

Innovations in Family Medicine Education

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Editor's Note: Send submissions to jfreeman3@kumc.edu. Articles should be between 500–1,000 words and clearly and concisely present the goal of the program, the design of the intervention and evaluation plan, the description of the program as implemented, results of evaluation, and conclusion. Each submission should be accompanied by a 100-word abstract. Please limit tables or figures to one each. You can also contact me at Department of Family Medicine, KUMC, Room 1130A Delp, Mail Code 4010, 3901 Rainbow Boulevard, Kansas City, KS 66160. 913-588-1944. Fax: 913-588-2496.

The “Sponge Perineum:” An Innovative Method of Teaching Fourth-degree Obstetric Perineal Laceration Repair to Family Medicine Residents

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Background: *Fourth-degree perineal lacerations are an uncommon, unpredictable injury that family physicians may face.* **Methods:** *After a needs assessment and feasibility review, we developed goals, objectives, instructional tools, and a feedback survey for a curriculum using a novel model to simulate perineal laceration repair.* **Results:** *Fifty-six learners evaluated the session, expressing increased confidence with perineal laceration repair, the usefulness of the model, and their desire to see it included in the Advanced Life Support in Obstetrics course.* **Conclusions:** *The “sponge perineum” is an inexpensive, effective tool to teach perineal laceration repair. Further study is needed with actual patient experiences.*

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Severe perineal lacerations are an uncommon complication in obstetric practice—estimates of the incidence of third- or fourth-degree laceration range from 5.85%–29.7%.^{1,2} Although risk factors for severe injuries are known—nulliparity, shoulder dystocia, operative deliv-

ery, macrosomia—their occurrence is still an unpredictable, unplanned, intrapartum event. Opportunities for residents to repair these injuries under authentic circumstances will inevitably be few. Further, though these injuries and their repair are included in residency curricula, most learners lack hands-on repair experience, even with simulations. Even in obstetrics and gynecology (OB-GYN) residency programs, 59% of residents receive no structured training in perineal repair.³ Given the limitations of residency experience, this is an ideal scenario

for a simulation to teach severe perineal laceration repair.

We conducted a review of the published and presented literature for models of perineal laceration repair. One model uses a beef tongue to simulate the tissue found during the repair.⁴ This has a realistic texture but is time-consuming to prepare, expensive, and learners may have religious or moral objections to meat products. Two published models allow for repair of second-degree lacerations but not more-severe injuries.^{5,6} The Advanced Life Support in Ob-

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stetrics (ALSO) course includes a presentation on this subject but no simulation.⁷ This paper describes our inexpensive, simple model to teach perineal laceration repair and feedback from its use at the University of Oklahoma Family Medicine Residency Program (OUFMRP). Our goal was that graduates be comfortable performing fourth-degree perineal laceration repair in clinical practice.

Methods

OUFMRP is a 12-12-12 university-based residency program that trains residents to provide broad-spectrum care, including obstetrics. Because many of our residents go on to practice obstetrics in rural areas, we had a strong local need for effective training in perineal laceration repair. The subjects of this study were residents at OUFMRP and participants in the ALSO course at OUFMRP.

This project began with a novel idea for a perineal model. The “sponge perineum” is constructed using a two-layer car-washing sponge and is shown in Figure 1. The sponge is oval shaped, 8 cm tall, 15 cm wide, and 20 cm long. The sponge has two lengthwise layers, a coarsely textured white layer 2 cm thick and a larger smooth blue layer. To construct the model, the sponge is cut to represent the perineal anatomy of a fourth-degree laceration. For details on the appearance construction of the model, see the full instructor’s guide and teaching materials located at the Family Medicine

Digital Resources Library (www.fmdrl.org).⁸ Through some experimentation, we found that a model constructed in this way provided an opportunity to “repair” the sponge using the same sequence of steps needed to repair an actual perineal laceration.

We conducted an informal needs assessment for the session to determine its fit within current teaching efforts. We planned our curriculum to both be used during the ALSO course and as a module to teach residents on our family medicine obstetrics service. We designed and pilot tested a curriculum to teach perineal laceration repair with the model. We generated goals and objectives and developed a skill checklist for the procedure and a post-session survey to gather learner feedback about their confidence with perineal repair, the sponge model and its place in ALSO, and other aspects of our teaching session. We obtained Institutional Re-

view Board approval to study this curriculum with resident learners through the University of Oklahoma Health Sciences Center in Oklahoma City. All our teaching materials can be accessed at www.fmdrl.org.

