

641 What Is the Most Reliable Way to Secure A Surgical Drain?

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Introduction: Surgical drains are used by many specialities, we aim to determine the most robust method of securing them by comparing suturing technique, material and fixation angle.

Method: A Blake's drain was inserted into a piece of pork belly and secured using a standard 'three half hitch' technique with 3.0 Silk, Ethilon™ and Prolene™. For each suture type, drains were sutured in line, at 45 and 90 degrees to the course of the drain. The force needed for the suture to failure was measured and each repeated 3 times. Different suture techniques were then used to determine the strongest fixation.

Results: With the drain exiting inline the moment of failure was, on average, 1.25kg for silk, 3.5kg for Ethilon™ and 4.0kg for Prolene™. Increasing drain fixation angle required more force for the suture to fail. With Ethilon™ and Prolene™, the suture snapped before the drain slipped. Three half hitches was the strongest technique.

Conclusions: Suture material, technique and drain fixation angle had an impact on suture strength with Prolene™ outperforming Silk. We advocate using a 'three half hitch' technique with 3.0 Prolene™ to secure a surgical drain. It offers superior strength whilst reducing the risk of localised tissue reactions.