Staff Meeting Bulletin Hospitals of the » » » University of Minnesota

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Pilonidal Disease

Volume XVIII Friday, October 18, 1946 No. 3

STAFF MEETING BULLETIN
HOSPITALS OF THE . . .
UNIVERSITY OF MINNESOTA

Volume XVIII | Friday, October 18, 1946 | Number 3

INDEX

Published for the General Staff Meeting each week
during the school year, October to June, inclusive.

Financed by the Citizens Aid Society,
Alumni and Friends.

William A. O'Brien, M.D.

I.

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
CALENDAR OF EVENTS
October 19 - October 25, 1946

No. 129

Saturday, October 19

7:45 - 8:50 Orthopedics Conference; Wallace H. Cole and Staff; Station 21, U. H.

9:00 - 9:50 Surgery-Roentgenology Conference; O. H. Wangensteen, L. G. Rigler, and Staff; Todd Amphitheater, U. H.

9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; M-515 U. H.

10:00 - 12:00 Medicine Ward Rounds; C. J. Watson and Staff; E-221 U. H.

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

11:00 - Anatomy Seminar; Hypertrophic Amphophiles in the Anterior Lobe of the Human Hypophysis; A. T. Rasmussen; and Blood Vessels of Human Stellate Ganglion; M. A. Schadewald; 226 I. A.

Monday, October 21

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; Interns Quarters, U. H.

12:15 - 1:15 Obstetrics and Gynecology Journal Club; M-435, U. H.

12:30 - 1:20 Pathology Seminar; Adrenal, Ovarian and Testicular Tumors of Mice; Arthur Kirschbaum; 104 I. A.

12:00 - 1:00 Physiology Seminar; Some Recent Work on Membranes, Part II; Karl Sollner; 214 M. H.

Tuesday, October 22

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

12:30 - 1:20 Pathology Conference; Autopsies; Pathology Staff; 102 I. A.

2:00 - 2:50 Dermatology and Syphilology; H. E. Michelson and Staff; Veterans' Hospital, Bldg. III.

3:15 - 4:15 Gynecology Chart Conference; J. L. McKelvey and Staff; Station 54, U. H.

3:45 - 5:00 Pediatric Staff Rounds; I. McQuarrie and Staff; W-205 U. H.

7:30 - Department of Physiology Seminar; Control of Respiration; M. B. Visscher; 111 MeS.

4:00 - 4:50 Surgery-Physiology Conference; Current Surgical Problem; Maurice B. Visscher and Owen H. Wangensteen; Eustis Amphitheater.

5:00 - 5:50 Roentgenology Diagnosis Conference; Dan Fink and Robert Leighton, M-515 U H.

Wednesday, October 23

8:00 - 8:50 Surgery Journal Club; O. H. Wangensteen and Staff; M-515 U. H.

9:00 - 10:50 Neuropsychiatry Seminar; Staff; Station 60 Lounge; U. H.

11:00 - 11:50 Pathology-Medicine-Surgery Conference; Carcinoma of Stomach; E. T. Bell, C. J. Watson, O. H. Wangensteen and Staff; Todd Amphitheater, U. H.

12:00 - 1:00 Physiological Chemistry Journal Club; Staff; 116 M. H.

4:00 - 6:00 Medicine and Pediatrics Infectious Disease Rounds; W-205 U. H.

Thursday, October 24

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

10:00 - 12:00 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.

12:15 - 1:15 Pediatrics Seminar; Irvine McQuarrie and Staff; Todd Amphitheater,U.H.

12:00 - 1:00 Physiological Chemistry; David Glick; 129 M. H.

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

4:30 - 5:20 Bacteriology Seminar; 214 M. H.

5:00 - 5:50 Roentgenology Seminar; Radiological Institutions in Sweden; W. K. Stenstrom; M-515, U. H.

Friday, October 25

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

9:00 - 9:50 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amphitheater.

10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221 U. H.

10:30 - 12:20 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Otolaryngology Department; U. H.

11:30 - 1:00 University of Minnesota Hospitals General Staff Meeting; Bowel Obstruction; Clarence Dennis; New Powell Hall Amphitheater.

1:00 - 2:00 Dermatology and Syphilology; Presentation of Selected Cases of the Week; H. E. Michelson and Staff; W-312 U. H.

1:30 - 2:20 Roentgenology-Neurosurgery Conference; H. O. Peterson, W. T. Peyton, and Staff; Todd Amphitheater, U. H.