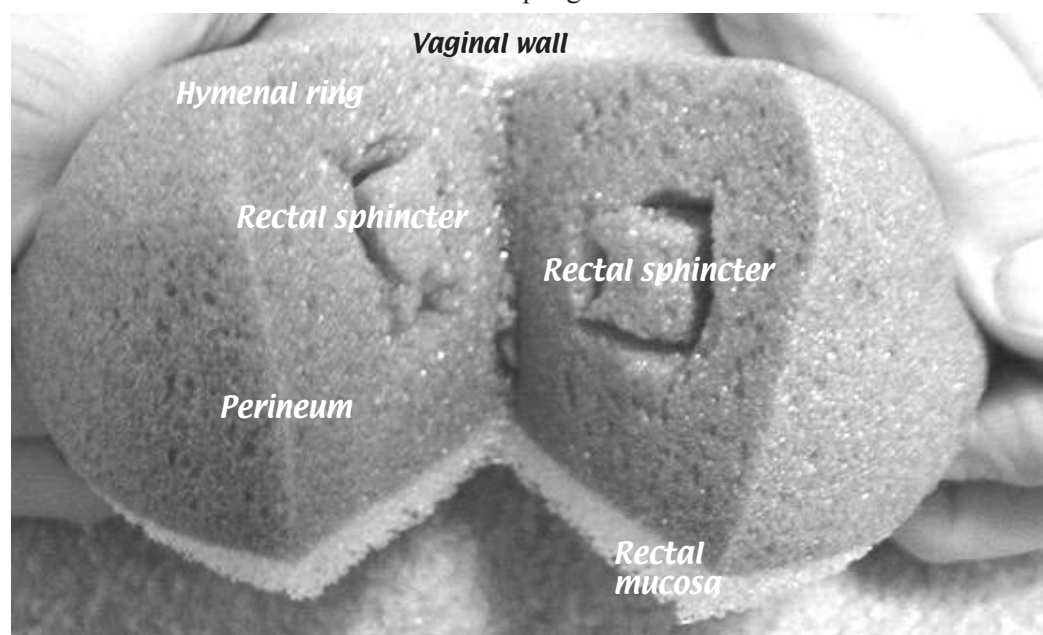
Our curriculum began with a teaching session explaining perineal laceration repair and the sponge model. This was followed by hands-on practice with the sponge model, including a test during which learners’ skills were verified with the checklist. After completing the session, learners completed our survey. These results were tabulated, and averages and standard deviations for each question were calculated.

Results

The sponge perineum model has been in use for 3 years at OUFMRP, integrated with our ALSO course workshops and our inpatient OB service. It is also frequently used

Figure 1

Picture of Sponge Model



For more detailed description and pictures, see complete materials at www.fmdrl.org/656.

Table 1
Learner Survey Results

	Score	
Familiarity with procedure before	2.95	(1=not at all, 5=a lot)
Confidence about procedure after the session	4.13	(1=not at all, 5=a lot more confident)
Usefulness of model	4.48	(1=not at all, 5=very)
Should teaching model be included in ALSO	4.82	(1=definitely not, 5= definitely yes)

ALSO—Advanced Life Support in Obstetrics

to review perineal laceration repair. Fifty-six learners have completed our survey about the model. Overall learner response was strongly positive, as reported in Table 1. Learners reported being somewhat unfamiliar with the procedure before the session (2.95 on a Likert scale, with 1 being unfamiliar and 5 being very familiar). Despite this, they stated that they felt confident performing the procedure after the session (4.13). Learners felt that the sponge model was useful (4.48) and should be included in ALSO (4.82). An early group of learners was asked to submit their checklist for review. All seven of these learners reported successfully completing all steps of the repair noted on our task checklist.

Discussion

The use of the sponge perineum has been a positive addition to our ALSO course and obstetrics curriculum, providing residents with skill practice and the faculty with an inexpensive, convenient,

ready tool to use in teaching. The model has been easy to use and provides practice in the repair of all perineal lacerations. Limitations are that some learners have difficulty visualizing the anatomical structures as represented on the sponge. It can be challenging to use this model with a group of learners with heterogeneous suture and surgical skills. The study also does not assess perineal laceration repair skill among graduates of the program, instead relying on learner expressions of confidence in their skills. The next steps for the sponge perineum are to develop an objective structured clinical examination (OSCE) to objectively measure residents' procedural competence. To evaluate actual patient care, we are considering a questionnaire comparing real patient experience with the sponge model and assessing the use of skills learned with the model. Overall, learners expressed increased confidence after practicing with the model and wanted it to continue to be a part of our ALSO

class. At OUFMRP, we feel we have developed an inexpensive, effective tool to teach perineal laceration repair to family medicine residents.

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