

Video Laryngoscopy a brief history.

For those interested, you here find a short history of how we came to visualize the larynx and eventually use this technique for the live saving intubation.

Like in most developments in medical devices there was not one inventor or luminous idea, which led to Video laryngoscopy. Nor is there a neat timeline of consequent developments or further building on ideas.

It all starts with the sad story of Phillip Bozzini. Phillip was the brilliant son of an Italian immigrant who married a German wife. Out of this marriage Phillip was born in May 1773. As a bright kid he studied to become a physician, granted the title of Doctor of Medicine at the age of 24. He became head of a 120 bed hospital during one of the many French German wars, the war of second coalition.

Philip Bozzini was a gifted man. Mathematics, chemistry, painting, a real Uomo universale like Michelangelo.. Alas no business talents at all.

He invented "The light conductor". The first step to the invention of the laryngoscope and endoscopic medical appliance in general.

His "Light conductor" made it possible with the use of artificial (candle) light to explore the cavities of the human body. Ear, throat, bladder, vagina, rectum even laparotomy's!!

His invention was reviewed by a special medical committee and, after some minor adjustment, it was approved for use, except for vagina and proctoscopy.

Phillip Bozzini became more or less obsessed by his invention but it did not bring him any luck.

By political scheming steered by the church, there was a new review. This time by the Wien Medical School, under negative influence of the church leaders. This time the invention was deemed useless, "Only very small and unimportant parts of the body could be examined."

And was banned for use. Philip kept on working on the "Light conductor" working as an obstetrician to earn a living. He died of an infection at the age of 36 leaving a wife and three kids. His wife died half a year after Phillip leaving the kids who were given in foster care.

With his death his "the light conductor" died as well. He was decades ahead of his time with his endoscope. Bozzini was a prophet before his time.

After Bozzini there were several others with similar inventions.

A French man, Leveret invented a mirror and an instrument to remove polyps from the laryngeal area. Benjamin Babington presented his invention at the Hunterian Society in London in 1829. Not less than 50 years later a voice teacher, oblivious of the work done by Bozzini and the others, by a somewhat unexpected route invented a more accepted device. We are in Spain now, where the famous voice teacher Manuel Garcia is born as the son of a famous soprano and a voice teacher. A man born under much better stars than poor Phillip. His family is extremely musically gifted. After a career as a baritone singer he became a teacher at the conservatory in Paris and the Royal Academy in London. Interested in the workings of the voice he invented the first real laryngoscope or at least being the first one getting recognition for it. He presented his work "Physiological Observations on the Human Voice" to the Royal Society of London in 1854 and was eventually awarded an honorary

degree in medicine. He simply used a mirror reflecting sunlight and a dental mirror to see the vocal cords.

Ego, competition and jealousy are not new in the academic medical world. Also the invention of medical laryngoscopy led to a feud. Ludwig Tuck a professor in laryngology tried Garcia mirrors without success on patients in Vienna. A colleague, a physiology professor Czermak borrowed the mirrors from professor Tuck. This Czermack was a fascinating, somewhat weird person. He did write a lot, not only on laryngoscopy but also on the therapeutic benefits of mummy flesh.

Czermak solved the light problem, replacing sunlight by a candle light, magnified and concentrated by a lens. Czermak claimed being the first physician inventing a method to visualize the larynx. This too big chagrin of Tuck. The breach was never healed.

But we are not there yet.

The first physician to describe direct laryngoscopy was a Berlin doctor by the name of Tobold. He described a procedure with a female patient "Pressing down her very thin tongue" just to get a glance at the larynx. He failed to see the importance of his procedure just noted it as an anecdote.

The problems, which troubles direct laryngoscopy then and now, are light and exposure. The next two great steps were light bulbs and batteries. These eliminated the need for mirrors and the inevitable negative interaction between open flames and flammable anaesthetic agents.

A spatula on a handle with batteries was invented with on the tip of the blade a light source. This did improve but not solve the problems seen by doctors as Tobold.

Around that time an American doctor Chevalier Jackson developed a successful method to bring a tube into the trachea using direct laryngoscopy, saving hundreds of patients who would have choked on their own blood and mucus during surgery with inhalation agents in 1913. The same year doctor Henry Janeway developed a laryngoscope as we now know it. Specially designed for the sole purpose of intubation in anaesthesia. Batteries in the handle and a blade with a light bulb on the tip.

It would be a lot nicer if I could tell you about brilliant inventions in direct laryngoscopy. Sorry I can't. Basically in 2015 we still use the same devices as in 1913.

More than two hundred inventions were patented mostly on light, the shape and curve of the blades but no essential improvements were made. In anaesthesiology we ended up using mostly the changes made by Macintosh in 1940. We still use a flashlight.

Think of the surgeons who use robots for surgery in technological advanced endoscopic procedures. During the eighties of last century for many procedures endoscopic surgery became the standard.

It's not that intubation is a minor thing. On the contrary, intubation is probably the most critical moment in most surgical procedures. So it is hard to conceive that the first commercial video laryngoscope became only available in 2001. The GlideScope. It took 90 years for this leap to take place.

Dr John Pacy invented this basically simple device and patented it. The GlideScope is a perfect device, in its time, solving almost 100% of all previous intubation problems. It would be logical to think that now, 14 years later flashlight intubation invented before radio or TV would be obsolete. Not so. An estimate of 99,5% of all intubations is performed using

traditional direct laryngoscopy, with all its problems risks and injuries, most of it only causing discomfort to the patient luckily.

How can this be explained in the light of history?

Dr John Pacy was, not like Bozzini, a business man. He knew his invention was worth millions and he sold it clever. He build a multi-million dollar company. The first GlideScopes did cost over 30.000 dollars.

In surgery these amounts are not an obstacle, but, strangely anaesthesiology is a department were cost always has been an issue. Probably because it is viewed at as an inferior specialism, invented just to assist and facilitate the surgeon? This is still current, also denied, but a simple review of budgets will support this point of view.

Although most hospitals did buy a GlideScope and later maybe an equally expensive Storz C mac, it is reserved for complex or failed intubation.

The other hurdle is an internal one. Anaesthesiologists are a conservative bunch. The live of the patient is literally in their hands so they like to stick to methods they are educated with and comfortable with. The only instrument they use on a daily basis is the laryngoscope.

They are brought up with it as a surgeon is with a scalpel. They feel confident and safe using the traditional Macintosh laryngoscope.

So to get them to use video laryngoscopy, they must have the confidence that it can be used as a traditional scope as well. Anaesthesiologists will always be trained in direct laryngoscopy. However with the introduction of an economic video laryngoscope that can be used for direct laryngoscopy as well, you have the better of two worlds.

We think that the Medan Laryngoscope ticks all boxes.