

## **Radiofrequency and Electrosurgery**

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### **What is Radiofrequency?**

Radiofrequency (RF) induces thermal destruction of the targeted tissue by an electrical current at a frequency of 1.5 – 4.5 MHz (RF). As the electrode tip is not heated, there is minimal thermal damage to the surrounding tissues, producing good esthetic results.

### **How does Radiofrequency work?**

Radiofrequency (RF) surgery involves passage of radio waves in the frequency of 1.5 to 4.5 MHz. In case of skin lesions, the most commonly used frequency is 3.8 MHz. A radio-surgical unit consists of an electrode, a ground plate and a transformer. The radio waves generated, travel from the electrode tip to the lesion and return to the unit through the ground plate. Radio energy produces steam and vaporizes the tissue fluid resulting in cutting and coagulation of the tissues.

It has three modes of operation: (a) Cut, (b) cut and coagulate and (c) coagulate. Therefore, it can be used for various purposes like incision, ablation, fulguration, shave excision and coagulation. Because of the coagulation facility, hemostasis can be achieved and operation becomes easier and faster.

### **Where can be Radiofrequency used?**

Removal of growths such as skin tags, warts, seborrheic keratoses, syringoma, trichoepithelioma

Removal of moles (melanocytic naevi), dilated vessels (telangiectasia), Resurfacing of scars (chicken pox, acne etc.)

Removal of keloids.

Removal of skin tumors.

Removal of grey hairs Blepharoplasty (lifting of sagging eyelids)

In face lifts-called Non ablative face lift.

### **Does it require Anesthesia? Is it painful?**

The pain is mild - The procedure is done either under topical / surface cream anesthesia local injectable anesthesia.

### **How is the procedure done?**

Different types of electrodes are used depending on the type of lesion e.g. fine needle electrode, wire loop electrode, scalpel blade electrode etc. The lesion should be touched with the tip of the electrode. It generates very little heat as compared to conventional electro-cautery. While

operating, only the tip of the electrode should come in contact with the tissue. Actual contact of the electrode with the tissue should be very brief in order to prevent excessive damage to the deeper tissues. This can be accomplished by moving the electrode quickly. This results in negligible collateral damage, resulting in faster healing and minimal scarring.

### **Are there any Complications?**

Complications are uncommon and mainly occur due to an improper technique. It is a very safe technique.

### **Who can perform the procedure?**

RF surgery may be performed by a dermatologist who has acquired adequate training during post-graduation

### **What are the post procedure precautions?**

After the procedure dermatologist will prescribe a suitable oral or topical antibiotic. If the procedure is done on the face you have to take precautions to avoid sun exposure.

Sometimes, a small dressing is done over the procedure area which has to be taken care of as per the dermatologist instruction.

### **What are the advantages of the Radiofrequency?**

Rapid healing.

Minimal or no bleeding.

Aesthetically pleasing scars or no scars.

Lesser operating time.

Office (outpatient) procedure.

### **What is electrocautery?**

The Electrocautery machine has been standard equipment in the dermatologist's arsenal since ages. Skin cautery, which is a finer version of surgical cautery is being used for removal of amenable skin lesions.

The skin cautery achieves tissue destruction by two methods: electric current or spark and secondly by producing heat.

This heat production is uncontrolled and a lateral spread of this heat also destroys normal tissue unseen on gross examination. This leads to a larger area of tissue damage than intended, subsequently leading to visible scar or hyper-pigmentation.

Principally, electro-cautery produces current of less than 2 megahertz frequency and this is the cause of excess heat dissipation.

Electrocautery has been replaced by radiofrequency cautery by majority of the Dermatologist due to better cosmetic results by the later.