



Dep. of Paediatric & Adolescent Surgery



Urethral Advancement for Distal Hypospadias – Beck's technique

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Distal Hypospadias



The History of Surgery in the United States, 1775-1900 - Ira M. Rutkow

GUp125. **CARL BECK** (1856–1911). A new operation for balanic hypospadias. *New York medical journal* 67 (1898): 147–48.

Beck was professor of surgery at the New York School of Clinical Medicine, and a surgeon at St. Mark's Hospital. His paper records one of the earliest operations for the cure of balanitic hypospadias. Beck mobilized the meatus and distal urethra and advanced the meatus to the tip of the glans, either by drawing the urethra along a trocar track through the glans or burying it under skin flaps raised from the floor of the urethral groove.



Distal Hypospadias



Martina, A. Deutsche Zeitschrift f. Chirurgie (1903)71: 179. doi:10.1007/BF02810473

Aus der Grazer chirurgischen Klinik. Gew. supplernder Vorstand
Prof. Dr. Erwin Payr.

Presentation of 4 cases treated in Graz

Die Behandlung der Hypospadien nach der Beckschen Methode.

Von

Dr. A. Martina,
Operationsassistent.

Seit den Publikationen von Beck vom November 1897 und Januar 1898 über ein neues Operationsverfahren in den Fällen von Hypospadie war das Interesse für diesen Gegenstand stets in fast ungeschwächtem Maße rege geblieben. Auch ist die Zahl der nach dieser Methode gehaltenen Fälle derzeit durchaus noch nicht so imposant, um alle Zweifel und Bedenken gegen ihre Anwendung verstummen zu lassen. Mißerfolge, teils infolge mangelhafter Technik, teils infolge der Auswahl von ungeeigneten Fällen trugen dazu bei, der Methode nur langsam Eingang in die chirurgischen Fachkreise zu verschaffen. Und doch verdient das Verfahren nach Beck wegen seiner außerordentlichen Einfachheit und Sicherheit, mit der es zum Ziele führt, weitgehendste Beachtung und Anerkennung.

Im möchte im folgenden über vier Fälle von Hypospadie berichten,



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0022-5347/97/1576-2308\$03.00/0
THE JOURNAL OF UROLOGY
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Vol. 157, 2308-2311, June 1997
Printed in U.S.A.

HYPOSPADIAS REPAIR USING A MODIFICATION OF BECK'S OPERATION: FOLLOWUP

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ABSTRACT

Purpose: We reviewed the results of 64 cases of hypospadias repair using a modified Beck's operation with mobilization of the anterior urethra.

Materials and Methods: Patient age at correction ranged from 10 months to 12 years (mean 3.83 years). Six patients had undergone previous surgical treatments. Uroflowmetry and evaluation of the urinary stream, meatus, glans, shaft and scar formations were used as objective criteria, and grading of management and results by parents was considered subjective criteria.

Results: An average of 2.1 years postoperatively 59 patients were available for this followup study. The urethral meatus was positioned satisfactorily onto the distal glans in all cases and no urethrocutaneous fistulas developed. Meatal stenosis requiring meatal dilation occurred in 2 boys. In 2 cases a curved glans, and curved penis and glans, respectively, were caused by cicatricial tissue, necessitating surgical correction. Uroflowmetry was possible in 46 cases (78%). One patient with meatal stenosis had pathological flow values. All other flow rates were within the normal range. In the second case of meatal stenosis objective evaluation was impossible. In 55 cases (93%) parents judged management and results as optimal.

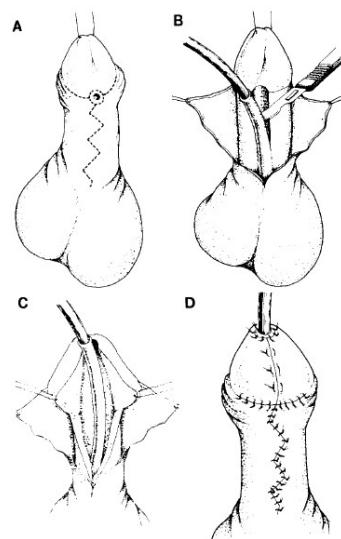
Conclusions: Mobilization of the anterior urethra for correction of distal hypospadias with or without chordee is highly successful, less extensive, and provides an excellent cosmetic and functional result with a minimal risk of complication. Uroflowmetry is a noninvasive, objective diagnostic tool for evaluating the functional results of hypospadias repair.

KEY WORDS: penis, hypospadias, urethra, abnormalities



Distal Hypospadias





Distal Hypospadias



0022-5347(97)157:2;00:02:00
The Journal of Urology
Copyright © 1997 by American Urological Association, Inc.

Vol. 157, 2096-2111, June 1997
Printed in U.S.A.

