History of the “Bovie” device

“Bovie”: a generic term for electro cauterity device

How does it work?

-probe itself does not generate heat, but generate heat from tissue resistance

3000BC Egyptians treated tumors with cautery

400BC Hippocrates discussed heat to Tx Dx

1700s: Goldwyn introduced electrotherapeutics: 1. static electricity 2. Galvanization and muscle spasms by potential differences. (1786) 3. introduction of specific currents: Faraday and Henry

1881 Morton: oscillating 100 Hz: no shock/muscle contraction

1891 d’Arsenal 10 kHz w/o pain/muscle contaction

1893 d’Arsenal introduced Ruhmkork coil: heat tss living animals

1800s: voltaic pile and Leyden jar

1900: Reviere 1 Surgery w/ electric current to treat insomnia (accidental), same pt to treat carcinoma on hand

1909: Pozzi: Skin cancer tx w/ Oudin spark “fulguration”


1920: Harvard made Bovie assist. Prof. of biophysics “I have an idea there is a field between physics and biology-field that should be known as biophysics”

1926 (patent) William Bierman electrified pincer forceps to heat and cut tissues.

-At a certain frequency electricity could flow through tissue and cauterize tissue without creating muscle contraction.

Prior to 1931 (patent) Dr. William Bovie, a plant physiology Ph.D. at Huntingdon hospital for cancer research, developed circuitry for medical applications.

-Desk size electrothermal unit which was first device that could be used practically in open surgery for cutting tss and coagulation

1926: Teamed up with Dr. Harvey Cushing, “father of neuro surgery” and student of Halsted, with bovie for successful large parietal tumor resection at Peter Bent Bringham Hospital.

-Many specters, English surgical association, Frenchman, got sick from “fumes”, surgical assistant had to scrub out, medical student there as “war m blood donor” fainted.

-“I have been having a perfectly amazing time with Bovie, who has an electro-surgical apparatus powerful enough to electrocute a mastodon, and nearly as big...It is amazing that either the patient, Bovie, or the operating staff survive. Since the machine that he runs may electrocute anybody at any minute, I am trying to make hay while the sun shines, viz., while Bovie is around...tackling bone tumors that I never before thought I could possibly attack.”

Mishaps in development:

-Current short circuited through a metal retractor went through Cushing and exited his head light: “unpleasant”

-Under Ether anesthesia, Cushing “Bovied” into the frontal sinus causing blue flames: started rectal ether anesthesia.

Benefits: decreased blood loss, low infection rate, limited tissue damage.

Fun Facts:

Bovie other interests: Blacksmithing, plant photosynthesis, microfilm development, earthworm culture.

-Sold patent rights to manufacturing co for $1, mentioned not wanting personal reward for invention.

References: