Title: Reducing the learning curve of interlaminar full-endoscopic discectomy : Mushroom model-simulation training

Authors : Alexandre Simonin[1], Stefanie Troxler[2],Sakana Iselin[2], Kyriakos Papadimitriou[1], Khalid Al-Taha[1], Etienne Chaboudez[1], Leo Weman[1], Gregory Zegarek[1], Karen Huscher[1], Jean-Yves Fournier[1]

1. Neurosurgery, Sion Cantonal Hospital, Switzerland
2. Product Specialist & Internal Education, Stoeckli Medical, Switzerland

Hôpital du Valais
Spital Wallis

Introduction

The very difficult learning curve remains one of the main obstacles against the widespread diffusion of interlaminar full endoscopic lumbar discectomy (ILFED)[1-9]. One solution to overcome this learning curve is training with deliberate practice. As realistic models are relatively expensive and cadaver workshops not readily available, we developped a simple and cheap model to train the key steps of the procedure.

Purpose/Aim

To describe a cheap simulation model used to reduce the learning curve of the interlaminar full-endoscopic discectomy.

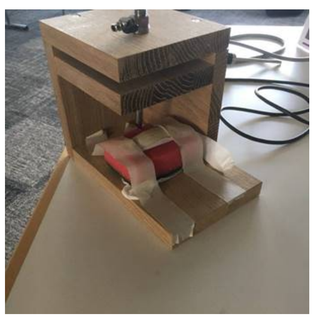


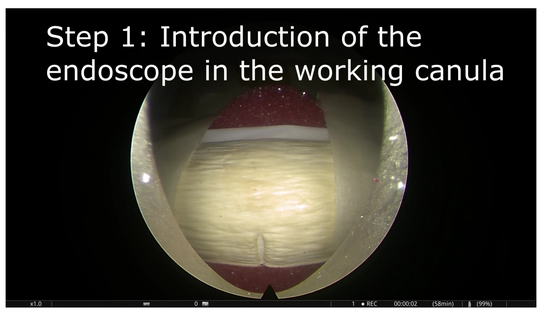
Fig.1: Simple and cheap model made of king oyster mushroom stalk, glove finger, sponge, and cotton wool.

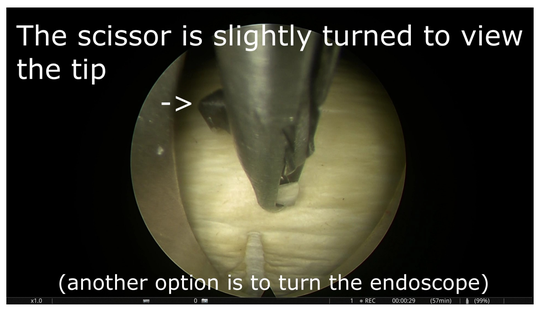
Fig.2: Model simulation setup.

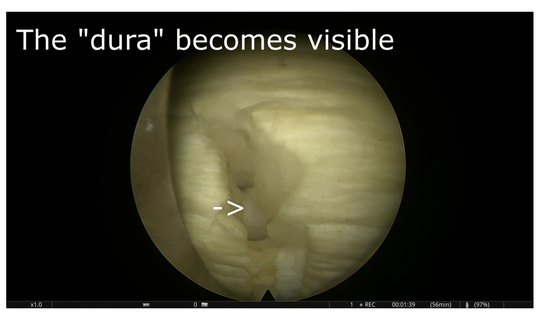
Materials and Methods

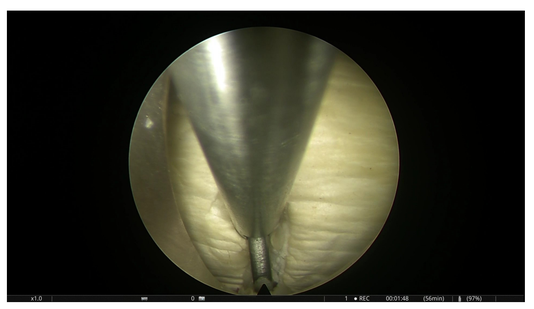
A simple and cheap model was designed. It consists of a king oyster mushroom stalk, a glove finger, a sponge and cotton wool (Fig.1). In order to fix the model to the table and to simulate the level of the patient's skin whereupon the hand of the surgeon relies, a wooden holding device was also used (Fig.2). As the simulation model was considered realistic enough, we determined 8 key steps to train in deliberate practice (Fig.3 : 1-8), explained on a didactic video (supp.)