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RESULTS

Followup was performed 6 months to 5 years (mean 2.1 years) postoperatively and 59 patients (92%) were available for study. Uroflowmetry was possible in 46 cases (78%). All evaluations were done with a rotating disk sensor. Peak flow less than 8 ml. per second and mean flow less than 6 ml. per second were classified as pathological values.¹⁰ Only 1 boy had pathological uroflowmetry values and all other values were within the normal range (fig. 2). In 2 children slight side deviation of the urinary stream did not necessitate surgical correction. In 1 case deviation was caused by meatal stenosis. This patient was still not toilet trained and, therefore, objective examination by uroflowmetry was not possible.



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002-JAM1971-127-230863.000
The Journal of Urology
Copyright © 1997 by American Urological Association, Inc.

Vol. 157, 2396-2411, June 1997
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According to objective criteria, in all patients the urethral meatus was positioned satisfactorily onto the distal glans. There were no fistulas or residual chordee. In 2 cases a curved glans and penile shaft, and a curved glans, respectively, were caused by scar tissue, probably due to skin infection. In both cases surgical correction of the stricture is necessary. Meatal stenosis in 2 cases was documented by a poor urinary stream and uroflowmetry. Subjectively parents graded management and results as optimal, satisfactory and discontented. In 55 cases (93%) parents judged preoperative and postoperative management, and results as optimal, and 3 (5%) judged them as satisfactory. Only 1 mother was discontented due to meatal stenosis.



Distal Hypospadias



Main steps of the modification of Beck's surgical technique





Distal Hypospadias



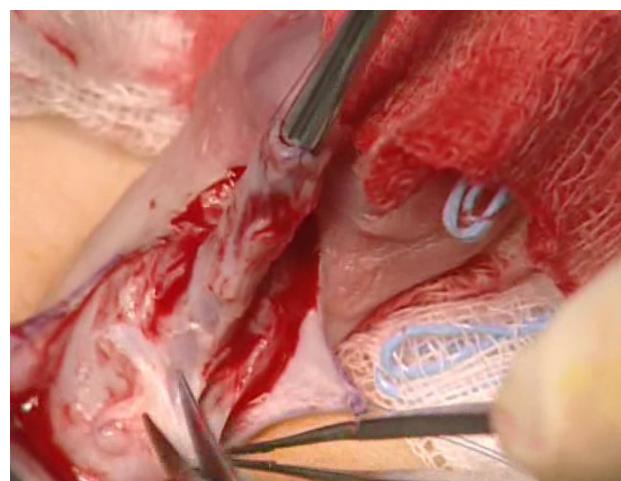
Ventral incision



Distal Hypospadias



Meticulous mobilisation of the urethra





Distal Hypospadias



Sufficient mobilisation of the urethra with healthy corpus spongiosum to easily bring it to the tip of the glans, chordectomy – note loose sutures on the tip of the urethra, thus no traction!



Distal Hypospadias



After preparation of the glans wings suturing of the urethra into the glans

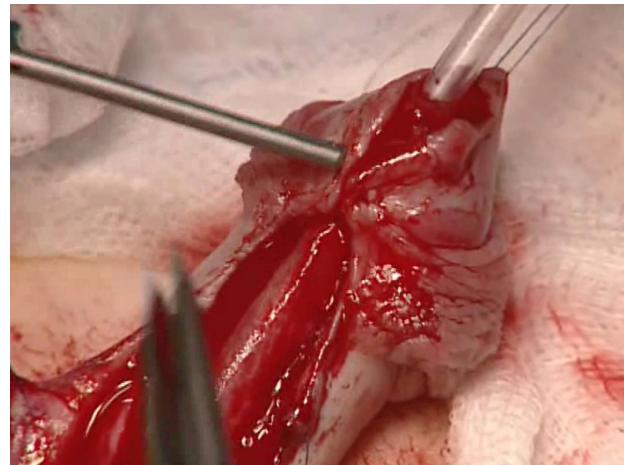




Distal Hypospadias



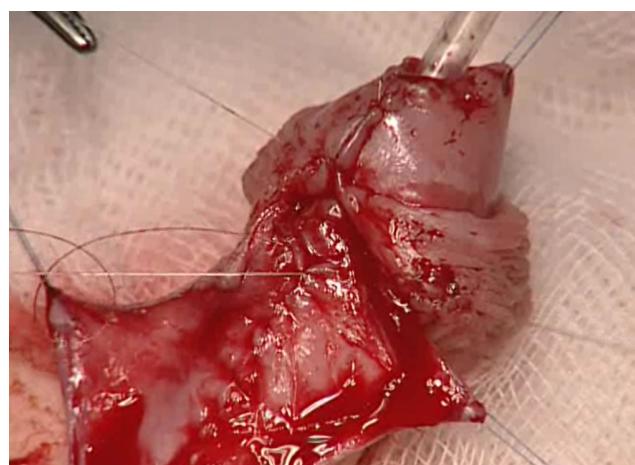
Closure of the glans wings over the urethra



Distal Hypospadias



Closure of the dartos fascia





Distal Hypospadias



Closure of the penile skin



Distal Hypospadias



Dressing





Distal Hypospadias



Late follow up 8 – 18 years after surgery (mean 11.9 yrs).

