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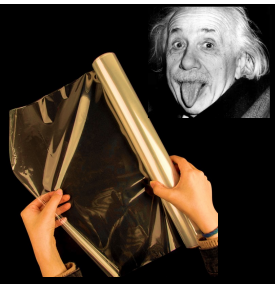
Anatomy of a New York
Aneurysm Story Wrapped
in *Cellophane*"



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Frank J Criado, MD
MedStar Union Memorial Hospital
Baltimore, MD USA

Potential COI: NONE

Albert Einstein was born on March 14, 1879, in Ulm, Württemberg, Germany into a secular, Jewish family. The boy did not speak full sentences until he was 5 years old, worrying his parents he might be developmentally delayed.

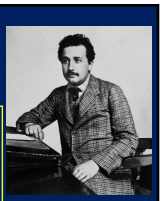
- *1905 was Einstein's Annus Mirabilis when the 26-year-old Patent Office clerk published 4 papers in Annalen der Physik containing theories and conceptions destined to transform Physics and change the world.*

1.The first paper explained the *Photoelectric Effect* which established the energy of the light quanta and was the only specific discovery mentioned in the citation awarding Einstein the 1921 Nobel Prize in Physics.

2.The second paper explained *Brownian Motion* which established the *Einstein Relation* and compelled physicists to accept the existence of atoms.

3.The third paper introduced *Einstein's Special Theory of Relativity* which proclaimed the *Constancy of the Speed of Light* and derived the *Lorentz Transformations*. Einstein also examined *Relativistic Aberration* and the *Transverse Doppler Effect*.

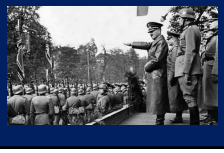
4.The fourth, a consequence of special relativity, developed *The Principle of Mass-Energy Equivalence* expressed in the equation ***E=mc2*** which led to the discovery and use of *Nuclear Power* decades later.



AE in 1905, aged 26

His first wife Mileva Marić, Serbian-origin physicist and mathematician, helped him structure and write these papers *without attribution or credit*.

In 1933, Einstein sailed to the United States, escaping likely death. "I do not want to remain in a state where individuals are not conceded equal rights before the law for freedom of speech and doctrine." That same year, the German Student Union instigated the burning of Einstein's books, along with the works of other prominent Jewish writers, including Sigmund Freud and Franz Kafka.



Einstein and Elsa, his 2nd wife, sailing to the USA

Einstein's home in Princeton NJ 1935-55

Albert Einstein
Old Grove Rd.
Nassau Point
Peconic, Long Island

August 2nd, 1939

F.D. Roosevelt,
President of the United States,
White House
Washington, D.C.

Sir:

Some recent work by E.Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into a new and important source of energy in the immediate future. Certain aspects of the situation which has arisen seem to call for watchfulness and, if necessary, quick action on the part

WRAPPING EINSTEIN'S ANEURYSM WITH CELLOPHANE

For many years, Einstein had complained of abdominal pain associated with occasional vomiting. In the fall of 1948, he consulted Rudolph Nissen who was then the attending surgeon in charge of thoracic surgery at the Brooklyn Jewish Hospital. Nissen diagnosed the abdominal aortic aneurysm and recommended surgical treatment. In December 1948, Einstein was admitted to the Brooklyn Jewish Hospital and underwent exploration by Nissen in which a large abdominal aortic aneurysm was discovered and wrapped with cellophane. The late Ira Teicher, professor of surgery at State University of New York and Stony Brook, as well as the attending surgeon at the Long Island Jewish Medical Center, was in the operating room at the time of the exploration and recalls "that the aneurysm was very large. I can remember the yellow color of the cellophane that was used to wrap the anterior 2/3rds of the aneurysm. Mobilization of the posterior aorta was considered too dangerous at the time. He did extremely well in the postoperative period" (11). Three weeks later on 13 January 1949, Einstein was discharged and then took a six week vacation in Florida. He returned to work at the end of February 1949.

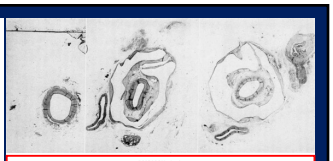
REINFORCEMENT OF AORTIC ANEURYSMS BY WRAPPING

J. K. Foote, M.D.
Portland, Ore.

1953

CONSIDERABLE confusion seems still to exist regarding reinforcement of aortic aneurysms by external wrapping or patching. This confusion includes not only the modus operandi of the wrapping but also the nature of the material required and the sterilization of this material to prevent it from losing its irritating properties.

