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

Hypospadias

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STAFF MEETING BULLETIN
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William A. O'Brien, M.D.

I. LAST WEEK

Date: December 3, 1937

Place; Recreation Room
Nurses' Hall

Time: 12:15 to 1:10 P.M.

Program: Movie: "Autumn Leaves"

Announcements

Petrositis
Lawrence R. Boies
Fritz D. Hurd
Jerome A. Hilger

Discussion: L. R. Boies
F. D. Hurd
C. A. Fjeldstad
H. O. Peterson

Present: 125

Gertrude Gunn,
Record Librarian

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II. MOVIE

Title: "Rocky Mountain Grandeur"

Released by: A Fitzpatrick
Travelog

- - -

III. GOSSIP

Fritz Hurd and Dean Diehl graduated from the same college - Gettysburg in Pennsylvania. Fritz is one up on the Dean as he has served as State Senator in North Dakota. This is the second time that he has been a member of this staff, having taken his internship here some years ago.....
..Health Service Director Ruth E. Boynton recently reported on visual errors in University of Minnesota students. Contrary to popular belief very few students injure their eyes through excessive study. The only correlation was between myopia and scholarship. The myopics as a class were better students than those with any other visual error, and many had poorer sight at graduation. This might have occurred if they had not gone to school. We have many myopic staff members who recognize us by the sound of our voices, build, type of clothing, etc.....Surgeon William Thomas Peyton hurried home with his deer, made the famous Peyton venison sausage, then sped to the Western Surgical Meeting in Indianapolis where he delivered a paper on the treatment of angiomata.....With the ban on ice fishing, there is universal gloom amongst the devotees of this sport. At a recent experience meeting, State Board of Control Herman E. Hilleboe, State Board of Health Robert N. Barr, and Brainerd's endocrinologist Lloyd F. Hawkinson swapped tales of exciting exploits in the little houses on the ice. According to these gentlemen, you fish in comfort in your shirt sleeves as the wintry winds howl without. Attracted by a complicated dancing artificial minnow, fish of enormous size come to the hole where they are speared by alert fishermen. The only disadvantage - when the fisherman is crowded out of the house by piles of enormous fish. Herman's special bait for white fish is tiny white buttons on a string. Most adept are those who can rescue their minnows from the lake bottom by the use of a muskrat trap. Each vied with the other in telling of the fish which were so large that they could not be drawn through the hole in the ice. Those who spear look with scorn on those who use drop lines. Because of the suspension of winter spearing, many tales will be retold or improvised for the occasion.
.....I picked up 2 dark huskily built hitchhiking students near one of our denominational colleges. I asked them if they were Scandinavians. They replied - "We are Russian football players!
.....The Center for Continuation Study's course for graduate physicians in Dermatology and Syphilology is in full swing this week. With a registration of 22, the instruction is mainly clinical. The Dermatologists never fail to provide unusual clinical material for all of their gatherings. The next grad-

(Continued on Page 105)

IV. HYPOSPADIAS

C. D. Creevy

Introduction

Hypospadias is a congenital absence of the floor of the urethra beginning at the distal end and extending for a variable distance toward the perineum. The roof of the urethra is present, but that portion of the corpus spongiosum belonging to it is fibrous and contracted, and causes a bowing of the penis with its concavity on the ventral surface (congenital chordee). The condition results from failure of fusion of the urethral folds in the embryo, the cause of which is not known. The frequent occurrence of hypospadias in pseudohermaphroditism proints to some dysfunction of the endocrine glands, perhaps of the anterior lobe of the pituitary, but this is pure speculation.

The four recognized clinical types include the glandular, the penile, the penoscrotal and the perineal. The latter is the type seen in pseudohermaphroditism.

The glandular type constitutes no disability and requires no treatment unless the patient develops a morbid dissatisfaction with its appearance. The operations designed for its correction will not be discussed.