Age range at the time of surgery was between 1 – 9 yrs (mean 2.7 yrs).
 Age range at follow up was between 9 and 27 yrs (mean 14.9 yrs)

25 patients were between 9 and 14 yrs of age at follow up.
 24 patients were between 15 and 27 yrs of age at follow up.

From diploma thesis Nr. 18197 Ped. Surg. Graz: Stefan Drescher. **Mobilisation der eigenen Harnröhre (OP nach Beck) zur Korrektur von distalen Hypospadien. Langzeitanalyse der funktionellen und kosmetischen Ergebnisse.** Med-Uni-Graz 2011



Distal Hypospadias Evaluation of function and cosmesis.



The function was evaluated by:

- 1) uroflowmetry and
- 2) International Index of Erectile Function.

The objective criteria for evaluation of cosmesis focused on:

- 1) scar formation and/or
- 2) curvatures and/or
- 3) stenosis and/or
- 4) position of meatus, glans, penis shaft, and scrotum.

In addition, subjective criteria for evaluation of cosmesis were used:

- 1) questionnaire for patients, and
- 2) photo documentation of the penis and of the uroflow

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Distal Hypospadias



Uroflowmetry was done in 36 patients and showed normal in all cases. Nine of 11 evaluated patients had completely normal erectile function.

No deviation or rotation of the penile shaft and no disturbing scar formations were noted. Fistulas or stenosis did not occur.

Patients rated the subjective cosmesis as normal in 90% of cases, and almost normal in 10%.

However, 6 patients (12%) showed meatal regression with the urethral meatus lying near to sulcus coronarius, without functional consequences.

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Distal Hypospadias



Few examples from the questionnaire:

