HISTORY OF STETHOSCOPE

The most frequently used symbol of medical profession for last two centuries has been stethoscope. It has been source of pride and inspiration for doctors as well as public. It is not mere symbol, but a powerful tool for acquiring objective facts from subject. The invention, development and acceptability of stethoscope has followed the course of any other major scientific discovery. Stethoscope is a keystone of change depicting the introduction of clinical examination of signs in armory, of medical practitioners.

For centuries physicians have been listening to sounds produced by human body. The physicians used to listen to the chest by directly applying the ear to patient. This was called immediate Auscultation1. Reference to auscultation of breath sounds can be found in Egypt papyrus (c.1500 BC); the hindu Vedas (c. 1400-1200BC); and the Hippocratic writings2. Caelius aureliaus (c.500BC), da vinci, Ambrose pare, Harvey, Morgagni, Van sweeten, William hunter and others also referred to Auscultation.

Common observation and sociocultural barriers led to one of the most famous inventions of medical history. A young physician, Rene theophile hyacinthe lanec (1781-1826) working at Necker hospital France was the one to give most famous instrument and symbol of medical profession3.

On a fateful day in the fall of 1816 Laennec was scheduled to examine a young women. He was running late so took a shortcut through the courtyard of the famous Louvre. He saw few kids playing with wooden beam. While one child held the beam to his ear, other tapped nails against opposite end: Kids heard transmitted sound at other end. This simple pass time hobby inspired a discovery which changed physical examination forever 4. Laennec needed to listen to the chest of an obese woman. Rather than place his ear on the patient's chest he recalled his observations of kids and instead he rolled several sheets of paper into a cylinder and used this to auscultate his patient's chest. He was amazed by what he heard:

“I rolled a quire of paper into a kind of cylinder and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased to find that I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of my ear.”

De l’Auscultation Mediate5.

Laennec then embarked on
duplicating this crude device with a wooden cylinder. He came up with a hollow tube of wood, 3.5 cm in diameter and 25 cm long. It was composed of two pieces of hollowed wood with a conical shape at the end of one of the piece allowing an attachment of a conical shaped structure with hollow brass cylinder inside it. The conical shaped attachment was used when calculating the heart and removed when listening to the lungs.

Laennec initially referred to his device as “le cylinder”⁶. He presented his findings and research in academy of sciences in paris 1818, in 1819 he published his masterpiece, De auscultations mediate on traitedu Diagnostic des maladies das peurnous et du coer.

He renamed his invention and was named stethoscope originating from greek “stethos” chest and “scope” meaning view⁶.

This simple device by laennec had profound effects on functioning of doctors and opened a new world for physicians. Initially it did not gain wide acceptance. Within 2-3 years it was spread all over Europe and north America.

Physicians not using stethoscope were considered backward and ill equipped. However widespread use sparked a variety of modifications in material and structure of stethoscope.

This was the era of monaural stethoscope. In 1829 Nicholas Cummins of Edinburgh made putridly flexible stethoscope of two right wood tube connected by a joint⁷. He launched the idea of binaural stethoscope. Further CJB Williams made a binaural stethoscope, using a nipple of bent lead tubes, but lack of availability of flexible material was an obstacle in further evolution on binaural.

Quarter a century after Laennec’s discovery in 1856 George Phillip common developed a Binomial stethoscope similar to modern stethoscopes. This was end of monaural devices. Cummins instrument had woven tubing, wooden chest piece, ivory ear pieces plus a broad rubber band to hold the latter in place. This design became standard and was in practice till end of 19th. Century. Science of Auscultation contemned to flourish.

In Dying years of 19th Century in 1894 RCM Bowles, and engineer of Brooklyn, Moss patented the modern form of diaphragmatic chest piece. This was the first with celluloid diaphragm called resonating stethoscope. In 1920 sprague combing bell with diaphragm in one chest piece.

In 1960 Dr. David littman, a Harvard Medical school professor created a new stethoscope that was lighter than previous models. It was
easier to use and much lighter, it included an open chest piece for the appreciation of low pitched sound, closed chest piece with stiff plastic diaphragm to filter and low pitched sounds. This stethoscope became integral component of quintessential image of modern physician.

At end of 20th Century electronic stethoscope of different sorts arrived on scene but these devices have generally provided only a minimal level of improvement. Another reason that electronic stethoscope could not hold foot because explosion of better imaging has significantly taken over the diagnostic process.

Looking back the simple discovery of Laennec in 1816, gave us a fascinating Gadget and was not simply an aid in diagnosing patients but the symbol of doctors power. It was irony of nature that within a decade of his invention Laennec was diagnosed to have tuberculosis with his very own stethoscope and passed away in 1826.

Two Centuries following invention of stethoscope its very existence is under threat. The art of use of stethoscope and skills of Auscultation is being overwhelmed by the elaborated images by various scans juchas X-rays, CT scans, MRI’s, etc.

Who knows what lies ahead for the stethoscope, however it will live on as the symbol of physicians power. I will quote from sir John Forbes, in Preface of the 1st edition of Dr. Laennec’s De l’auscultation mediate (1821).

“It must be confessed that there is something even ludicrous in the picture of grave physicians formally listening through a long tube applied to the patient's thorax, as if the disease within were a living being that could communicate its condition to ensue with out”

This tells us that we are to back to where we started. The development of high tech imaging has pushed the stethoscope on the back seat. However stethoscope still carries clinical and symbolic value and is irreplaceable.
## References


