RadioFrequency in Arthroscopy
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I. Introduction
This presentation was on RadioFrequency. RadioFrequency (RF) uses rates of oscillations (rapid movements/vibrations in the back and forth motion) in the range of around 3KHz to 300GHz (which corresponds to the frequency of radiowaves, and the alternating currents which carry radio signals). RF usually refers to electrical rather than mechanical oscillations, but mechanical ones do exist. Through electrical oscillations it uses plasma heat to remove tissue, and most importantly coagulate bleeding areas. The RF current can radiate off a conductor into space as electromagnetic waves. This may cause fear of the condition of the skin and tissue. The RF currents to the body often do not cause the painful sensation of electrical shock, because of being put under, and due to the currents rapid change in direction which is too quick for the depolarization of nerve membranes and so it causes no nerve stimulus.

II. Methods
The process of removing tissue all takes place at the end of the probe. The main goal is to perform coblation, which is controlled ablation. Ablation is the removal or cutting of tissue and this offers the form of cutting or removing tissue by delivering large amounts of energy or heat. First, a plasma layer of reactive particles that disrupts the tissue's organic bonds is applied and rapidly disintegrates the tissue. This allows for large amounts of tissue removal with minimal damage to surrounding tissue. This plasma layer is created by a current flowing between closely spaced electrodes. It vaporizes a layer of conductive fluid, then the plasma layer is formed which is very reactive with energized electrons and ions. Next, an ablative layer is established quickly, using high current density, and then coblation occurs. There are many different surgical operations that may require RF for tissue removal and so, many forms of probes are available with different angles, number of electrodes etc. to fit any surgeons needs.

III. Discussion
RadioFrequency is constantly at use in the operating room everyday now. I believe this device/practice is truly great because it is tackling diagnosis such as cancerous tumors, and then even issues less severe such as a soft palate trim to prevent snoring. For future development, I presume RF will be constantly evolving. The shafts can still become longer and more flexible. Another thing that may be adapted is the required amount of energy to power the process. Lastly, there is always the direction into robotics where surgeons will no longer have to perform this part of the surgery.

REFERENCES