An Abscess Model for Teaching Incision and Drainage Techniques to Pediatric Residents

Abstract:

Background: With the rise in community acquired methicillin-resistant Staphylococcus Aureus, more children are presenting to the emergency department setting for evaluation and treatment of soft tissue infections. According to the ACGME program requirements, pediatric residents should receive training on minor surgical problems such as abscess drainage and develop competence in performing incision and drainage of superficial abscesses. As we move away from the “see one, do one, teach one” approach for teaching procedures to trainees, models for simulation need to be created.

Objective: A simple model was developed to simulate a skin abscess. This model was used to teach incision and drainage techniques to pediatric residents.

Utility: The abscess model became part of a pediatric intern emergency department skills workshop. Incision and drainage techniques were taught to pediatric residents using this model.

Conclusions: Creating a simple model to review the key components of incision and drainage techniques allows pediatric residents to practice these skills before attempting them at the bedside.

Background

The overall objective was to augment the educational experience of residents during their rotation in the Pediatric Emergency Department at Rainbow Babies and Children’s Hospital. With the rise in community acquired methicillin-resistant Staphylococcus Aureus, more children are presenting to the emergency department setting for evaluation and treatment of soft tissue infections. According to the ACGME program requirements, pediatric residents should receive training on minor surgical problems such as abscess drainage and develop competence in performing incision and drainage of superficial abscesses. As we move away from the “see one, do one, teach one” approach for teaching procedures to trainees, models for simulation need to be created.

In reviewing the literature, there are a few models of abscesses that have been previously published. One involves using a cadaver and a few others use raw chicken breasts. My goal was to develop a model that was easy to assemble and used readily available materials. Furthermore, I wanted to create a model that did not pose the health hazards that can occur when using raw meat.
Description of the Model:

Using common supplies, a model of simple and complex abscesses was created.

The support structure consists of Styrofoam with cavities carved out.
The cavity is filled with slightly diluted tapioca pudding.
Septations are generated using plastic wrap (Glad Press’n Seal®).
Modeling clay is used to simulate induration.
The whole structure is covered with a vinyl fabric that had some elasticity to simulate skin. The cover is secured with rubber bands.
Using this model, the residents are able to palpate for the induration, feel the area of fluctuance, and make the appropriate incision. The abscess model can then be irrigated, probed and packed.
The model is disposed of after one use.
Evaluation of the Model:

The abscess model became part of a pediatric intern emergency department skills workshop in October 2010 with favorable results. An informal survey of participants was performed. Of those who responded, all found the abscess model to be very or extremely beneficial and all agreed that the abscess simulation should be continued as part of the intern skills workshop in the upcoming year. The model has continued to be a part of the intern skills workshop in subsequent academic years.

Conclusion:

It has been very helpful to teach residents how to perform and I&D on a model before having them do the procedure on a patient. The residents expressed an improved level of overall comfort with the procedure. Teaching residents how to perform an I&D using this model fit easily into the already existing skills workshop. Building the models prior to the workshop did not take much time and the clean up was very easy. This model does not require any raw meat and can be used in a variety of settings (conference room, emergency department etc.) Once limitation is that if one aggressively palpates the simulated induration (modeling clay), the clay can cave in to the abscess material. Overall this inexpensive and easy to construct model is an effective teaching tool.
Bibliography