II. PILONIDAL DISEASE

William Bernstein

In 1847 A. W. Anderson[1] published a case report entitled "Hair Extracted From An Ulcer". Little did he realize that he was introducing into medical literature a clinical entity which, within a period of less than 100 years, would outrank inguinal hernia in its morbidity and economic importance in the armed forces of a great nation at war. Yet in 1942 and 1943[2] pilonidal disease was responsible for the use of more hospital beds in the Army and Navy than was inguinal hernia and was responsible for more sick days lost than either inguinal hernia or venereal disease. Treatment of pilonidal cysts and sinuses ranked just below appendicitis in military importance insofar as the number of sick days lost was concerned.

Holman[3] states that in the two war years of 1942 and 1943 - 359,209 sick days were lost by navy personnel alone due to pilonidal disease.

While pilonidal disease is not of anorectal origin it is well to point out why this disease is included in the field of proctology. The differential diagnosis between a perirectal fistula tract and a pilonidal sinus tract is often extremely difficult to make and the ingenuity of the surgeon well trained in anorectal anatomy and pathology may be severely taxed in determining the origin of the tract. Secondly, pilonidal sinus tracts often involve the anorectal musculature and complete eradication of the disease may entail severe disruption of the muscles involved. For these reasons the treatment of pilonidal disease has fallen more and more to the lot of the proctologist.

Literature

In 1942 a review of the literature on the subject of pilonidal disease revealed a total of 138 original articles listed in Cumulative Medical Index. During the war years numerous articles on this condition appeared in all surgical journals and a recent review by the writer reveals a total of 80 original papers listed in Cumulative Medical Index for the 5-year period beginning January 1st, 1941 and ending December 1945. The majority of these papers deal with methods which attempt to shorten the healing period and to prevent recurrences after surgical treatment.

Buie[4], speaking before the Southern Medical Association in 1943, called attention to the utter confusion which existed in the higher military medical echelons regarding the directives being issued to medical officers charged with treating military personnel suffering from pilonidal disease. Recommendations were being made from time to time to:

1. Stop operating on simple dimples and sinuses.

2. Be more conservative at the time of surgery.

3. Attempt to shorten the period of convalescence.

Reports came from all military hospitals stating that pilonidal wounds were taking several months to heal and since military personnel could not be returned to duty until healing was complete hospital beds were being cluttered up with these patients. At one time it was suggested that the treatment of pilonidal disease in military personnel be limited to the incision and drainage of acute abscesses.

Etiology

The term "Pilonidal" was introduced by R. W. Hodges[5] in 1880. He felt that "hair-nest" quite adequately described the condition which he thought was due to a faulty coalescence of the lateral halves of the body and that the dimple was filled in by hair rubbed off of the body. Warren[6] in 1854 believed that a pilonidal sinus was due to reversion in the polarity of growth of the hair follicles. H. E. Bacon[7] in his text entitled Anus, Rectum, Sigmoid Colon, lists 21 different theories concerned with the etiology of pilonidal disease. Of this number 5 have enjoyed the greater popularity. They are as follows:

1. A pilonidal cyst or sinus represents a remnant of the embryonic medullary or neurogenic canal.

2. A pilonidal cyst or sinus represents a vestigial remnant of the preen gland found in certain birds.

3. A pilonidal cyst or sinus is the result of the improper infolding or faulty coalescence of the surface epithelium during embryonic life.

4. A pilonidal cyst or sinus represents growth derived from an embryonic remnant of a vestigial secondary sex gland located in the sacrococcygeal area.

5. The pilonidal cyst is a form of teratoma or dermoid cyst.

Rosser[8], in a paper recently read before the Section on Gastro-Enterology and Proctology of the American Medical Association stated that "general agreement has been reached concerning the mechanics involved in the embryonal development of the various post-anal cysts and sinuses usually grouped under the general term "pilonidal disease". The theory that these are due to epithelial sequestration has taken complete precedence over previous suggestions linking the condition with preen glands or medullary outgrowths". That such agreement exists is not substantiated by the literature on the subject and a critical survey of recent investigative activity discloses only one well organized research approach to the problem.

