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Assessment of anastomotic leakage: A Novel System for the Training of Surgeons to Perform a Tubular Anastomosis and Objectively Evaluate Anastomotic Leak

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Assessment of anastomotic leakage: A Novel System for the Training of Surgeons to Perform a Tubular anastomosis and objectively evaluate anastomotic leak., Nilson A Salas, MD. BCM, Houston, TX, 77030. Javier E Sosa, MD. Others, Maturin, Ismael Salas, MD. Others, Caracas, John R Boon, MD. BCM, Houston, TX, 77030. Desiderio Avila, MD. BCM, Houston, TX, 77030.

Introduction: Dehiscence of the suture line of an anastomosis can lead to reoperation, temporary or permanent stoma, and even sepsis or death. Few techniques for the laboratory training of tubular anastomosis use ex-vivo animal tissues. We describe a novel model that can be used in the laboratory for the training of anastomosis in tubular tissues and objectively assess any anastomotic leak.
Purpose: The first aim was to design and construct a model that resembles a human's most common tubular anastomoses. Secondly, the model should allow objective evaluation of anastomotic leakage. Third, we wanted a simulation that is less expensive and more convenient when training students and residents.
Methods: We used two 10 centimeter pieces of pig intestine. Each piece was placed and tied over a 20 cc syringe, leaving approximately 2 cm of intestine free from the distal end of each syringe. The proximal end of one syringe is connected to an infusion pump. This model was taped to a plastic platform with a 5 cm circular opening in the center. The opening in the platform corresponds to the area of intestine where the anastomosis will be performed and has a Petri dish underneath. After the anastomosis has been performed, the infusion pump is run with normal saline. Any leak is collected and quantified in the Petri dish.
Results: The model is being used in our department to evaluate the residents' laparoscopic urethrovesical anastomosis. The model has had great acceptance from our residents since any leak can be assessed objectively.
Conclusions: Our model has an advantage over other methods because it is easy to perform, low cost and reproducible. It can be used at early stages of surgical training to familiarize the surgeon with proper anastomotic techniques. The bloodless field provides an excellent setting for novice and intermediate students.