Reoperations in Anorectal Malformation

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The 66th Workshop for the Surgical Treatment of Colorectal Problems in Children



Patients with Fecal Incontinence

EVALUATION History, physical exam, Sacral and Spinal films Kidney Ultrasound Contrast enema M. R. I.

Not trainable (Poor prognosis)

Children's Hospital Colorado Here, it's different.™ Candidates for secondary pull-through Pseudoincontinent Trainable

Candidates for sigmoid resection



INTERNATIONAL CENTER FOR COLORECTAL AND **UROGENITAL CARE**

for

Reoperations for Fecal Incontinence



Candidates for a Re-operation

- Born with a 'good' defect
- Good sacrum
- Good sphincter
- Completely mislocated rectum



























Traction Sutures







































Reoperations for Other Reasons (Catastrophes)



Recto-urinary Fistulae

Males (ARM)12Persistent12Recurrent10Acquired3Recto-diverticulum4

29








































Urethral Injuries Group B

19 cases of stenosis or acquired atresia - 4.4%









Posterior Urethral Diverticulum 3 of 432 cases - 5.3%



Posterior Urethral Diverticulum After Laparoscopic Repair of an Anorectal Malformation

Children's Hospital Colorado International Center for Colorectal Care









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R

18







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Malignancy 31 yr. Old Adenocarcinoma in the diverticulum (not peviously reported)



Posterior Urethral Diverticulum

S/p repair of ARM - 25 cases

Urinary Control

21

3

Evaluated

Continent 16

Dry on cath. 2

Incontinent

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Do not confuse Caudal Regression with

Caudal Aggression

-AP

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Rectal Prolapse









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Urological Injuries

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ARM (males) Operative Urologic Injuries

431 Pts. Operated elsewhere

- 28 Recurrent persistent or acquired recto-urethral fistulae
- 27 Neurogenic bladder
- 23 Posterior urethral diverticulum
- 19 Urethral injuries that provoked stenosis or atresia
- 4 Divisions of vas deferens



ARM (males) Operative Urologic Injuries Our series - 572 patients 2 division of vas deferens 3 division of ureters 6 opening of a seminal vesicle 7 opening of urethra NO LATE SEQUELAE OBSERVED



ARM (males) Operative Urologic Injuries

Most Common Errors

Posterior Sagittal Approach without a previous distal colostogram.

(except in posterior urethral diverticulum)



ARM (males) Operative Urologic Injuries Other errors

Leaving rectal sutures in front of urethral sutures.

• Damage the rectal wall during dissection.



ARM (males) Operative Urologic Injuries

Other errors

- Trying to go around the rectum with a right angle clamp to separated it from the urinary tract
- Trying to dissect the rectum outside the perirectal fascia



ARM (males) Operative Urologic Injuries

Common denominator in cases of posterior urethral diverticulum:

Abdomino-perineal approach in cases of recto-urethral-bulbar fistulae



USE ILEOCECAL VALVE FOR URINARY RECONSTRUCTION



UROLOGICAL MALFORMATIONS OVERLOOKED



RESECTION OF THE RECTOSIGMOID



NO REGARD FOR THE MIDLINE PLANE



Urologic Lesions Consecutive to the Repair of Anorectal Malformations in Other Institutions 431 Pts.

•	Neurogenic bladder	6.0 %
•	Urethral lesion	6.0 %
•	Fistula: recurrent, persistent, acquired	6.5 %
•	Posterior urethral diverticulum (13% in abdomino-perineal approach)	6.0 %
•	Vas deferens section	1.0 %
•	Other genital lesions	1.8 %



Conclusions

- Significant risk of urological injury exists
- Six major types of injury are seen
- The pressure augmented distal colostogram is the most important pre-operative test



Posterior Urethral Diverticulum

2

3

S/p repair of ARM - 25 cases

Urinary Control

Evaluated 21

Continent 16

Dry on cath. Incontinent

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Urethral Injuries Group A

- 7 cases in which urethra was opened
- No long term sequelae



Urinary Incontinence (I) and Type of Defect

DEFECT	N	/	%
Vaginal fistula	4	0	0
Atresia or Stenosis	5	0	0
Perineal fistula	14	0	0
Bulbar fistula	47	0	0
IA with no fistula	18	0	0
Vestibular fistula	43	2*	4.7*
Prostatic fistula	58	4*	6.9*
Bladderneck fistula	21	2*	9.5*
Cloaca < 3 cm.	21	4	19
Cloaca > 3 cm.	16	11	68.8

* Poor sacrum and/or severe urological defects that required several operations

Continent Diversion (n = 53)

Redo	22
Cloaca Exstrophy	12
Cloacas	9
Complex Malformations	4
Bladderneck fistula	3
P. S. for other reasons	2
Prostatic fistula	1



Ureter Re-implant (n = 83)

Cloaca	35
Redo	25
Cloaca Exstrophy	3
Bladderneck fistula	2
Prostatic fistula	4
Complex malformation	2
P. S. for other reasons	2
Bulbar urethral fistula	1
Perineal fistula	1
Vestibular fistula	





Bulbar urethral fistula

Bladderneck fistula

Prostatic fistula

No fistula

Perineal fistula

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All patients with Anorectal Malformation and Hemisacrum have a Presacral mass.

These anorectal malformations seem to have a different origin.







1003 Patients

Group A

- 572 Patients
- Primary repair at SCH

Group B

• 431 Patients

Repair at other institution



Urologic Injuries

Injury Type	Group A	Group B	Total
	(572)	(431)	(1003)
Urethral	7	19	26
Recto-urinary Fistulae	0	30	30
Urethral Diverticulae	0	23	23
Bladder	1	28	29
Reproductive	10	8	18
Ureteral	1	2	3
Total	19	110	129



Malformations and Injuries

Group A (572 patients)

	Malformation type				
Injury Type	Perineal Fistula	Bulbar Urethral	Prostatic	Bladder Neck	Total
Urethral	0	3	4	0	7
Fistulae	0	0	0	0	0
Urethral Diverticulae	0	0	0	0	0
Bladder	0	0	0	1	1
Reproductive	0	0	8	2	10
Ureteral	0	0	0	1	1



Urologic Injuries and Type of Operation

GroupTechnique% of TotalAPSARP3.3BPSARP32.0BOther24.9



Neurogenic Bladder

Group B

27 out of 431 cases

6%

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Reproductive Injuries

1003 patients

Group	A (572 pts)	B (431 pts)	Total
Divided vas deferens	2	4	6
No ejaculation	0	2	2
No erection	0	1	1
Opened seminal vesicle	7	1	8
Opened prostate	1	0	1
Total	10	8	18



Conclusions

- Significant risk of urological injury exists
- Six major types of injury are seen
- The pressure augmented distal colostogram is the most important pre-operative test


Conclusions

- <u>All patients should have a foley catheter placed at</u> the time of the initial repair
- A posterior urethral diverticulum should be suspected in patients with urinary sx and a hx of an abdomino-perineal repair
- Group B is a select population, and do not represent national norm