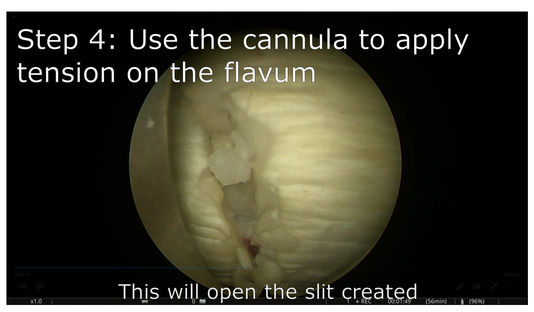
Fig.3 : Key steps to train ILFED in deliberate practice on the cheap model

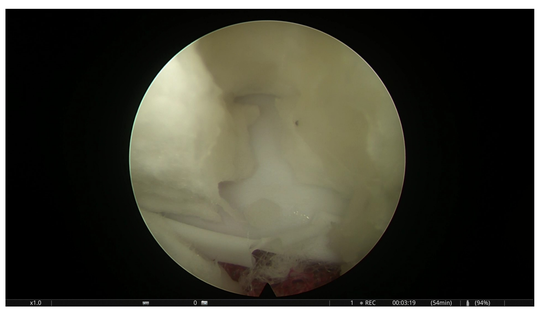


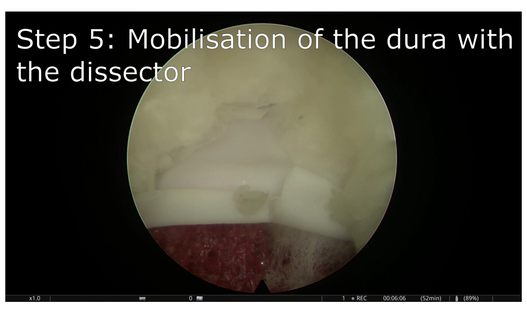


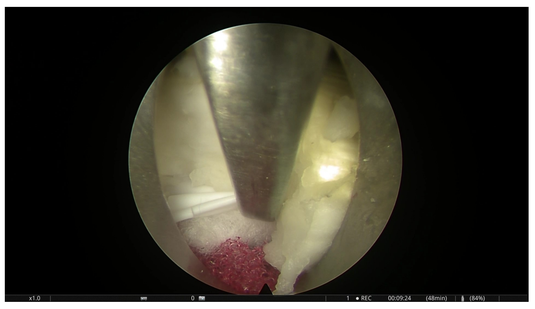


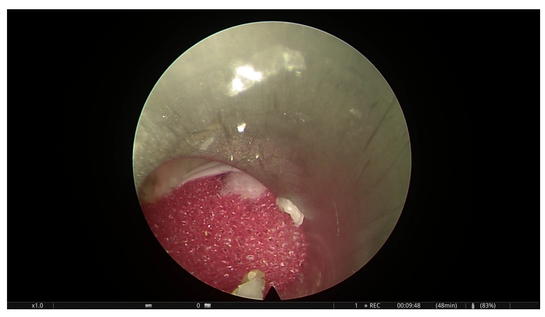


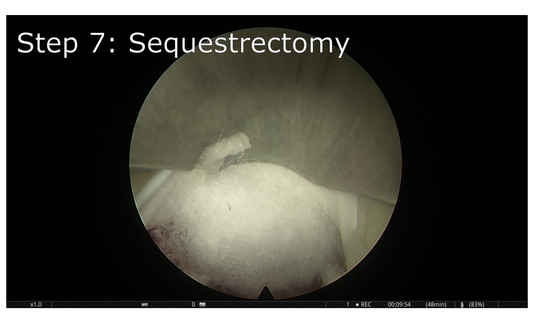


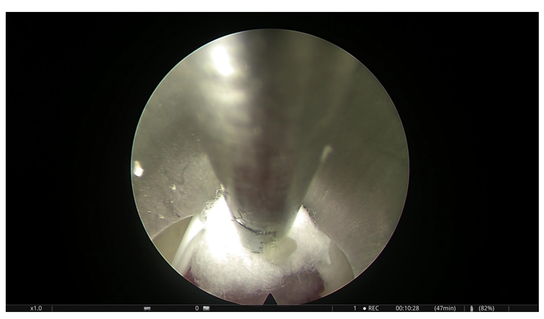


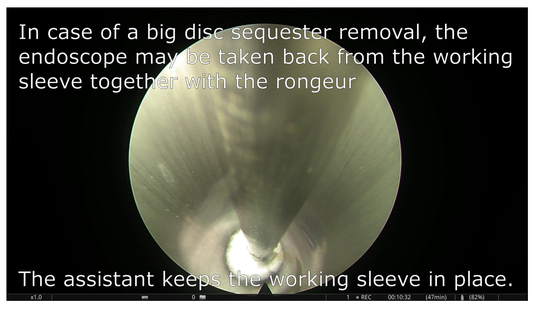


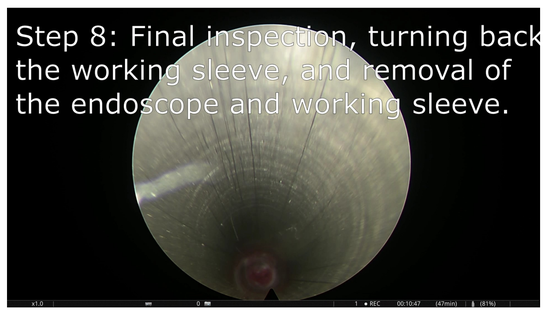












Results

The model has been tested by colleagues attending an advanced ILFED training course on expensive realistic models. A step-by-step learning method using key steps was used. All colleagues evaluated the model as comparable and enough realistic to train key steps in order to reduce the learning curve and training costs.

Conclusion

We present an **affordable**, **simple** and **reproducible** training **model**, which allows for deliberate practice of the **key steps of the ILFED** procedure. The model may be used by surgeons **starting with spinal endoscopy** before practicing on more expensive training material, such as realistic models or cadavers.

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