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A SIMPLE WIRELESS ENDOTRAINER FOR SURGEONS MADE UNDER 10 MINUTES - AN INNOVATIVE TOOL

Surgery

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KEYWORDS

LAPAROSCOPY, ENDOTRAINER, WIRELESS, SIMPLE, INNOVATION

AIM

The aim behind designing this endotrainer is to promote basic laparoscopic skills and to inculcate and master the technique of endo-knotting.

METHODOLOGY

PREQUISITES:

Things that are required for creating a wireless endotrainer at home are

	PREREQUISITES	THINGS WE USED
1	Smart Phone With Camera	Samsung S7 Edge
2	Tablet/ Laptop (Wifi Enabled)	Lenovo Laptop
3	Remote Camera Application (To Be Installed On Phone)	Droidcam Client Available On Playstore
4	Transparent Box With Fibre Sheet	Plastic Box (25 X 25 X 25 Cm) Fibresheet (25 X 25 Cm)
5	Laparoscopic Instruments	Expired Laparoscopic Intruments (Needle Holder, Grasping Forceps, Scissors, Suture Material- Prolene 1-0)
6	Adjuncts	Thermocol And Adhesives (Torch: Optional)

Table 1: Prerequisites that are needed and what we had used in our model

THE STEPS OF MAKING AN ENDOTRAINER UNDER 10 MINUTES

Step 1

Place the fiber sheet over the plastic box. Place thermocols, rubber tubes, suture material with needle inside the box. (Placement of a torch inside the box is optional)

Step 2

Download/install an application to the phone and tablet/laptop allowing the phone camera to act as a remote camera (we used DroidCam Client available on Playstore).

Step 3

Port site holes were made on baseball diamond concept to achieve the ergonomics.

Step 4

Keep the mobile over the fibersheet and turn on the application in both smartphone and the laptop to visualize.

Step 5

Obtain laparoscopic tools (out-of-date equipment are often available) and the trainer is ready.

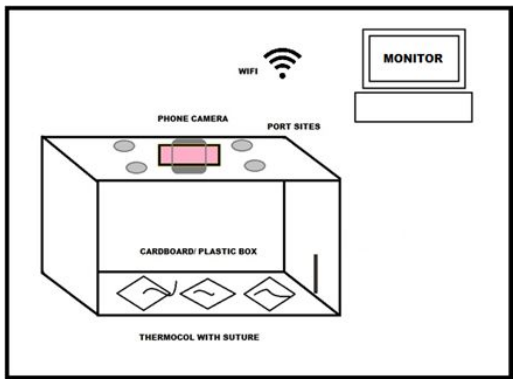

Fig 1: Illustrative representation and template of home-made endotrainer

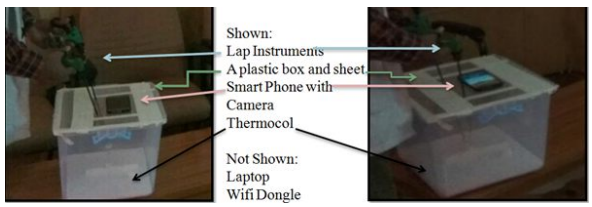

Fig 2: Home-made endotrainer model

Fig 3: A Resident practicing endo-suture with wireless endotrainer. (Laptop is connected to a Projector for demonstration)

CONCLUSION

- As Minimal Invasive Laparoscopic surgery has become the future of surgery, every surgeon are expected to hone the skills of laparoscopy. Endotrainers are developed for this purpose.
- As they are being too costly and hefty in size, we have deviced a *easy to do, cost effective, easy to carry,* ***cable-free and wireless*** *endotrainer* as an alternative that can be constructed in **under 10 minutes.** It is easy to mount and dismount and can be used for practice at anytime.

- This is not a substitute for surgical practice but, nonetheless, a useful tool in developing laparoscopic skills.

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