom.

One highly significant fact learned from this study was that objective changes could be present in the rectum without evidence of subjective symptoms. To bear out this fact, 19 cases of factitial proctitis or 39.6% of the cases were picked up by proctoscopic examination alone, and these included cases of Grades I, II, and III factitial proctitis.

8. Diagnosis

The diagnosis should be suspected in any patient known to have received irradiation therapy who develops bowel symptoms weeks, months or even years after the treatments.

There is no substitute for proctoscopic visualization of the bowel wall, and proctoscopy should be done in every case where the diagnosis is suspected. Occasionally even direct visualization may not make it possible to differentiate this benign lesion from primary bowel cancer or secondary involvement of the bowel from cancer elsewhere in the pelvis. In such instances biopsies are invaluable.

Barium enema is frequently resorted to in order to visualize injuries above the reach of the sigmoidoscope.

9. Differential Diagnosis

Included in those conditions which must be thought of in the differential diagnosis of factitial proctitis are,

primary carcinoma of the rectum, secondary or metastatic carcinomatous involvement of the rectum, Barron ulcer of the rectum or colon,[25] ulcerative type of lymphogranuloma, non-specific rectal ulcer also spoken of as ulcus callosum recti,[26] and enema tip abrasions.

10. Prognosis

It is generally agreed that the prognosis in a given case of factitial proctitis depends upon the final results achieved in the treatment of the malignant lesion for which the irradiation is given. If the cancer is controlled the ultimate outcome of the proctitis is healing, requiring from 12 to 24 months to do so.[1]

11. Treatment

Many forms of treatment have been suggested and consist mostly of conservative measures, unless such complications occur which require surgical intervention.

Among the conservative measures recommended one of the most popular has been the use of warm rectal douches following bowel movements to keep the rectum clean and empty and thus prevent constipation. Buie[2] recommends the instillation of 2 to 4 ounces of warm olive oil at bedtime for relief of tenesmus. This may be given in combination with a suspension of bismuth. Bernstein[27] advises the use of warm cod liver oil, as an overnight retention enema, instead of olive oil, and reports satisfactory results as regards the relief of symptoms, but with essentially no other influence upon the course of the disease. The instillation of tannic acid, ferric chloride, witch-hazel and other astringent agents to control bleeding have not been of much value. Low residue diet with the liberal use of mineral oil is frequently prescribed, often without effect. Narcotics, sedatives and antispasmodics have all been used with variable results. The use of radon ointment, though promising, did not achieve wide popularity.

The use of 2½% hydrocortisone creme topically, as tried in this series offers encouraging results as will be seen from the illustrative cases to be shown.

Prophylactic measures recommended include adequate packing of the vagina with gauze during radium therapy to protect the rectum, and frequent change of position of the patient to keep loops of bowel out of the pelvis and away from the radium source.

Surgical measures are recommended for repair of rectovaginal fistulas and strictures which cannot be controlled by other means, and for such catastrophies as bowel perforations or obstructions. Diverting colostomies have been advocated for persistent bleeding, but frequently there is no change following this procedure. Pelvic sympathectomies have been recommended for the relief of pain.[15] Resection and primary anastomosis is recommended for incapacitating sigmoid strictures, and recently Brintnall[28] and Sherman[3] have advocated "pull-through" procedures for rectal strictures and rectovaginal fistulae.

Results

Most of the cases of proctitis in this series were of the less severe type reactions. Strictures were not frequent and hence did not present much of a problem in management. Ileal involvement, with perforation and obstruction, occurred in one instance and was treated surgically. Rectovaginal fistulae were considered surgical problems. Consequently, those cases treated with hydrocortisone topically were the early and non-surgical cases of factitial proctitis. The effect of this type of treatment in some cases was dramatic. Most patients reported cessation of bleeding after only a few application of the medication. Several reported the cessation of rectal pain and tenesmus. Proctoscopic changes were recorded

photographically when possible.

Table V shows the results obtained in 27 cases of factitial proctitis treated by topical hydrocortisone. The term "healed" is used to denote those cases where the lesion largely disappeared after 8 consecutive weeks of treatment, whereas "delayed healing" implies that a 3 to 4 month period of treatment was required before healing occurred. It will be noted from Table V that 88.9% of the cases treated with hydrocortisone obtained beneficial results.