Kooistra[9], working at the University of Michigan, corroborated the findings of several previous investigators including Mallory, Tourneau, Herman and Gage when in 1942 he reported finding the remnant of the medullary canal overlying the coccyx in forty consecutive embryos and fetuses. In the larger embryos the remnant assumed the character of a cyst-like space, lined by cells seen lining the central canal of the spinal cord. This cyst-like space was usually well separated from the skin but in a few specimens it was found to be close to the skin. During the second half of fetal life, these cyst-like structures were seen to undergo a gradual atrophy, becoming not only smaller in size, but also showing a tendency to be replaced by connective tissue. Kooistra also noticed that in addition to the above findings evidence pointed to a second theory. In some embryos epithelial defects were found which accounted for the dimples and sinuses seen in older specimens.

Granet and Ferguson[10], in reviewing Kooistra's work state that "According to these embryological studies the medullary (neurogenic) origin should be represented clinically by subcutaneous sacrococcygeal cysts which have no demonstrable sinus leading to the skin surface. On the other hand, pilonidal disease originating in the embryo by infolding of the epidermis occurs clinically as a sacrococcygeal dimple or sinus. Both anomalies frequently are concurrent so that contiguous cysts and sinuses are common clinically. Three types of chronic pilonidal disease seen clinically are the following: (1) sacrococcygeal cyst, alone; (2) sacrococcygeal dimple or sinus, single or multiple, alone; (3) sacrococcygeal cyst adjacent to or communicating with one or more sinuses."

The above observations are borne out by the clinical experiences of the writer who has observed a large amount of pilonidal surgery. In the past when infected pilonidal cysts were found with no apparent opening or sinus tract leading to the skin it was felt that the opening or tract had been overlooked. Since this was by no means a rare or unusual experience the operator was left with a feeling of uncertainty as to the outcome of the operation. The work of Kooistra now explains these cases satisfactorily.

The factor of trauma in the development of clinical pilonidal disease is an important one. There is very little question but that the onset of symptoms is usually directly related to some traumatic experience which, while unrelated to actual etiology, is of definite clinical import.

Terminology

From the foregoing it is evident that one cannot use the terms pilonidal cyst

and sinus interchangeably. If the work of Kooistra is accepted, then it must be assumed that the so-called 'pilonidal cyst' is derived from the medullary canal where as the 'pilonidal sinus' is derived from the surface epithelium. One can exist independently of the other. The term 'pilonidal disease', however, is all inclusive and should be used when there is a question of whether one is dealing with a sinus, a cyst or both.

Magrath[11], on the other hand, says that the word 'pilonidal' is a misnomer and proposes the term 'Raphe (Epithelial) Inclusion' be used for this disease. This term can be used to describe the condition regardless of its location, e.g., 'Saccal or Coccygeal or Sternal Raphe (Epithelial) Inclusions'.

Since hair, regardless of its origin, is found in about fifty-two per cent of all cases it appears that the term 'pilonidal' might well be retained. One should attempt, however, to determine in every case whether he is dealing with a cyst, a sinus or a combination of the two.

Hair

Although all of the earliest cases of pilonidal disease which were reported contained hair, the fact was accepted later that the presence of hair in the tract was not essential for a diagnosis of pilonidal disease. Several observers reported various figures for the incidence of hair in the tracts and the figures vary from 50 to 80 per cent. It is now generally agreed that about 52 per cent of all pilonidal cavities contain hair. The general assumption was that the hair contained within the pilonidal tracts grew from follicles contained in the walls thereof. Clinical and pathological observations have now definitely proven that hair follicles as such are not demonstrable in the walls of true cysts. Only when a dimple or sinus tract exists are skin appendages (hair follicles, sebaceous and sweat glands) found in the lining wall. Granet and Ferguson state "We have yet to see undoubted evidence of hair follicle structure in sections taken through the wall of excised pilonidal cysts. Sections through the hair itself lying free in the lumen or on the cyst wall are seen. Nor have published micro-photographs presumably illustrating hair follicles in the wall of the excised pilonidal cysts satisfied the histologic criteria of a true hair follicle."

Surgeons who operate on pilonidal cases are aware that the hair contained in these cavities always is found either in small bundles or balls unattached to the walls of the cyst or the sinus. It is the conviction of Granet and Ferguson that "the hair is extraneous having its origin in the hair follicles of the skin of the natal fold adjacent to the sinus or dimple. Individual strands of hair originating in the external skin protrude and advance into the congenital sinus and even into the contiguous cyst. Eventually, through the trauma of constant friction between the skin surfaces in this region, some of the protruding hairs are broken off near their roots and are retained in the sinus or cyst. Through years of accumulation and by constant moulding from external pressure, they eventually become compressed and kneaded into so-called hair 'nests'."