In the other 3 types, however, the bowing of the penis constitutes a serious obstacle to normal sexual activity and, together with the misplaced urinary meatus causes functional sterility. Moreover, as the patient grows older he becomes conscious of his deformity, while his inability to micturate in the normal masculine manner attracts unwelcome attention from his companions. Therefore the need for surgical repair of these deformities has long been evident.

Operative Treatment

A satisfactory operation must attain two distinct ends, namely, straighten the penis, and advance the urinary meatus to or near the normal position. This invariably requires at least two operations, because the straightening leaves, until completely healed, a poor field for construction of the urethra.

Regardless of the type or purpose of the operation, the urine must be diverted from the operative field during healing. This is mot readily accomplished by perineal urethrostomy. A sound is passed into the bladder and exposed through a short median incision just anterior to the anus. Through this incision a Malecot catheter is inserted into the bladder and tied in place. Young and Cecil favor occluding the urethra temporarily distal to the urethrostomy by a non-absorbable encircling ligature to prevent contamination of the wound if the tube becomes plugged.

Straightening the Penis

The first attempt was probably that of Mettauer of Virginia in 1842. He divided the fibrous rudiment of the corpus spongiosum subcutaneously. Duplay in 1874 developed the still current method of transverse incision upon the ventral surface of the penis just anterior to the hypospadiac meatus with excision of the fibrous distal segment of the corpus spongiosum, and longitudinal closure of the fascia and skin. This must at times be supplemented by a longitudinal incision through the ventral skin and Buck's fascia just behind the glans, with transverse closure to equalize the lengths of the dorsal and ventral surfaces.

Occasionally the corpus spongiosum of the intact portion of the urethra is also shortened. If excision of the distal incomplete segment will not straighten the penis, a situation which can be recognized during the operation, it may be corrected by dissecting the urethra free from the corpora cavernosa and skin until the penis can be pulled out straight by gentle traction. The meatus is then allowed to retract as far beneath the skin as it will, and a new opening is made for it in the penoscrotal angle.

McIndoe states that it is impossible in some cases to straighten the penis completely by this method, in which event he recommends the more complicated 2-stage method of Edmunds. In 13 cases I have not found this necessary, the penis having been made perfectly straight in 12 by a one stage Duplay procedure, supplemented in several instances at the same operation by dissection of the urethra from the corpora cavernosa. One patient required reoperation for straightening because contraction of the operative scar caused recurrence of the deformity.

A minimum of six months should elapse before construction of the urethra is begun, for fear that scar tissue will form, contract and reproduce the curvature.

Construction of the New Urethra

That this is not so simple is proved by the number of methods which have been devised. The earliest attempts to form an urethra involved the free transplantation of tissues either from an animal, another person, or from the patient himself. Tissues used included the saphenous or some other vein (Tuffier 1899), the ureter (Schmieden, 1909), the appendix (Weitz 1915), tubes of skin (Nové-Josserand 1897), or of vaginal mucosa (Legueu 1918). While temporary success was obtained at times by some of these methods, all failed in the long run because, as Auxhausen and others have shown, of absorption or extrusion of the iso- and homo-transplants, and of contraction of the autotransplants, with the production in all cases if intractable strictures.

The only one of these methods offering any hope of satisfactory results is that of Nové-Josserand as recently modified by McIndoe. Like Josserand he sutures, raw surface out, a Thiersch graft taken from the inner arm around a catheter having the diameter of the proposed urethra. This is slipped into a special trocar which is then forced into a tunnel beneath the skin of the ventral surface of the penis. The trocar is so constructed that it can be withdrawn, leaving the catheter and graft in place. The strictures which followed the original operation of Nové-Josserand are said by McIndoe to be prevented by leaving a catheter in the new skin tube for a minimum of six months after its construction, before connecting it to the proximal urethra. If it proves after a sufficiently long time that this obviates later stricture formation, here is undoubtedly the simplest method of constructing the urethra.

The trouble and inconvenience of keeping a tube in the new urethra for so long a time cannot be lightly dismissed, particularly in the case of young children; the necessity for four operations (two to straighten the penis, and two to construct the urethra) in each case is also disadvantageous. I believe that the method of Thiersch, to be described shortly, is much more satisfactory from these points of view.

