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# Improvised tool to aid jugular vein cannulation in mice

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## Introduction

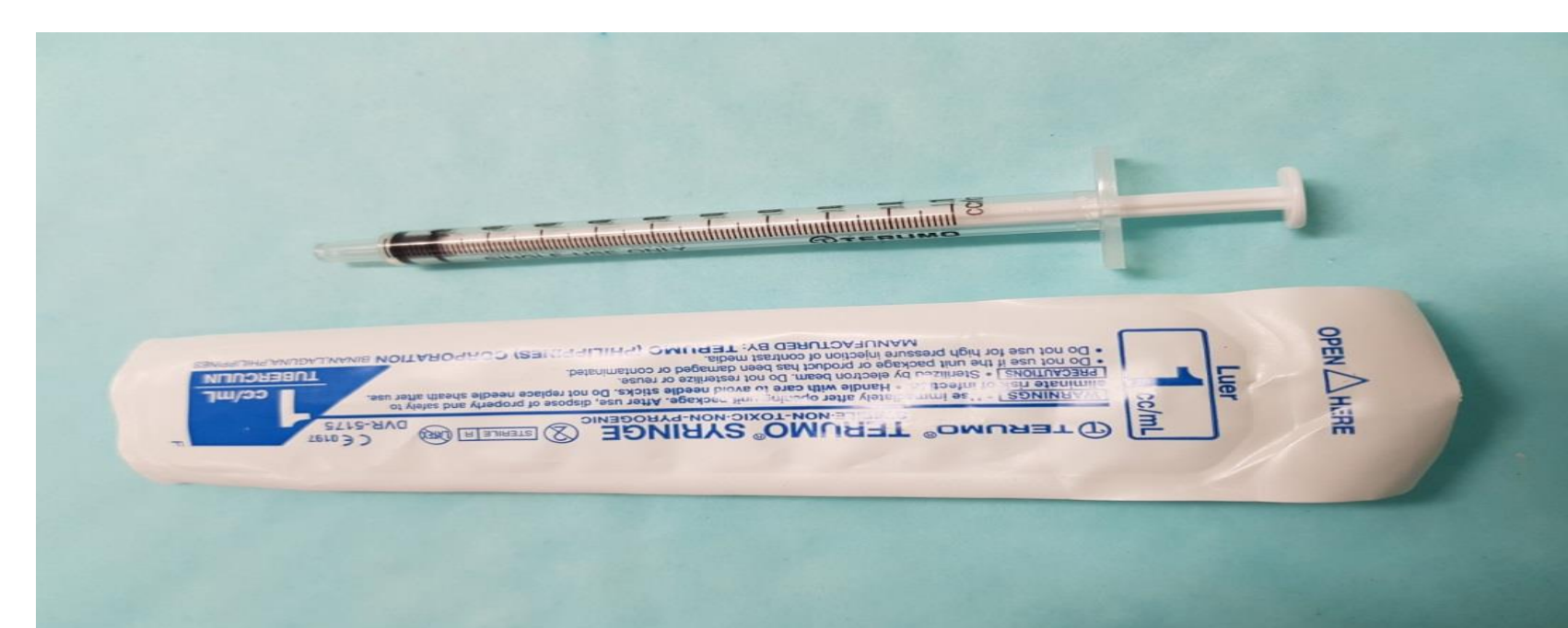
SingHealth Experimental Medicine Centre (SEMC), equipped with years of experience in performing procedures on animal models, provides not only technical services for animal research in its facilities, but also provides hands-on training on useful research techniques. The staff at the centre strives to develop techniques and improvise tools to improve research and welfare of animals. Recently, the team has devised a simple improvised tool to aid the cannulation in mice jugular vein which is quite a challenging procedure to perform due to its size. The cannulation is quite a common procedure in research studies, such as for the purpose of frequent administration of drugs through the intravenous route.

## Methodology

The improvised tool consists of an atraumatic 27G needle with 45 degree bend at approximately 1.5-2 mm from the tip which is attached to 1cc insulin syringe.

A mosquito artery forceps is used as an applicator to bend the delicate needle tip in avoiding needle-stick incident.

This improvised tool can non-invasively lift up the tiny vein at the mice's venotomy site for cannulation during insertion of catheter.



