

## Use of Foley Catheter Instead of Digital Rectal Examination for Detection of Gastrointestinal Bleeding in Infants and Children

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### Abstract

A digital rectal examination is a highly important procedure carried out on infants and children during visits to the gastroenterology clinic, but is often accompanied with physiologic and psychologic trauma in patients, along with being diagnostically inaccurate in the results obtained from it. In order to avoid causing discomfort to the patients, and to improve the accuracy of the results obtained from a Digital Rectal Examination (DRE), we have articulated a much safer and more precise method of conducting the examination.

The use of a 16 French Foley Catheter in the collection of stool samples during a DRE has proved to be an innovative technique, which eliminates discomfort in patients, provides a less stressful environment for both the physician and the family of the patient, along with providing unambiguous results for the Fecal Occult Blood Test (FOBT). The use of this technique will not only produce accurate results, but will also eliminate reasons to avoid such an important examination due to the uncomfortable situation a normal DRE would cause.

**Key Words:** Children, Digital Rectal Examination, Gastrointestinal Bleeding, Infants.

\*Please cite this article as: Baig N, Karjoo M, Beg M, Karjoo S. Use of Foley Catheter Instead of Digital Rectal Examination for Detection of Gastrointestinal Bleeding in Infants and Children. Int J Pediatr 2018; 6(3): 7271-73. DOI: **10.22038/ijp.2018.29395.2616**

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Received date: Dec.23, 2017; Accepted date: Jan.22, 2018

## 1- INTRODUCTION

A Digital Rectal Examination (DRE) has been a regular part of physical examinations during gastroenterology clinic visits for a long time and is performed for various reasons. In adults, a DRE can be considered for the evaluation of the prostate gland in men, and in women as a part of the pelvic examination. In children, it is mainly performed to check for constipation, fecal impaction, rectal bleeding, anal stenosis, milk protein allergy, hemorrhoids, rectal polyps and chronic diarrhea. When a DRE is performed, the stool collected is analyzed for any visible blood and hemoccult by the Fecal Occult Blood Test (FOBT). Blood in the stool can be an indication of colon cancer, and/or inflammatory bowel diseases such as ulcerative colitis, Crohn's colitis, Meckel's Diverticulum, and/or upper gastrointestinal bleeding such as esophageal varices, gastritis and hemorrhagic disease.

Occasionally, a DRE may result in an insufficient collection of stool samples due to an empty rectum or because of a tight anal sphincter during the exam. Rectal examinations for children and adolescents are usually associated with pain, discomfort, fear, bad memories and psychological trauma. They often cry, refuse to cooperate, and the procedure becomes a very uncomfortable period for the parents, as well as the physician. As an alternative method, we have designed a procedure which uses a 16 French Foley catheter to collect stool samples for the FOBT from children. This method has proven to be safe, painless and trauma free. The children that have been tested using this method so far have exhibited no fear and have cooperated well, while the parents were appreciative of such a simple procedure for their child.

## 2- MATERIALS AND METHODS

In order to collect stool sample from

the rectosigmoid area for the FOBT, a sterile, single use rubber Foley Catheter size 16 French (All-purpose catheter, Robinson/Nelaton, Rusch Inc. Duluth, Georgia, USA) with two holes at the tip of the catheter was used. The catheter was inserted about 10 to 15 centimeters into the rectum and rotated once clockwise. Without the use of any suction, the catheter was then removed gently.

Based on the catheter design and the technique of insertion and rotation, the holes at the tip of the catheter were automatically filled with sufficient stool sample. The sample of stool collected was then placed on a Hemoccult Card and processed by Hemoccult developer made by Beckman Coulter, Inc. A total of twenty-two patients were tested using this method and all stool samples that were collected were adequate for testing.

## 3- RESULTS

During a six-month study, twenty-two patients were tested for fecal occult blood using the 16 French Foley Catheters instead of the regular digital rectal exam. These patients were either visiting the Gastroenterology clinic for their initial evaluations or for follow-up with a history of rectal bleeding, milk protein allergy, ulcerative colitis and/or chronic diarrhea. The patients had the following age distribution: younger than three years old = 11 (50%) patients, 3-7 years old = 4 (18%) patients, and 8-16 years old = 7 (32%) patients. The male-to-female ratio was 1:0.7; 100% of the samples collected by this technique contained adequate stool volume for testing with a Hemoccult card.

## 4- DISCUSSION

Digital rectal examinations have played an important role in testing for gastrointestinal disorders in infants and children for a long time. However, it is commonly seen that many primary care physicians avoid performing it due to their

lack of comfort and fear of traumatizing the child (1). Performing a digital rectal examination on a young child is often associated with crying, psychological trauma, discomfort and fear.

Although of high importance, a DRE is often avoided due to the uncomfortable situation it causes for the patients, their families and the physicians. Along with the recurring lack of cooperation from the patients, the results gained from a digital rectal exam are not always accurate and reliable. Testing and comparing the diagnostic accuracy of stool samples obtained from a routine screening and a digital rectal examination, a significant difference was seen in the specificity ( $P < 0.01$ ). While stool samples collected from routine screening had 96.5% in specificity, digital rectal examination samples only had 79.8% (2). These findings suggest that this significantly lower percentage of specificity could be a result of anorectal local trauma induced by a gloved finger during the digital rectal examination.

## 5- CONCLUSION

We conclude that by the use of a Foley Catheter, the process of the collection of stool samples was both painless and consistently adequate. In addition, the patients were free of discomfort and fear, while the parents were highly appreciative of the simplicity of the method. The process was also a much easier approach for the physician trying to conduct a digital rectal examination, eliminating reasons for avoiding the procedure altogether. Therefore, it is suggested that the use of a 16 French Foley Catheter is a much safer and a more accurate method of carrying out a digital rectal examination.

## 6- CONFLICT OF INTEREST

The authors had not any financial or personal relationships with other people or

organizations during the study. So there was no conflict of interests in this article.

## 7- REFERENCES

1. Gold DM, Levine J, Weinstein TA, Kessler BH, Pettei MJ. Frequency of Digital Rectal Examination in Children with Chronic Constipation. *Arch Pediatr Adolesc Med.* 1999; 153(4): 377-79.
2. Nakama H, Zhang G, Fattah AS, Kamijo N. Clinical Significance of Positive Immunochemical Occult Blood on Stool Obtained by Digital Rectal Examination. *Digestive and Liver Disease* 2001; 33(7): 616–17.