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Simulation of Lifting-Sign in do-it-yourself Polyps for Endoscopic Training

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Abstract

In recent years, we have recognized, as part of endoscopic simulation training, that polypectomy training is mandatory.

One essential aspect for us in connection with endoscopic polypectomy is the injection of polyps with the following lifting sign in order to generate an understanding of malignancy criteria.

Since there are no Polpy dummies that can simulate a lifting-sign, we tried to build them ourselves. For this, we used a paperback, a clear plaster with wound dressing a plastic gown, and ordinary plaster.

After the polyps were crafted, they have been placed in the endoscopy dummy, allowing the course participants to practice. Afterwards an anonymous survey was taken regarding their endoscopy experience and whether they considered the lifting sign realistic.

Introduction

The improvement of training dummies is leading to increased interest in endoscopy training among medical students and residents. While some of the dummies are equipped with polyps, none of them simulate a lifting sign. As the work of Ronak Patel et al.¹ demonstrates, hands-on training in endoscopy is a crucial factor in improving examination results.

In the basic endoscopy course at Tulln University Hospital, resident physicians learn the fundamentals of endoscopy, since in Austria endoscopies are performed by both internists and surgeons.

Since the necessary equipment for endoscopy training courses is very expensive, thus increasing course fees for trainees, we have devised a cost-effective solution to create simulation polyps.

Technical Report

To make the polyps, you will need a box of gloves, an adhesive bandage, and a shower plaster.

Cut the cardboard pieces to size so that the shower plaster fits. Next, take a piece of adhesive bandage, make a notch in it, and insert a cut-off fingertip from a glove, which you then fix to the shower plaster. Finally, trim the cardboard piece back to fit the shower plaster. (See Figure 1.)



Figure 1: Simulation-Polyps

In our case, we placed the simulation polyps inside the colonoscopy dummy (see Figure 2) so that the course participants could practice the different techniques of polypectomy and also have the opportunity to instill fluid into the shower plaster to simulate a lifting sign. (see Figure 3)



Figure 2: Simulation-Polyp in Endoscopy Dummy



Figure 3: Before Instillation



Figure 4: After Instillation

To independently verify the effectiveness of the Lifting Sign, we conducted an anonymous survey among the course participants. At the end of the course, participants were asked to complete an anonymous questionnaire, indicating their experience with endoscopy and assessing how realistic they considered the lifting sign to be. Of the 12 questionnaires submitted, 8 participants had no experience with endoscopy, and 4 had performed between 1 and 10 endoscopies. 8 participants found the lifting sign to be very realistic, 2 considered it realistic, and 2 considered it unsuitable.

This suggests that even though the majority of course participants had no experience with endoscopy, they still found the simulation of the lifting sign to be very realistic.

Discussion

We understand that it is difficult to simulate a realistic lifting sign and that this form of polyp is only an approximation; however, it demonstrates a low-budget, do-it-yourself way to show endoscopy beginners a complete loop polypectomy, from injection to the lifting sign and loop handling.

Footnote:

Simulation-based training improves polypectomy skills among practicing endoscopists Authors Ronak V. Patel¹, Jeffrey H. Barsuk^{2, 5}, Elaine R. Cohen², Sachin B. Wani³, Amit Rastogi⁴, William C. McGaghie⁵, Diane B. Wayne⁵, Rajesh N. Keswani¹, Srinadh Komanduri¹

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