1ml insulin syringe



27 G Atraumatic needle

With aid of  
Mosquito Artery  
Forceps



Tip of needle bent at 45°

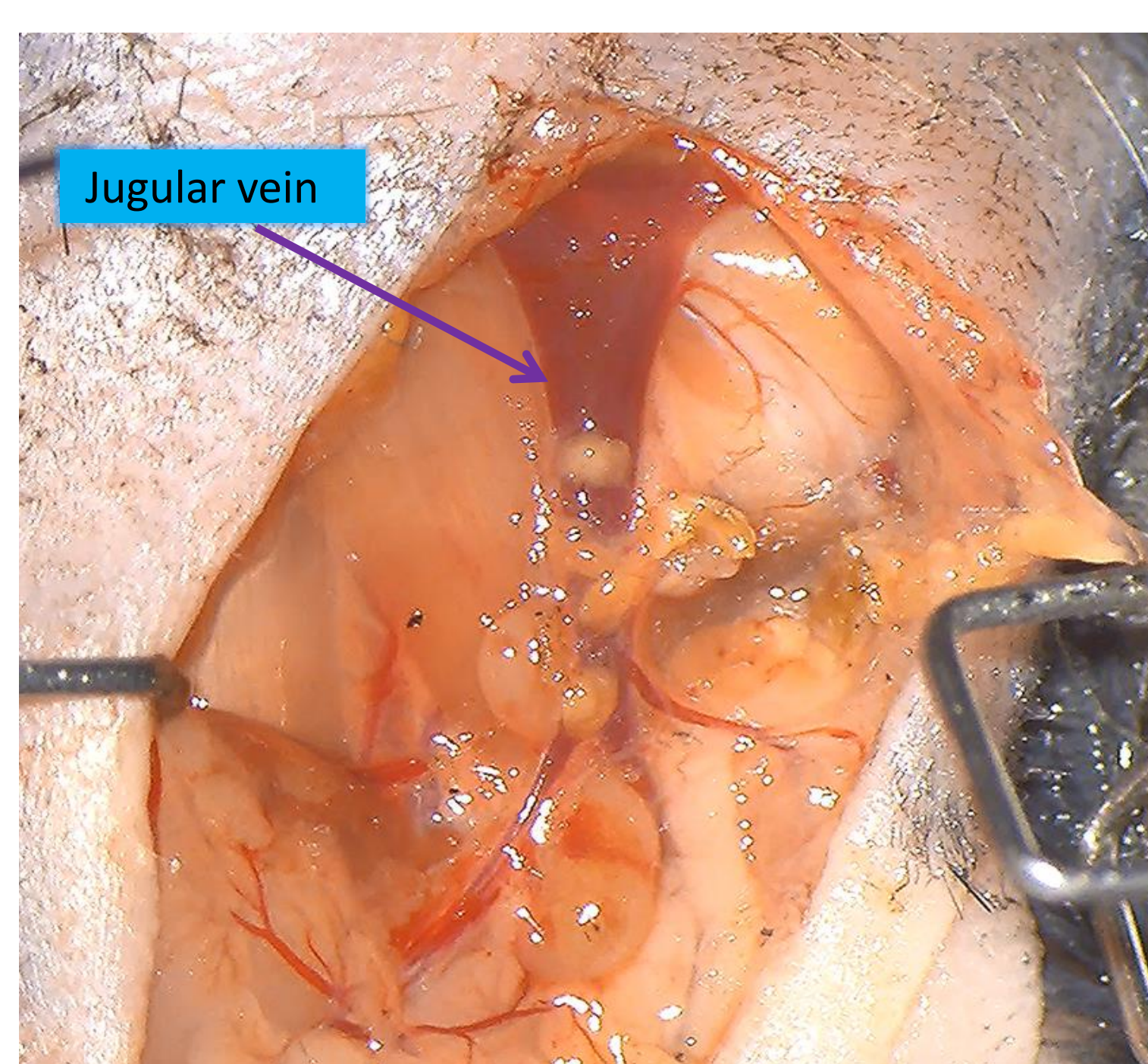


Vessel Elevator – An improvised device

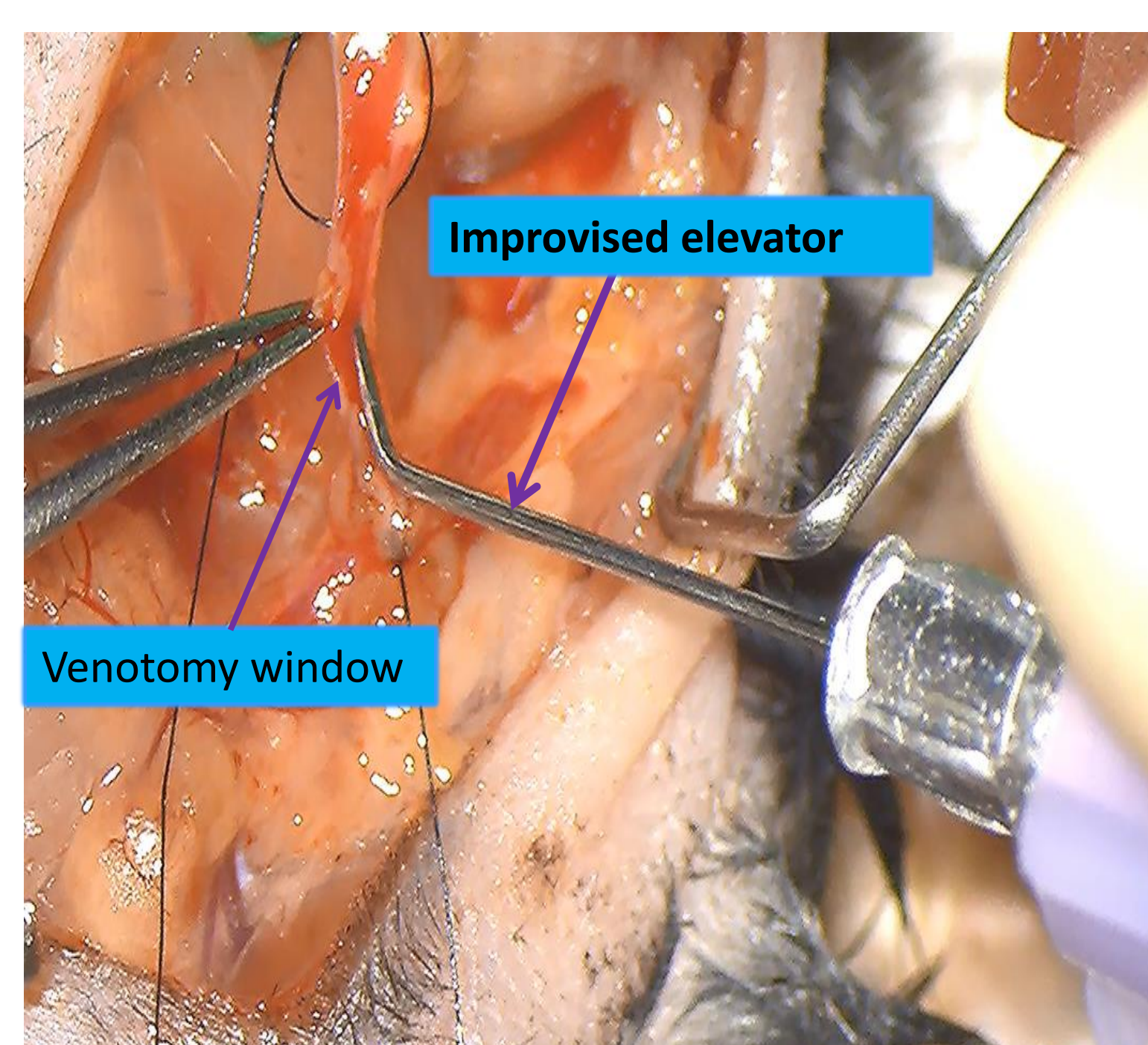
## Result

Mice jugular cannulation requires to be done under a surgical microscope. Beginners usually find the technique challenging as it is difficult to open the tiny venotomy window due to collapsed vein. Therefore, traditionally two jewelers forceps are required with one on each hand to lift and open the vein during cannulation. This means that it will require an additional person to perform the insertion of catheter.

