To Permit Needed Care:  
Urologist Meredith Campbell Published the First Report on Pediatric Caudal Anesthesia  
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Introduction
Meredith F. Campbell (1894-1968) was a renowned urologist who published Campbell's Urology in 1937. He also published about adult spinal anesthesia in 1926 (1) and 1927 (2). His 1933 "Caudal Anesthesia in Children" (3) is considered the oldest known case series about pediatric caudal anesthesia. This abstract reviews the search for earlier papers and analyzes the 1933 paper.

Methods
English-language Index Medicus and Google Scholar were searched from 1890 to 1940 for variations of caudal anesthesia (e.g. epidural and peridural), pediatric, and Campbell. These terms were searched alone and in combination. The content of "Caudal Anesthesia in Children" was analyzed.

In 1933 he was in the Departments of Children’s Medicine and Urology, Bellevue Hospital and the Surgical Service of Babies’ Hospital in New York City.

Results
In 1933, Campbell published “Caudal Anesthesia in Children” in the Journal of Urology after presenting the paper to the American Society of Regional Anesthesia on February 14, 1933. No previous case series about pediatric caudal anesthesia was found.

Campbell's motivation to use caudal anesthesia for urethral endoscopy came from the need for general anesthesia in 30% of his cases. Some parents refused general anesthesia and forwent the "much needed examination." Campbell pursued pediatric caudal anesthesia to enable these children to be examined.

Technique
• A “large fluid intake” before cystoscopy
• Possible sedation with morphine or phenobarbital
• Positioning as per Labat's description for adult caudal anesthesia
• Anesthetize skin with 1% procaine, the only “trying phase”
• Insert 21g into space, “often without the child’s knowledge”
• Inject 8-12 cc of 2% procaine
• Wait 15 minutes before beginning; If the child was not anesthetized by 20 min, he recommended reinjection

Study population over the “past year”
• 83 boys received caudal anesthesia for urethral endoscopy
  • 4-6 yrs: 13 boys
  • 7-9 yrs: 51 boys
  • 10-14 yrs: 19 boys

No girls were included in the data; according to Campbell, girls were more tolerant of the procedure than boys.

Outcomes
• Satisfactory anesthesia: 81% (67/83) of cases
• Partially satisfactory anesthesia (“instrumentation was performed with some discomfort”): 8% (7/83) of cases
• Unsatisfactory anesthesia (requiring general anesthesia): 11% (9/83) of cases

One boy had a severe “reaction” of pallor, rapid and weak pulse, sweating and “moderate collapse” a minute after injection. The boy fully recovered by 48 hours. Campbell thought it was due to an intravenous injection.

Conclusions
Campbell’s report is the first known paper on pediatric caudal anesthesia in English. It was published 32 years after the first report on adult caudal anesthesia (4) and 28 years after the first case series on pediatric spinal anesthesia (5). Campbell’s paper is important because most forays into regional anesthesia were to improve the quality of care or to show feasibility; Campbell’s intent was to help more children receive care.

Typical of most early authors who extolled regional anesthesia, Campbell wrote that in those cases of inadequate regional anesthesia “the fault was with me and not the method.”

References