With this exception, all successful operations for the construction of the urethra have utilized pedicle flaps left attached throughout their whole length and separated from their beds only at the edges. The forerunner of all these procedures was the operation of Duplay in which the new urethra was formed by making a longitudinal incision in the ventral skin of the penis on each side of the midline, freeing the lateral edges, and suturing them together, skin surface inward, over a catheter. The edges of the skin lateral to the tube thus formed were then united over it. This operation has been abandoned because the suture line in the new urethra lies immediately beneath that in the outer skin, and fistulae rarely fail to develop.

The operation of Thiersch has overcome this objection by "staggering" the suture lines. The first incision on the ventral surface of the penis is made almost in the median line, and the second lateral to it, so that the suture line in the new urethra lies nearly in the midline and in contact with the corpus cavernosum penis of one side. The outer flap is then pulled over the opposite lateral surface of the penis and is held there by penetrating Buck's fascia

with the skin sutures. The two suture lines having been held so far apart, fistulae cannot form except as the result of an hematoma or abscess beneath the flaps. The former can be prevented by careful hemostasis, and the latter usually, but not always, by careful asepsis, since the skin of the penis and scrotum is difficult to sterilize. In this connection proper diversion of the urine is of the utmost importance, since the escape of a few drops of infected urine soon after operation can undo the most painstaking operative procedure in short order.

The textbooks recommend that the urethra be fashioned over a catheter which is to be left in place until the wound heals, but I have had much better success when constructing the urethra over a sound which is withdrawn after completion of the operation. A sound is preferred because its smooth surface permits withdrawal with less trauma; Cecil has found that healing is more prompt and complete in the absence of a foreign body. Non-absorbable sutures are usually recommended, but, as Cecil has shown, abscesses may form about them, perforate the skin, and cause fistulae. The 000 chromic catgut preferred by him has proved far more satisfactory.

Cecil, from whose excellent paper I have secured much of my data, has reported uniformly good results with this operation, and I have used it in 9 cases. Urethral fistulae formed in the first two because I did not sufficiently appreciate how far the suture line in the outer skin must be separated from that in the new urethra. Only one subsequent patient has had a fistula in the new urethra, although two have had them in the perineal urethrostomy, a mishap not attributable to the Thiersch type of operation.

From the viewpoint of fistula formation, the operation of Bucknall (1907) is most nearly foolproof, but has been largely abandoned because the floor of the urethra is formed from hair-bearing scrotal skin. Cabot and others have found that this hair continues to grow and has observed stone formation upon it. Moreover, the operation is not feasible for perineal or penoscrotal hypospadias when the scrotum is small.

Cabot has recently overcome the first objection by constructing the urethra itself from penile skin after the manner of Duplay or Thiersch, and then embedding it in a trough in the scrotum until healing has occurred. It is then freed and the raw area covered, as in Bucknall's method, by a lateral flap of scrotal skin. This method is most useful when the urinary meatus is distal to the penoscrotal angle and the scrotum well developed.

It should be noted that both Cabot's and Bucknall's methods involved two operations for the construction and covering of the urethra. That of Thiersch ordinarily requires but one session; a second operation upon the urethra will be required in only those cases in which fistulae develop (three of nine of my cases).

Another operation which has enjoyed a definite vogue is that of Ombredanne. This is said to obviate fistula formation but leaves a pouch-like urethra, the dribbling from which after micturition is likely to be very inconvenient for the patient. This is especially true in those cases in which several stages are required to bring the urethra to the end of the penis, leaving a series of pouches, each of which may retain a few drops.

Everything considered, I believe that the operation of Thiersch is most practicable and freest from objectionable features if the necessary care in its performance is employed.

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Case Reports

For the sake of brevity and because the occurrence of penoscrotal hypospadias in each of 3 brothers with an additional family history of the anomaly is unusual, only these 3 cases will be discussed. A similar situation was reported in 1899 by Lesser who examined two brothers with hypospadias and was told that a third brother, their father, and

four cousins on the paternal side, as well as three second cousins, had the deformity.