4.2.1 Question: How Does the Penis look like?

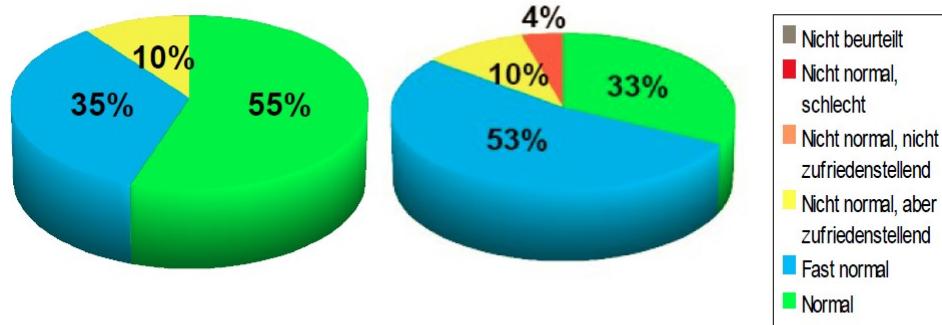
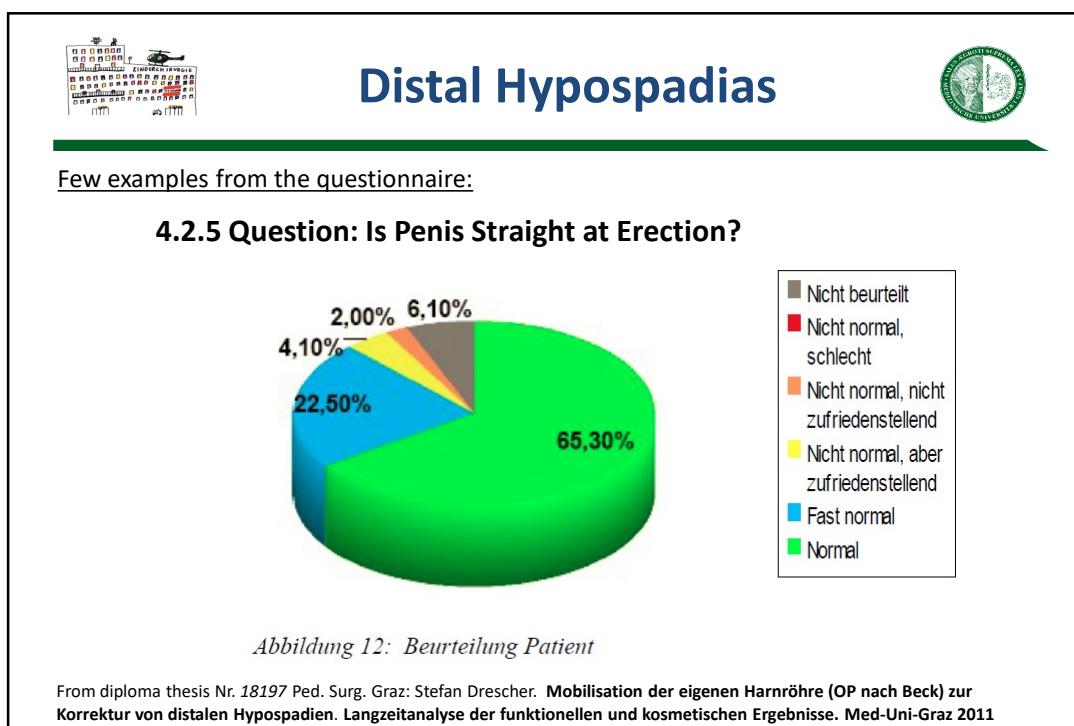
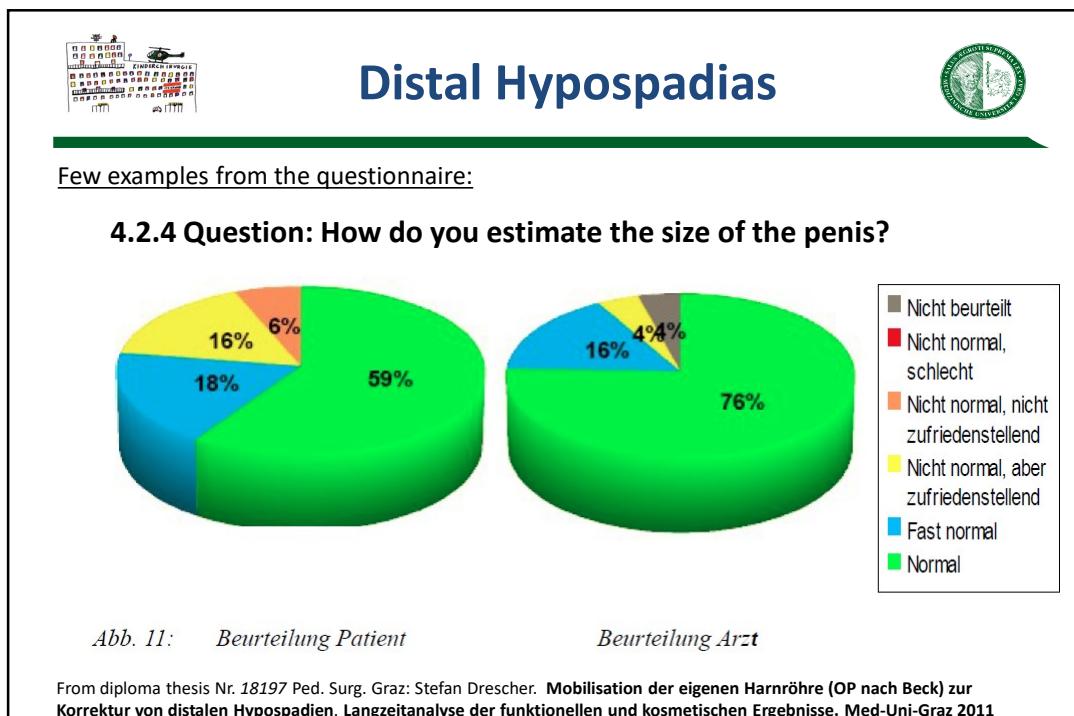


Abb. 7: Beurteilung Patient

Beurteilung Arzt

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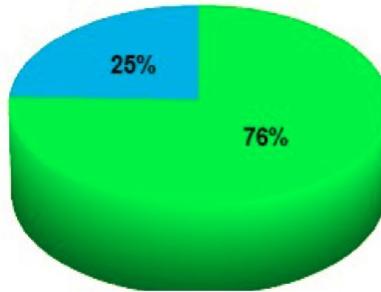


Distal Hypospadias



Few examples from the questionnaire:

4.2.6 Question: How do you estimate the urinary stream?



- Nicht beurteilt
- Nicht normal, schlecht
- Nicht normal, nicht zufriedenstellend
- Nicht normal, aber zufriedenstellend
- Fast normal
- Normal

Abbildung 13: Beurteilung Patient

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Conclusion

- Mobilization of the urethra for correction of distal hypospadias is associated with good overall patient satisfaction!
- However, the possibility of the meatal retraction as a long-term complication must be strongly considered!

Thank you for your attention!