

# Creating a Microdissection Cautery Tip Using Disposable Needle

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## Abstract

The use of electrocautery is universal in modern day surgery. Through decades electrocautery has reformed from larger electrodes to smaller ones. The latest modification is the micro-dissection cautery with a fine electrode tip. We have modified the electrocautery tip to replicate the usage of micro dissection-cautery using readily available, low cost disposable needle. The idea is to replicate the benefits of micro-dissection needle with a low cost construct which can be learned easily, used widely to provide optimum surgical results to the wider sections of the society. A video demonstration for creation of the micro-dissection cautery construct is also demonstrated.

**Keywords:** Aesthetic surgery, Colorado needle, microdissection cautery

The use of electrocautery is universal in modern day surgery. Historically, it was first used way back in 1909 to remove tumors.<sup>[1]</sup> Through decades electrocautery has reformed from larger electrodes to smaller ones.<sup>[2]</sup> The latest modification is the microdissection cautery with a fine electrode tip.<sup>[3]</sup> The sharp tip leads to a more concentrated electrical energy buildup during contact with the surgical field.<sup>[3]</sup> This in effect means that higher power density can be developed using lesser voltage current (from the conventional 40 W to less than 10 W).

It has been shown through various studies that the microdissection cautery due to inherent-focused electrical energy transfer leads to better wound healing and less tissue necrosis in the immediate vicinity of the target lesion.<sup>[4]</sup> This improved electrocautery usage has wider ramifications in all plastic surgery and more so in cosmetic surgery procedures due to the associated aesthetic concerns.

Commercially available Stryker Colorado microdissection needle is available for such purposes. However, it is costly<sup>[3]</sup> and hence wider usage is not warranted in low-resource setups.

We have modified the electrocautery tip to replicate the usage of microdissection cautery using readily available,

low-cost disposable needle. The idea is to replicate the benefits of microdissection needle with a low-cost construct, which can be learned easily, used widely to provide optimum surgical results to the wider sections of the society.

The creation of the modified microdissection needle probe requires three things: a monopolar cautery handpiece containing the electrode, an 8F G infant feeding tube (IFT), and a 5-mL syringe needle. The probe is prepared in operating room taking all sterile precautions. First, the shaft of the syringe needle is broken from the needle hub using artery forceps by to and fro motion of the artery forceps. Next, a length of approximately 2.5 cm is cut from the distal end of the infant IFT using a scissor. The cut segment of the IFT is then put over the electrode of the electrocautery handpiece such that it is snugly fit over the electrode. Finally, the shaft of the syringe needle is inserted within the space between the IFT and the electrode such that the shaft of the needle is in contact with the cautery electrode. This completes the construct

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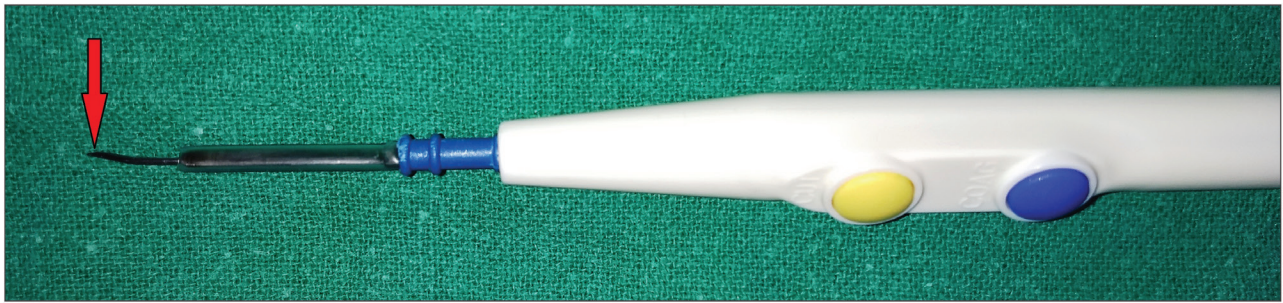
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**Figure 1:** Modified microdissection needle construct (red arrow indicates sharp needle tip)

of the modified microdissection needle probe [Figure 1]. The creation and usage of modified microdissection needle construct has been shown through Videos 1 and 2. The inherent advantages of this microcautery construct are as follows:

1. This technique is easy to master, versatile in application, and can be reproduced easily in all setups.
2. Microdissection cautery tip works on low power and hence causing less tissue necrosis, thereby better aesthetic outcomes and faster wound healing.
3. This innovative technique of creating microdissection needle is low cost, ubiquitous, and is a boon in resource-restraint settings.

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#### **Conflicts of interest**

There are no conflicts of interest.

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