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TABLE V

DISTRIBUTION OF SEVERITY OF PROCTITIS

Grade	No	%
I	27	56.25
II	14	29.16
III	3	6.25
IV	4	8.34

Discussion

As already stated the majority of patients treated obtained significant improvement. There was only one patient in which no change was recorded in the appearance of the ulceration after 4 months of continual therapy.

Two patients are listed as having been made worse by the therapy. One of these patients received her therapy elsewhere and received excessively large doses of both X-ray and radium. When first seen she had a moderate proctitis with a deep ulceration of the anterior rectal wall. She was started on hydrocortisone and after only one week of treatment developed a small bowel obstruction and perforation of the terminal ileum, obviously not due to the hydrocortisone, and required an ileo-transverse colostomy with resection of the intervening segment of bowel. When next seen six weeks post-operatively a recto-vaginal fistula had developed. While it seems unlikely to us that the fistula was due to the hydrocortisone therapy, nevertheless, this case is reported as a complication of the therapy.

The other case occurred in a 55 year old white female with a LNS III carcinoma of the cervix, treated in January 1953 with 3880r to tissue using the 400KVP machine, followed by a dose of 4500 mgm hours of radium. On the first proctologic examination the patient complained of repeated episodes of profuse rectal bleeding. She was found to have a Grade II factitial proctitis, with ulceration of the anterior rectal wall at about the 8 cm. level with severe periproctitis. She was treated with topical hydrocortisone over an 8 week period with remarkable response, including cessation of bleeding. Approximately 3 months after cessation of treatment she again experienced severe rectal bleeding necessitating hospitalization and blood transfusions. Inadvertently she was not seen in our clinic at this time and two more months elapsed before she was seen. Rectal bleeding persisted and examination showed that the ulceration had healed, but now there was

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TABLE VI

RESULTS OF TREATMENT WITH TOPICAL HYDROCORTISONE

Grade Proctitis	I	II	III	IV	Total	%
No. cases	27	14	3	4	48	
No. treated with compound F	7	14	3	3	27	56.25
Healed	6	8	1	0	15	55.56 88.90
Improved	0	5	2	2	9	33.34
No change	0	0	0	1	1	3.70
Worse	1*	1	0	0	2	7.40

* Treated elsewhere with total of 6090 r and 6675 mgm hr radium.

another typical large factitial ulcer just at the dentate line, the edges of which bled freely. The patient was started on another course of hydrocortisone and did well for about 4 weeks when she experienced another severe episode of rectal bleeding with a drop of hemoglobin to 3 Gm. Treatment was stopped and the patient was hospitalized and transfused. During the period of hospitalization the ulcer perforated and a large rectovagina fistula resulted. The bleeding continued intermittently and eventually a loop transverse colostomy was performed. When last seen there was essentially no change in the fistula size and she still complained of occasional rectal bleeding.

Although the second ulcer in this case was quite deep when first seen, and in all probability would have progressed to formation of a rectovaginal fistula in any event, none-the-less we must consider this as a result of our therapy, since perforation did occur shortly after the use of hydrocortisone.

The occurrence of a rectovaginal fistula is felt by some investigators to indicate metestatic involvement or extension of the carcinoma to the rectovaginal septum. All of our cases of fistula have been biopsied without evidence of carcinoma. In eight instances ulcers have been biopsied and in no case was there involvement by carcinoma.

While it is beyond the scope of this paper to discuss the physiological and pharmacological effects of hydrocortisone, it should be mentioned

that it has been well documented elsewhere[29,30,31,32] that local applications of hydrocortisone are without systemic effects, and that it is capable of exerting analgesic and anti-inflammatory effects as well as increasing capillary resistance. These effects may well be the mechanisms of action whereby effective results were achieved in our cases.

Summary

The history of the development of irradiation therapy in the treatment of pelvic malignancies, with especial reference to cancer of the cervix, and the literature pertaining to the development of bowel complications following such irradiation, is briefly reviewed, with special emphasis on the rectal complications, known as factitial proctitis.