The three brothers, aged 16, 14 and 6 years respectively, were referred to the Outpatient Clinic at the University Hospital in October 1934 by their physician, Dr. Wilmot, of Litchfield. In addition to hypospadias, each of the two younger boys had an undescended testis. The father stated that two maternal uncles of the boys had hypospadias, but they have never submitted to examination.

The penis of each boy was straightened by the method already described, a temporary perineal urethrostomy being made at the same time. The eldest was operated upon in November, 1934, the second in August, 1935, and the youngest in January, 1936. Convalescence in all was uneventful.

The urethra of boy #1 was then constructed by Thiersch's method in August, 1935. A small fistula was present one-half inch behind the new meatus at the time of discharge. This closed by first intention after an overlapping flap operation in October, 1936.

Boy #2 was subjected to the Thiersch urethraplasty in June, 1936 and was discharged healed two weeks later. Left orchiopexy by Wangensteen's method was done successfully in July 1937.

Boy #3 was operated upon by Thiersch's method in July, 1936, and recovered without complications. His undescended testis is still to be treated.

Summary

1. Glandular hypospadias does not require treatment save in exceptional cases.

2. The penile, penoscrotal, and perineal varieties require surgical correction to remove the attendant sexual disability and the deformity.

3. The ventral curvature of the penis (congenital chordee) must first be corrected.

4. Of the many methods for bringing the urethral tube to the end of the penis, the method of Thiersch with the important modifications of Cecil seems most satisfactory for general use.

5. Cabot's combination of the method of Thiersch with that of Bucknall has a definite field of usefulness.

6. McIndoe's modification of the operation of Nové-Josserand may prove very valuable.

7. Three cases of penoscrotal hypostadias occurring in brothers are discussed (out of a series of ten). They were cured by the operation of Thiersch, only the first requiring a secondary operation for the closure of a fistula.

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GOSSIP (Continued from Page 100)

uate course will start January 17, 1938 in Ophthalmology and Otolaryngology. It appears that 1938's course attracted a registration of nearly 190 physicians. The Center is being developed slowly as plans for next year include a greater variety of courses.....Larry Boies, who presented petrositis last week, is a former baseball player. He attended the University of Wisconsin Medical School, was an intern at Asbury Hospital and took his graduate training in the East. As long as he can remember, he has taken delight in analyzing data. At one time he gave a lengthy report on bowel obstruction which is a far cry from petrositis.....Jerome Hilger is a second generation Twin City physician who is carrying on the tradition of a well-known family medical name.....Charles Donald Creevy who provided today's program is one of our busy men. By carefully budgeting his time, he accomplishes a great deal in his many capacities. He has a well earned reputation as a teacher and his presentations are always a pleasure.....His better half is a former member of our nursing staff. At one of the surgical picnics her baseball ability was the outstanding feature of the gathering. Few women can bat, throw and field as well as she, but tennis is her favorite sport. It is said that Don takes few chances at home when that rolling pin is handy.....The hospital seethes with excitement at the approach of the Craft-Jensen nuptials. Poor old Charlie who has always been master of any situation is walking around in a daze.....Dr. Frank Gratzek, '26, is making a satisfactory recovery from an attack of illness last spring. His convalescence has been greatly aided by his dog, Spot, a four-year old English setter, said to be one of the best trained home dogs in Minneapolis with a repertoire of 20 tricks. Most unusual is the dog's ability to play the piano. When Frank suggests music the dog hops up on a padded bench and runs off a few bars. A request for Russian music elicits a heavy response in the bass. When asked to do the scale the dog scampers up and down the keyboard. She is so meticulous that the piano has not been scratched. Some of her tricks were learned in a day. Others required months, particularly rolling over, which seems to be most difficult for her. In addition, she is also said to be a very fine hunting dog and is very fond of children.....Cupid scores again! Edmund Flink and Marion Richards, both of the University of Minnesota Hospitals staff. Congratulations! .....

... Last 1937 meeting next week.