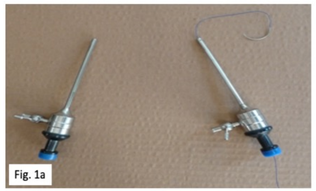
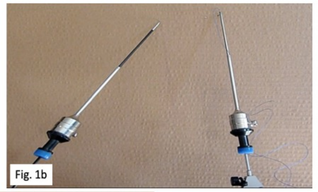
THE GEA SLIDING EXTRACORPOREAL KNOT FOR COMPLETE MINI-LAPAROSCOPIC (3MM) PROCEDURES: TECHNIQUE AND VARIANTS FOR THIS APPROACH

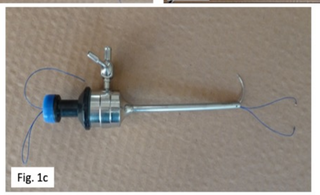
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The Gea knot is a sliding extracorporeal knot that has proven to be simpler, quicker, safer and cheaper compared to other knots; with the development of the mini-laparoscopic techniques, one obstacles is the lack of advance instruments, relaying the hemostasis and tissue approximation on the endoscopic suture. For this reason, the aim of this technique is to show the modifications to the original technique to occupy the Gea knot in mini-laparoscopy procedures.

The procedure begins by inserting the needle and all the suture trough the 10-12mm optical trocar, then the end of the suture is extracted from the cavity trough the minilaparoscopic trocar and we pass the needle through the desired tissue, extracting the suture near the needle trough the same trocar, taking in mind that the needle will not pass the trocar, staying right at the end of it (Fig1).


Fig. 1a


Fig. 1b


Fig. 1c

Identify the 3 strands of the suture; 2 of the loop (one non-sliding with the needle and a sliding strand) and a free strand. The knot will be performed using the sliding and the free strands as usual. First, we make 2 revolutions with the suture end of the free strand around the sliding strand; a third revolution is done using suturing end of the free strand around both strands creating two triangles inside the loop of both strands. Then we insert the suturing end through distal triangle of the loop, then it is pulled up through the proximal triangle of the loop, finalizing the knot (Fig 2).

Finally the knot is fixed in place, tightening the knot by firmly pulling the sliding strand and pushing the knot with a knot pusher. At the end we cut the suture, grab the needle and we are ready for the next knot (Fig 3)

This technique have been proven in multiple minilaparoscopic procedures, highlighting the complete fixed non-deformable fundoplication (Gea fundoplication) created for the treatment of GERD, where a mean of 13-16 knots are needed.

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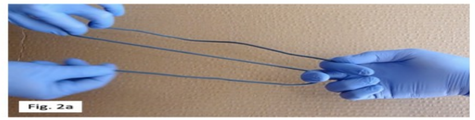

Fig. 2a


Fig. 2b


Fig. 2c


Fig. 2d

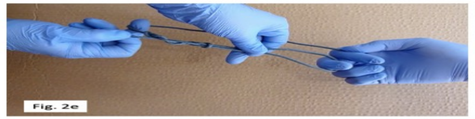

Fig. 2e


Fig. 2f

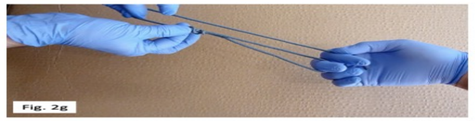
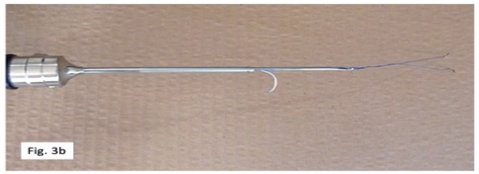
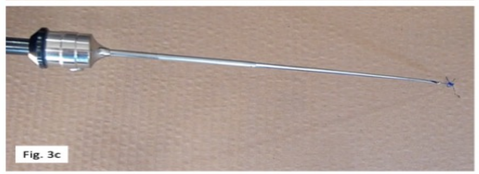

Fig. 2g

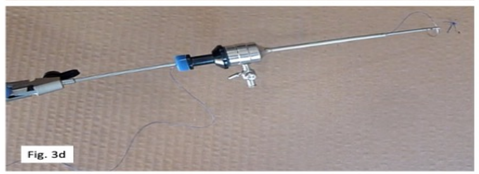

Fig. 2h

The described technique described allows the surgeon to perform procedures with completely mini-laparoscopic(3mm) trocars, without rectifying the needle or the need to remove and continuously insert the trocar into the cavity, facilitating and optimizing the procedure.


Fig. 3a


Fig. 3b


Fig. 3c


Fig. 3d

References
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