The findings in a group of 141 cases followed proctoscopically, after irradiation for pelvic malignancies, are presented, and the treatment is discussed. Hydrocortisone acetate creme in 2½% strength, applied topically in the rectum, was the principle treatment employed in 27 of 48 cases of factitial proctitis.

Conclusions

Factitial proctitis following irradiation therapy for pelvic malignancies occurs in 14.7% of the cases, and the incidence may actually be higher.

The pathological changes in the bowel wall following irradiation are probably in the nature of an obliterative endarteritis with resulting necrosis and ulceration and subsequent replacement by fibrous tissue.

The principle etiologic factor in the production of factitial proctitis is probably radium, although roentgen rays and radioactive cobalt are also capable of causing the lesion. Accidental factors as well as individual susceptibility undoubtedly also play a significant role.

The occurrence of factitial proctitis does not indicate faulty technique and must be considered as a definite risk whenever irradiation therapy is undertaken.

In patients developing bowel symptoms any time after irradiation therapy the diagnosis should be suspected and proctoscopy should be done. The condition must be differentiated from malignancy before treatment is begun.

Factitial lesions are self-limiting in their course, and if the primary condition is controlled, will heal eventually, taking from 12 to 24 months to do so.

Early diagnosis and early treatment may prevent the later more serious sequellae.

Topical hydrocortisone acetate per rectum has proved efficacious in the treatment of the mild inflammatory and ulcerative cases, and by its use healing time may be decreased to 3 to 4 months. Hydrocortisone is not to be used in those cases where surgical intervention is indicated.

The possibility of bowel perforation with the use of topical hydrocortisone must be kept in mind, but no other untoward effects are noted with its use.

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II. MEDICAL SCHOOL NEWS

Coming Events

Jan. 31 - Feb. 2	Continuation Course in Ophthalmology for Specialists
February 3	Special Lecture: "The Cell and Its Parts; Genetic Re-Combination Mechanism;" Dr. Joshua Lederberg, University of Wisconsin, 8:00 p.m.
February 3 - 5	Continuation Course in Otolaryngology for Specialists
February 7 - 12	Continuation Course in Neurology for General Physicians and Specialists
February 9	J. B. Johnston Lectureship: "Cerebral Circulation and Oxygen Consumption;" Dr. Seymour S. Kety, National Institute of Neurological Diseases and Blindness; National Institute of Health, U. S. Public Health Service, Bethesda, Maryland; Mayo Auditorium; 8:15 p.m.
February 14 - 16	Continuation Course in Internal Medicine for Internists
February 17 - 19	Continuation Course in Cancer Detection for General Physicians

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Faculty News

We are pleased to welcome back Dr. Richard M. Magraw who has recently completed his tour of duty with the Armed Forces. Dr. Magraw has resumed his duties as admitting physician in the Medical Out-Patient Clinic and as Assistant Professor in the Departments of Medicine and Psychiatry and Neurology.

Dr. Cecil J. Watson, Professor and Head, Department of Medicine, attended the meeting of the newly created Committee on Metabolism and Nutrition in the Office of the Surgeon General of the U. S. Army on January 24 and 25. He also delivered a lecture to the House Officers' Association of the Boston City Hospital on January 25.

Dr. D. Stuart P. Weatherhead has completed his fellowship training in Anesthesiology and has joined the staff of that division as a full-time instructor.

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"Videclinic" To Be Held

A "Videclinic", an audiovisual medical journal of the air, will be presented on February 9 by the American Medical Association in cooperation with Smith, Kline and French Pharmaceutical Company. This program, which will be devoted exclusively to the subject of coronary disease, will be telecast over closed circuits into 30 major cities.

In Minneapolis, arrangements for viewing the "Videclinic" have been made by the Hennepin County Medical Society. It may be seen at 8:00 p.m. in the Radisson Hotel on February 9. All physicians and medical students are cordially invited to attend.

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III.

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
WEEKLY CALENDAR OF EVENTS

Physicians Welcome

January 24 - 29, 1955

Monday, January 24

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 - 12:30 Physical Medicine and Rehabilitation Staff Seminar; Speech Dynamics; F. Lassman; Heart Hospital Theater.