Recurrence

Failure of a pilonidal wound to heal following surgery or the recurrence of a pilonidal sinus tract once healing has taken place will be discussed under the general heading of recurrence. The incidence of recurrence in the past has been extremely high and for this reason many surgeons with excellent reputations have given up the treatment of this condition. Statistics of recurrence rates differ widely as does the time interval between the time of surgery and the compilation of results. Since pilonidal wounds are noted for their ability to break down after apparent healing has taken place, it is generally agreed that at least 2 years should elapse after surgery to be certain that healing has actually occurred and that the wound will not reopen.

In 1936 Kleckner[12] conducted a statistical study of the recurrence rate of pilonidals operated upon by members

of the American Proctologic Society. Of 4,596 cases operated upon there was a recurrence rate of 23.29 per cent for the closed method and 1.13 per cent for the open method. Bacon cites a large series reported by Breidenbach and Wilson in which they obtained 94 per cent cures by the open method and 56 per cent by the closed method.

Failure of pilonidal wounds to heal following surgery, and the breaking down of these wounds after apparent healing, is generally attributed to one or more of the following factors:

1. Incomplete removal of all tracts.
2. Infection.
3. Failure to eliminate the dead space.
4. Faulty hemostasis.

It is the opinion of this writer that the failure to remove all tracts is more theoretical than real. In performing surgery for recurrent pilonidal disease one rarely finds an epithelial lined tract which was missed at the time of the original surgery. The usual recurrent sinus is a tract which runs deeply in the region and overlies the sacrococcygeal ligament. It usually is a scarred tract, not lined by epithelium but covered with granulation tissue and having an external opening in the lower part of the operative wound. Hemostasis, elimination of the dead space, type of suture material, and chemotherapy are of questionable importance insofar as recurrence is concerned.

In the opinion of the writer the two important factors governing the rate of recurrence in surgery for pilonidal disease are:

1. Infection.
2. Sacrifice of the sacrococcygeal fascia.

Granet and Ferguson were probably the first investigators to call the attention of the procession to the fact that many surgeons, in their attempt to completely remove all pilonidal tissue, were exposing the sacrococcygeal ligament, believing it to be the fascia. This ligament, as all others, is relatively avascular while the sacrococcygeal fascia is very vascular and its removal deprives the wound of its most important blood supply. The sacrococcygeal fascia is not a thick and well defined membrane and unless one is cognizant of its relatively delicate structure it can easily be removed. Since the failure to heal most often occurs in this location and not in the cutaneous or subcutaneous layers this factor cannot be overlooked.

The primary closure of pilonidal wounds in the fact of active infection associated with pilonidal cysts and sinuses is almost certain to meet with failure. Only in the completely quiescent tracts, and in wounds where there has been no spillage of infected contents can one hope to get primary healing.

Treatment

Many forms of treatment have been recommended for the cure of pilonidal cysts and sinuses. The injection of sclerosing solutions or pastes, diathermy destruction, and complete or incomplete surgical excision of the diseased tissues have been described. At the present time there is practically universal agreement that some type of surgical removal is the method of choice.

It is not the intention of this report to evaluate the different types of surgical procedures which have been described in recent years. The operative treatment for pilonidal disease falls into one of three categories, namely:

1. The closed or primary suture method.
2. The open method, with or without packing.
3. Modified or semi-closed method.

The closed or primary suture method is theoretically the ideal operation; and when it accomplishes the desired result is an excellent procedure regardless of the operative technique used. A recurrence rate of approximately 25% is, however, greater than most surgeons are willing to accept.

The open method may be criticized be-

cause of the length of time necessary for complete healing. When one considers that the patient is not disabled insofar as carrying on his occupation during the healing period, and when one recognizes that the recurrence rate with this procedure is very low, the above criticism is more or less unjustified.

The semi-closed method originally introduced by Colp[13] in 1929 and later described by DePrizio[14] and Van Alstyne[15] has become in our opinion, the most popular and satisfactory operation. The technique is a simple but adequate removal of all diseased tissues. A portion of the subcutaneous fatty layers is removed from beneath the lateral skin edges, and the skin is then sutured to the sacrococcygeal fascia. This leaves a wound without dead space, with adequate drainage for infection and with the blood supply preserved. Since there is very little raw area exposed the healing time is cut to a minimum. The recurrence rate in the hands of men who have performed a great many of these operations has been extremely low.

