P047  SUTURE-TOOL: A SUTURING DEVICE FOR SWIFT AND STANDARDIZED ABDOMINAL APONEUROSIS CLOSURE

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Aim: Introduction Surgeons can reduce incisional hernia formation by adhering to standardized techniques for incisional wound closure. This is often neglected by the time a long operation is to be ended and can lead to the risk of developing an incisional hernia or a wound rupture. To address this issue, a suturing machine (Suture-TOOL) was developed for swift and standardized abdominal closure. The aim was to compare the user safety, speed, and suturing quality between Suture-TOOL and manual Needle-Driver suturing.

Material and Methods: Fifteen surgeons who were specialists in surgery, urology, and gynaecology as well as surgical trainees were invited. The Suture-TOOL was presented to the surgeons who read the instructions for use before starting the test. Each surgeon closed nine 15-cm-long incisions in a human body model; six with Suture-TOOL and three with the Needle-Driver technique. Gloves were examined for puncture damage. Endpoints were suture-length/wound-length (SL/WL)-ratio, closure time, number of stitches, learning curve, and glove puncture rate. A VAS-evaluation concerning different Suture-TOOL user impressions was completed.

Results: SL/WL-ratio >4 was 98% for Suture-TOOL versus 69% for Needle-Driver (p < 0.001). Suture time was shorter for Suture-TOOL (p = 0.013). The median SL/WL-ratio was similar between the groups. The learning curve plateaued after three closures using Suture-TOOL. Two glove punctures were detected—all in the Needle-Driver group. Suture-TOOL received high VAS scores for all measured functionalities.

Conclusions: Suture-TOOL is a promising device for clinical use. It is safe, easy, and fast resulting in a high-quality suture line with a short learning curve and a high functionality ranking.