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.

12:30 - 1:30 Physiology Seminar; The Metabolic "Stability" of DNA; Cyrus P. Barnum; 214 Millard Hall.

1:00 - 2:00 Roentgenology-Surgical-Pathological Conference; Paul Lober and L. G. Rigler; Todd Amphitheater, 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, C-394 Mayo Memorial.

4:00 - 6:00 Anesthesiology Conference; F. H. Van Bergen and Staff; Todd Amphitheater, U. H.

4:30 - Public Health Seminar; W. H. Y.; Dr. John J. Hanlon, Chief, Public Health Division, Foreign Operations Administration, Washington, D. C.; Room 100 Mayo Memorial.

4:30 - Pediatric-Medicine Infectious Disease Rounds; Station 33, U. H.

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

Ancker Hospital

8:00 - 9:00 Pediatrics Contagion Rounds; Richard Lein; Contagion 5.

8:30 - 10:30 Medical and Surgical Chest Conference; Dr. Gehlen and Staff; Auditorium.

9:30 - 12:00 Visiting Staff Rounds.

10:00 - 12:00 Surgery Grand Ward Rounds; Begin Floor E4.

11:00 - 12:00 Pediatric Rounds; Harry Orme; Contagion 1.

12:30 - 2:30 Surgery Out-Patient Clinic; Room 8.

2:00 - 3:00 Routine EKG Interpretation; Dr. Sommers and House Staff; Medical Record Library.

Monday, January 24 (Cont.)

Ancker Hospital (Cont.)

2:30 - 3:00 Discussion of Problem Case; Auditorium.

3:00 - 4:00 Surgery Journal Club; Classroom.

3:00 - 4:00 Lectures on Electrocardiography; Ben Sommers; Auditorium.

4:00 - 5:00 Medical Clerk Journal Club; Auditorium.

Minneapolis General Hospital

10:30 - 12:00 Medicine Rounds; Thomas Lowry; Station 31.

11:00 - Pediatric Case Discussions; Erling Platou; Station 4.

11:00 - Orthopedic and Fracture Rounds; Drs. John Moe and Arthur Zierold; Station 20.

12:30 - Surgery Grand Rounds; Dr. Zierold, Station 21.

1:30 - 2:30 Tuberculosis Conference; J. A. Myers; Station 8.

2:00 - Pediatric Rounds; William Krivit; Stations 4, 5, & 6.

Veterans Administration Hospital

9:30 - Infectious Disease Rounds; Drs. Hall, Zinnemann, and J. Brown.

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

Tuesday, January 25

Medical School and University Hospitals

9:00 - 9:50 Roentgenology-Pediatric Conference; Samuel Feinberg, Irvine McQuarrie and Staffs; Eustis Amphitheater, U. H.

12:30 - 1:20 Pathology Conference; Autopsies; J. R. Dawson and Staff; 104 Jackson Hall.

12:30 - Physiological Chemistry Seminar; Enzymatic Hormonal Synthesis in the Adrenal Cortex; Mona L. Coetzee; 214 Millard Hall.

12:30 - Bacteriology and Immunology Seminar; 1050 Mayo Memorial.

12:30 - Anatomy Seminar; Present Knowledge of Fine Structure of Cells Shown by the Electron Microscope; Richard Hibbs; 226 Jackson Hall.

3:30 - General Physiology Seminar; 323 Zoology Building.

3:30 - Pediatric Seminar; Congenital Gum Cyst; Robert Vernier; 1450 Mayo Memorial.

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

4:00 - 5:00 Physiology-Surgery Conference; Todd Amphitheater, 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 Minneapolis General Hospital; Drs. Lipschultz and Drewry; Eustis Amphitheater, U. H.

Tuesday, January 25 (Cont.)

Ancker Hospital

8:00 - 9:00 Pediatric Rounds; Dale Cumming; Contagion 1.
9:00 - 10:30 Visiting Staff Rounds.
9:00 - 12:00 Practical Diagnostic Clinic; Harry Orme; Out-Patient Department.
11:00 - 12:00 Medical X-ray Conference; J. R. Aurelius; Auditorium.
2:30 - 4:00 Routine EKG Interpretations; Resident Staff.
4:00 - 5:00 Medical-Pathological Conference; W. F. Mazzitello, Auditorium.

Minneapolis General Hospital

9:30 - Pediatric Rounds; Elizabeth Lowry and A. Bridge; Station 5.
10:00 - Cardiac Rounds; Paul F. Dwan; Classroom, Station 4.
10:00 - Psychiatry Grand Rounds; R. W. Anderson, Station 3.
11:00 - 12:00 Medicine-Surgery Conference; Classroom, Station 8.
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 4.

Veterans Administration Hospital

7:30 - Anesthesiology Conference; Surgical Conference Room, Bldg. 43.
8:30 - Hematology Rounds; Drs. Hagen and Wexler.
8:30 - Surgery Journal Club; Conference Room, Bldg. I.
9:30 - Surgery-Pathology Conference; Conference Room, Bldg. I.
10:30 - Surgery-Tumor Conference; D. Ferguson and J. Jorgens.
1:00 - Review of Non-TBC Chest Pathology Conference; E. T. Bell; Conference Room, Bldg. I.
2:00 - 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 Surgical Problems; Conference Room, Bldg. I.
5:30 - Physiology Seminar; Surgical Conference Room, Bldg. 43.

Wednesday, January 26

Medical School and University Hospitals

11:00 - 12:00 Pathology-Medicine-Surgery-Pediatrics Conference; Todd Amphitheater, U. H.
12:30 - Physiology Seminar 212; Selected Topics in Respiration; Respiratory and Circulatory Effects of Hypothermia; E. B. Brown; 129 Millard Hall.

Wednesday, January 26 (Cont.)

Medical School and University Hospitals (Cont.)

12:30 - 1:20 Radio-Isotope Seminar; Betatron Room in Cobalt Underground Section, U. H.

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

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; 3rd Floor, Conference Room, Heart Hospital.

5:00 - 6:00 Radiology Residents Lectures; Wrist and Ankle Fractures; Leonard F. Peltier; Todd Amphitheater, U. H.

5:00 - 5:50 Urological-Pathological Conference; C. D. Creevy and Staff; A503, Mayo Memorial.

5:10 - 6:10 Endocrine Seminar; 271 Lyon Laboratories.

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; J. Noble; Auditorium.

11:00 - 12:00 Pediatric and Contagion Rounds; Harry Orme; Contagion 1.

11:00 - 12:00 Medicine Resident Rounds; W. F. Mazzitello.

3:00 - 5:00 Infectious Disease Rounds; Auditorium.

Minneapolis General Hospital

8:30 - 9:30 Obstetrical and Gynecological Grand Rounds; William P. Sadler and Staff; Station 30.

10:30 - 12:00 Medicine Rounds; Thomas Lowry and Staff; Station 11.

11:00 - Pediatric Rounds; Erling Platou and Richard Raile; Station 6.

12:30 - Pediatrics Staff Meeting; Classroom, Station 4.

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, Ferguson, Brakel, Swenson, Nesbitt, and Sadoff.

10:30 - Psychosomatic Conference; C. K. Aldrich; 7th Floor, Bldg. 43.

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

Wednesday, January 26 (Cont.)

Veterans Administration Hospital (Cont.)

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

1:30 - 3:00 Metabolic Disease Conference; Drs. Flink and Williams.

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, January 27

Medical School and University Hospitals

9:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; Room 3.148 Mayo Memorial.

11:00 - 12:00 Cancer Clinic; K. Stenstrom, R. Zimmermann; Todd Amphitheater, U. H.

12:30 - 1:55 Physiology Seminar 201: Transport; Selected Topics in Permeability; Nathan Lifson; 214 Millard Hall.

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

4:00 - 5:00 Anesthesiology Seminar; F. H. Van Bergen and Staff; Room 100, Mayo Memorial.

5:00 - 6:00 Radiology Seminar; Selective Spot Film Angiocardiography; Drs. Jorgens, Adams, and Disenhouse; Eustis Amphitheater, U. H.

