[NM-249] Retrospective Review of Surgical Complications in Children undergoing Hypospadias Repair under Caudal versus Penile Block

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INTRODUCTION: Urethrocutaneous fistulae is well known to be a major complication of hypospadias repair.(1) A recent prospective study has suggested that caudal anesthesia may be associated with fistula formation.(2) However, fistula formation is most often a result of meatal stenosis and poor vascular tissue coverage. Given the commonality of regional blocks for penile surgery, we felt it important to further elucidate this possible association.

METHODS: Children who underwent primary hypospadias repair between January 2003 and January 2013 at our tertiary care center were included in this retrospective, nested case-controlled study. All cases of fistula were identified by independent review of multiple repairs, and the diagnosis was validated by a secondary review. Three matches for every case were randomly selected from the remaining list as controls. Children with multi-stage repair, connective tissue and bleeding disorder were excluded. Medical records were reviewed to obtain; age, medical history, details regarding caudal anesthesia, penile block, use of subcutaneous epinephrine, location of the urethral opening, type of repair, recovery characteristics, postoperative infection and outcomes. Chi square or Kruskal Wallis were used to evaluate the association between various perioperative factors and fistula occurrence.

RESULTS: To date, 13 cases and 85 controls have been reviewed. Fistula occurrence was not significantly associated with anesthetic type, use of subcutaneous epinephrine or procedure type (see table). The location of the urethral opening was strongly associated with fistula formation. The odds of fistula formation was greatest with proximal location (vs. distal; 24.75 [5.19, 118.01], p<0.001) and midshaft location (vs. distal; 16.5 [3.13, 86.89], p = 0.002). Fistula occurrence differed by surgeon, varying from 9.1% to 33.3% per surgeon (avg. 13.2%; P =.293).

CONCLUSION: Based upon interim analysis, the type of regional anesthetic used in children undergoing primary hypospadias repair was not associated with urethrocutaneous fistula formation. Location of the urethral opening appears to be strongly associated with fistula development (proximal > midshaft > distal) as previously described in the literature.(3) Further analysis of a larger sample from our case series is needed to examine independent predictors of this rare outcome.

REFERENCES:
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Table 1: Perioperative Factors and Fistula Development in Children Undergoing Hypospadias Repair

Risk Factor	Fistula		OR [95% CI]), P-value
	Yes	No	
Anesthetic			
Caudal	10 (12.7%)	69 (87.3%)	0.77 [0.19, 3.14], 0.718
Penile Block	4 (22.2%)	14 (77.8%)	2.22 [0.60, 8.24], 0.224
Local infiltrate	7 (15.9%)	37 (84.1%)	1.51 [0.47, 4.89], 0.486
SubQEpi	5 (15.2%)	28 (84.8%)	1.40 [0.39, 5.01], 0.605
Location			
Distal	5 (5.9%)	80 (94.1%)	
Midshaft	3 (50%)	3 (50%)	<0.001*
Proximal	5 (71.4%)	2 (28.6%)	
Repair Type			
MAGPI	0 (0%)	15 (100%)	
Snodgrass	11 (14.3%)	66 (85.7%)	0.419*
Other	0 (0%)	3 (100%)	
Post-Op Issues			
Vomiting/ Retching	1 (25%)	3 (75%)	2.17 [0.21, 22.57], 0.508
UTI	1 (50%)	1 (50%)	6.17 [0.36, 105.35], 0.156
Unplanned Early Foley Removal	0 (0%)	3 (100%)	NA 0.408

Kruskal Wallis Overall Test for k independent comparisons.