

HEALING BY FIRE; SURGICAL CAUTERY

Awais Shuja

Abstract: Cautery is termed by several different cultural names since antiquity and was used extensively for every possible purpose including as a haemostatis, as a bloodless knife and as a means of destroying tumours. This device allowed for minimal Blood loss, littler tissue damage, and low infection rates. Bovie was not a surgeon but revolutionized surgery by propelling surgery into a new age by making possible to eradicate tumours which were deemed incurable in the past. Although widely accepted today, the application of electro surgery was considered a stain on long-standing traditions of surgery. In early days the use of these devices were detested.

Key words: Cautery, Electrosurgery, Coagulation, Bovie.

Treatment by fire is a traditional practice by healers and its use dates back to ancient times, shortly after the discovery of fire. The destructive power of fire or heat was converted by healers to healing and curing various diseases.

An ancient aphorism describing the power of fire became the leading principle of surgical development of cautery. It was proclaimed.

“Those diseases which medicine does not cure, iron cures; those which iron cannot cure; those which fire cannot cure, are to

be reckoned incurable”



FIRE STICK IN ANCIENT TIMES

Cautery is termed by several different cultural names since antiquity and was used extensively for every possible purpose including as a haemostatis, as a bloodless knife and as a means of destroying tumours.

ANCIENT TIMES

The use of fire cautery is traced in surgical papyrus written in 1550 BC. Egyptian surgeons used cautery for controlling severe

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Correspondence Address:

Dr. Awais Shuja, MBBS, FRCS, FCPS

Associate Professor of Surgery

Independent Medical College, Faisalabad.

1. Dr. Awais Shuja, MBBS, FRCS, FCPS

Associate Professor of Surgery

Independent Medical College, Faisalabad.

bleeding concerning wounds. They used instruments such as fire drill and hot lancets for cauterization used by antiquity Egyptian surgeons.

Hippocrates advocated the use of cauterization in various disorders and fully described cautery in his book Kitab-al-Fusil (Hippocratic Corpus). Accordingly cautery was used for the treatment of hemorrhoids by a white-hot iron rod until it becomes dried up.

In 10th century, Alzahrawi, surgeon and inventure recommended cautery as a form of treatment and developed and described techniques and special instruments called cauters to stop bleeding from wounds or injured arteries.

The transformation from fire to the use of electricity in surgery dates back to 1900, when a Parisian physician, Dr. Joseph Riviere, was using electrical currents to treat a patient for insomnia. Accidentally his hand touched an electrode and he noted the coagulating effects. He later in used this to remove an ulcer off hand of his patient.

During early 1900s, Simon Pozzi used high frequency, high voltage, low amperage currents to treat skin cancers, which the named as Fulguration.

Dr. Eugene-Louis Doyen improved his modification by attaching a grounding plate to generator placing the plate underneath the patient. He found this helped the current to penetrate deeper into tissues and called his method electro coagulation.

In 1910, Dr. William.L.Clark, medical director of Phila delphia, Pennsylvania, made a major

breakthrough is electro surgery. He modified the design of his predecessors by increasing the amperage and decreasing the voltage and created smoother current. This produced a hotter spark capable to penetrate even deeper. He coined the term dessication in 1914, because his new design was found to shrink tissues from dehydration.



WILLIAM. T. BOVIE

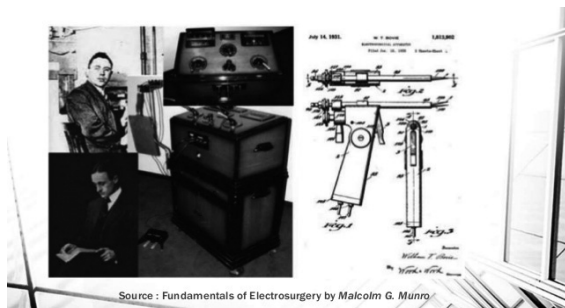
FATHER OF ELECTRO SURGERY

The modern day instrument of cautery was created by William.T.Bovie. He based his electro surgery unit of the work of past and constructed a diathetmy unit that produced high frequency current delivered by a "cutting loop" to be used for cutting coagulation, and dessication. The first use of this was done a Peter Brigham Hospital in Boston on 1st October, 1926, when Dr. Harvey Cushing used it to remove an enlarging, vascular myeloma from the head of a 64-Year old patient.

Liebel-Harsheim Company of cicinnati was asked to develop a commercial form of this electro surgery unit. To make this available Dr. Bovie sold his patent rights for just #1.

This device allowed for minimal Blood loss, little tissue damage, and low infection rates. Bovie was not a surgeon but revolutionized

surgery by propelling surgery into a new age by making possible to eradicate tumours which were deemed incurable in the past.



ORIGINAL BOVIE CAUTERY

Although he died a poor man but his name resonates in countless operating rooms around the world today “cautery please”.

Although widely accepted today, the application of electro surgery was considered a stain on long-standing traditions of surgery. In early days the use of these devices were detested.

Nonetheless, electro surgery, and surgeon who use this have endured the test of time and accepted as an essential tool in surgeon’s armamentarium.



MODERN DAY CAUTERY

Electro surgery is a continuously evolving field. The fire stick has now evolved into sophisticated, safe and precise tool performing specific function. The new devices of vessel sealing systems are on the scene and minimal damage with maximum efficiency is the new mantra.

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