Buie has stated that in his opinion the open method in which he marsupializes the cyst or sinus lining is still the procedure of choice. Rosser feels that complete excision of diseased tissue with the avoidance of suture as much as possible has given him the best results as far as decreasing the period of disability and recurrence are concerned. His patients average a 6 day hospital stay, and 15 days away from work. Fansler[16] is of the opinion that the method of Colp has given him the best results when dealing with large pilonidal wounds. This is the method that has been used by the writer in a rather large series of cases with a very low recurrence rate.

It would be unwise as Rosser has pointed out to neglect a fair consideration of the studies which have been made by military surgeons, and it is possible that there will be a definite place in civilian practice for the reconstructive primary closing of pilonidal wounds when a sufficient time has elapsed to properly evaluate the results of these operations which were performed during the war years.

At the present time, however, it is our feeling that some type of open method offers the patient the best chance of cure within a reasonable length of time.

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Personal communication.

III. GOSSIP

Lester J. Evans of the Commonwealth Fund and Donald W. Hastings, Head Psychiatrist drove over 1300 miles through Minnesota, Eastern North Dakota, and Northern Iowa last week interviewing physicians who took the course in Psychotherapy for Practitioners at Center for Continuation Study last spring. The tour was highly successful in gaining first-hand information on how effectively these men had been able to put into practice the techniques which they had been taught. Their record of successes and failures apparently compares favorably with those of any physicians in handling neurotics and the course did a lot of good for each one of them in helping him to regulate his life and adjust to his practice. Doctors Evans and Hastings were royally entertained at every stop and recommend the tour to any staff man who would like to see first hand how his teachings are carried out. It would be a splendid thing if all of us could do this, and if our graduate students could spend time getting first hand impressions of how their ideas can be applied in "practice". Dr. Hastings and Dr. Schiele are now planning a hunting expedition for deer using only a bow and arrow. Dr. Hastings is an expert archer and Dr. Schiele has recently acquired an interest in the sport. Whose who hunt with bow and arrow are permitted to try their skill in game reserves 1 month in advance of the regular season. The arrows have great penetrating power, but there is little chance of retrieving one which has gone into the woods....I came down on the Campus Club elevator the other day with a member of the School of Business faculty who said he was just finishing a flute box. I assumed that he was making a special box to carry a flute around until I learned he was constructing a pipe organ and building all the parts himself. Hobbies like these leave me speechless. They sound ever so much more interesting than the man who says as soon as he retires he is going to fish. I can't imagine anything more dull, spending the rest of my life fishing unless I was in the business.... William Dock, Head of Medicine at Long Island who served on our faculty last week is a lively teacher. He likes to get out on the wards with the students and quiz them on their cases. He feels this is the effective way of teaching medicine. He was so popular that the crowd followed him from the General on Thursday to the Ancker on Friday just to get more of it. ...Mr. Cedric Adams, Minneapolis Star Journal columnist who makes his living mainly by reporting unchecked items (it wouldn't be much of a story if he checked) was much upset on Saturday by the tale of a student in Pioneer who had difficulty getting an ambulance to bring him to the Health Service. When the facts were known, it proved to be another of Mr. Adams' boners, but the harm is not erased even by belated apologies when and if made...The Minnesota Cancer Society's drive for funds was successful, and it is hoped a complete state program of research, education, and service can be developed. Federal money is also available for cancer control, and the Minnesota Cancer Society and the Minnesota Department of Health are working together to devise a joint program. Some of the activities which are contemplated are: Aid to county nursing services, assist nurses in cancer education and service, aid to visiting nurses to care for more cancer patients, aid to the Departments of Health of cities of the first class to help them with their cancer program, assistance to the Minnesota State Medical Association in arranging clinic days in out-lying communities by a staff of young, highly trained medical men who will work in conjunction with the local medical societies, money for research, the development of cancer detection centers, etc. The public is interested in the last item as many would like to go to some central point for a check-up whenever they suspect they have cancer or when they seem to be apparently well. They are not asking for treatment at such centers, but if anything abnormal is found they wish to be told what to do and where to go. These centers will be developed in connection with practicing physicians. The possibility of a research unit (detection) at the University of Minnesota is being considered. One of the by-products of the chest surveys with the miniature unit is the finding of a number of suspicious chest tumors, and ways and means of handling this group must be devised...In current issue of Minnesota Medicine, Dean Diehl has an editorial on training of general practitioner which everyone should read.....