7:30 - 9:30 Physiology 211 Seminar; Selected Topics in Heart and Circulation: Hemodynamics; M. R. Visscher and Robert Evans; 271 Lyon Laboratories.

Ancker Hospital

9:00 - 10:00 Pediatric Contagion Rounds; Alexander Stewart; Contagion 5.

9:30 - 10:30 Medical Grand Rounds; Auditorium; Visiting Staff Rounds immediately following Grand Rounds.

11:00 - 12:00 Medicine Resident Rounds; W. F. Mazzitello.

2:00 - 3:00 Routine ECG Interpretation; Ben Sommers; Medical Record Library.

Minneapolis General Hospital

9:30 - Neurology Rounds; Heinz Bruhl; Station 4.

9:30 - Pediatric Contagion Rounds; R. B. Raile; Station 4.

10:00 - Psychiatry Grand Rounds; R. W. Anderson and Staff; Station 3.

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 4.

Thursday, January 27 (Cont.)

Veterans Administration Hospital

8:00 - Experimental Surgery Laboratory Meeting; Conference Room, Bldg. I.

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

9:00 - Surgery Grand Rounds; Conference Room, Bldg. I.

9:00 - Surgery Ward Rounds; D. Ferguson and Staff; Ward 11.

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

1:00 - Infectious Disease Conference; Conference Room, Bldg. I. (Rounds immediately following conference.)

Friday, January 28

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.

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.

11:45 - 12:50 University of Minnesota Hospitals Medical Staff Meeting; Psychiatric Evidence in Legal Tests of Insanity; Burtrum C. Schiele and Monrad Paulson; Powell Hall Amphitheater.

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, C-394 Mayo Memorial.

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 Physiology Seminar 213; Selected Topics in Advanced Neurophysiology: Role of the Vestibular Apparatus and the Cerebellum in the Extra-pyramidal Motor Activity; Werner Koella; 129 Millard Hall.

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

5:00 - Urological Seminar and X-ray Conference; A503, Mayo Memorial.

Friday, January 28 (Cont.)

Ancker Hospital

8:00 - 9:00 Pediatric Rounds; Charles Steinberg; Contagion 1.

10:30 - 11:30 Pediatric Contagion Rounds; Richard Smith; Contagion 1.

11:00 - 12:00 Contagion Rounds; Harry Orme; Contagion 5.

2:00 - 3:00 Routine EKG Interpretation; Resident Staff.

3:00 - 4:00 Medical-Surgical-Pathological Conference; Auditorium.

4:00 - 5:00 Medical Journal Club; Conference Room, E5.

4:00 - 5:00 X-ray Surgery Conference; Auditorium.

Minneapolis General Hospital

10:00 - Otolaryngology Conference; Robert A. Priest; Large Classroom.

10:30 - Pediatric Surgical Conference; Tague Chisholm and B. Spencer; Classroom, Station 4.

12:00 - Surgery-Pathology Conference; Drs. Zierold and Coe; Classroom.

1:00 - 3:00 Clinical-Medical Conference; Thomas Lowry; Classroom, Station 8.

Veterans Administration Hospital

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

11:00 - 12:30 Psychiatry Case Conference; Werner Simon; Psychiatry Department, VA Hospital Annex.

12:30 - Urology X-ray Conference; X-ray Department.

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

2:00 - Chest Pathology Follow-Up Conference; E. T. Bell; Conference Room, Bldg. I.

Saturday, January 29

Medical School and University Hospitals

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

9:00 - 9:30 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; Alexander R. Margulis, Owen H. Wangensteen and Staff; Todd Amphitheater, U. H.

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

Saturday, January 29 (Cont.)

Medical School and University Hospitals (Cont.)

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

10:00 - 12:00 Otolaryngology Seminar on Current Literature; L. R. Boies and Staff; Todd Memorial Room, A-675, Mayo Memorial.

Ancker Hospital

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

9:30 - 11:00 Medicine Grand Ward Rounds; W. F. Mazzitello.

11:00 - 12:00 Medical Clerk Case Conference; W. F. Mazzitello.

Minneapolis General Hospital

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

9:00 - Psychiatry Grand Rounds; R. W. Anderson; Station 3.

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