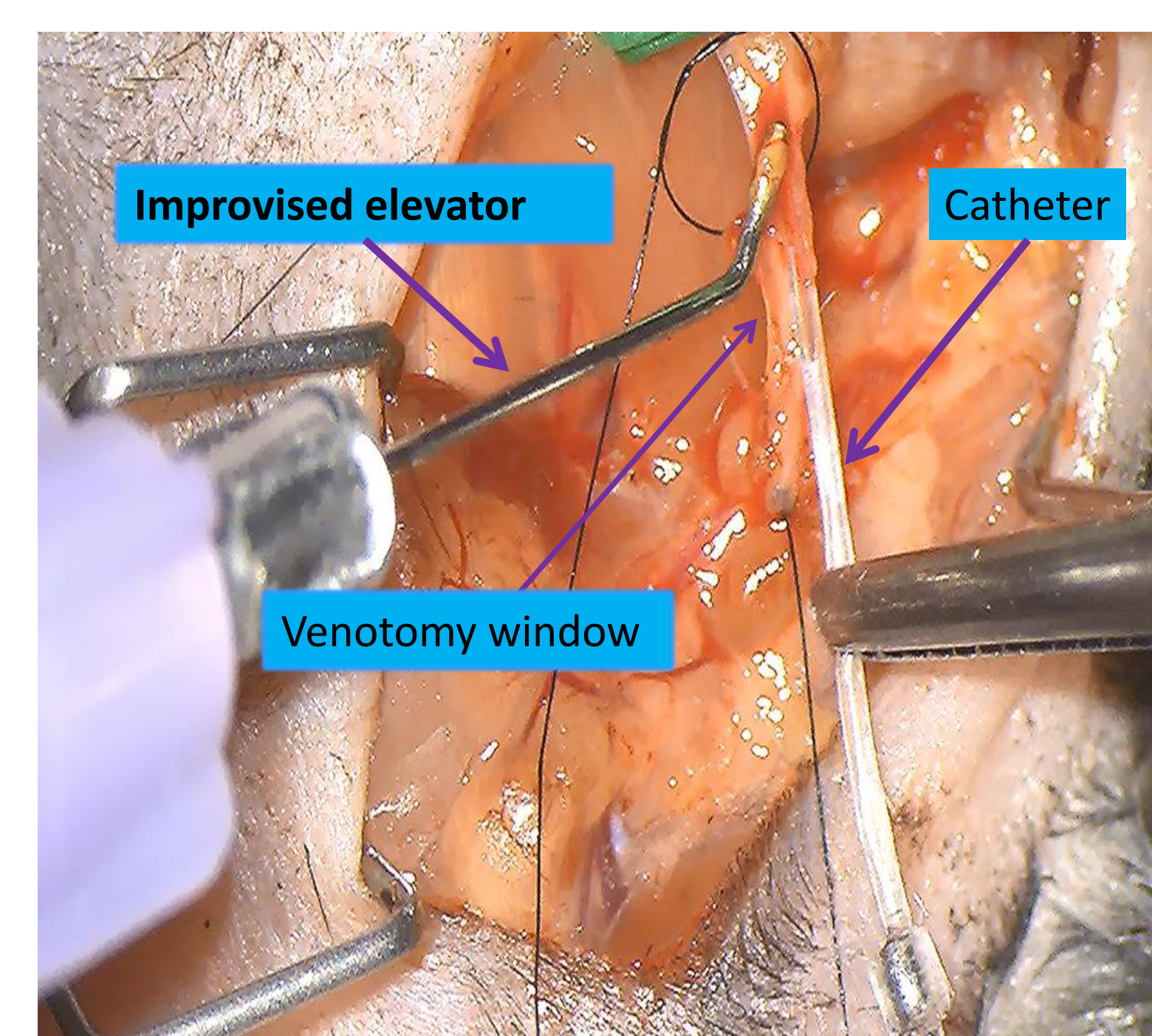
With this improvised device, one can easily lift up the vein under the microscopic field and perform the cannulation on their own without any assistance. The pictures below show that this simple improvised tool aided in elevating the tiny vein at the venotomy opening under the surgical microscope, which facilitated a smooth and easy insertion of cannula. This resulted in shorter cannulation time for beginners and prevented damaging the venotomy site during cannulation.



External jugular vein of mice



Lifting and elevation of jugular venotomy site with improvised elevator



Catheter insertion using improvised device

## Conclusion

The improvised tool made by easily obtainable supplies is very useful in helping researchers perform mice jugular veins cannulation. This helps to ensure animal welfare and support the success of research.