It is necessary to understand that the film employed represents merely a vehicle or structural framework for an irritating chemical which produces the fibrosis. Reinforcement of the aneurysm does not depend upon the tensile strength of the enveloping sheath nor upon the tightness of its application, nor necessarily upon the complete encirclement of the aneurysm. However, the greater the percentage of aneurysm surface covered the more effective the reaction. In clinical practice it is rarely possible to encircle completely large aneurysms which already are eroding into the spine, sternum, or other adjacent structures.

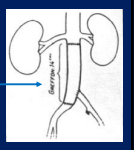


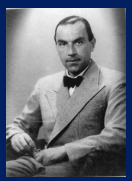
CONCLUSIONS

1. Polyethylene film wrapped around an aneurysm merely acts as a support for a chemical irritant which causes fibrosis and thickening.
2. Diectyl phosphate heavily applied to both surfaces of polyethylene film represents the most satisfactory irritant.
3. Melting the dicetyl phosphate into the surface of the polyethylene provides the most permanent anchorage.
4. Chemical sterilization of the film for twenty minutes in 1:1000 aqueous Zephiran solution has proved satisfactory without excessive loss of dicetyl phosphate.
5. Heat sterilization disturbs both the polyethylene and the dicetyl phosphate.
6. Prolonged soaking in any solution reduces the dicetyl phosphate concentration on the film.
7. External reinforcement of aneurysms by wrapping represents the most effective method of treatment to aneurysms unsuitable for resection.

Initial cases of direct resection of AAA
(with cadaveric homograft replacement)

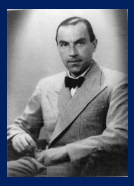
Schafer & Hardin (USA)	Mar 2, 1951 (pt died at 29d)
Dubost (France)	**Mar 29, 1951** (1st successful)
Julian (USA)	Oct 25, 1952
Brock (USA)	Nov 5, 1952
DeBakey & Cooley (USA)	Nov 6, 1952
Bahnson (USA)	Feb 14, 1953





Rudolf Nissen

- Born 5 September 1896 to a Jewish-German family in Neisse, Germany. Son of a well-known German surgeon.
- Served in a medical corps during WWI, sustaining a serious gunshot injury to his left lung causing life-long problems.
- 1921 – Assistant to German surgeon Ferdinand Sauerbruch (1875-1951) – University of Munich.
- 1927 – Assistant to Sauerbruch – Charité–Universitätsmedizin Berlin.
- 1933 – Head of surgery department, Istanbul University, after leaving Germany following Hitler's Jewish boycott.



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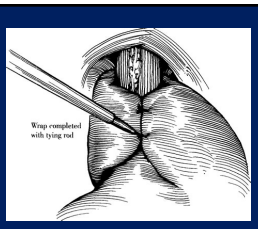
- 1933 – Head of surgery department, Istanbul University, after leaving Germany following Hitler's Jewish boycott.
- 1939 – Surgery research fellow at Massachusetts General Hospital in Boston for 2 years.
- Surgery Dept Head at Brooklyn Jewish Hospital and Maimonides Medical Center, Brooklyn, New York.
- 1952 – 1967 Head of surgery, University of Basel, Switzerland
- Died 22 January 1981 (aged 84).

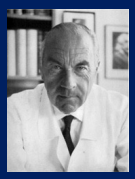
Key Contributions:

- 1931 – First pneumonectomy by a Western physician. Performed on a 12 year-old girl with chronic empyema secondary to trauma.
- 1936 – First fundoplication performed (following resection of the distal esophagus).
- **1948 – Nissen operated on Albert Einstein's abdominal aortic aneurysm (cellophane wrapping).**

Medical Eponyms:

- **Nissen fundoplication (Rx of GE reflux).**
- Also eponymously affiliated with a technique of closure of the duodenal stump, the ligature of periesophageal varices without esophagectomy, correction of hypospadia with scrotal skin, a kind of suture, a rib spreader and a forceps instrument.





His contributions to Surgery were quite remarkable:

- He wrote over 30 books and 450 journal articles.
- 1956: developed "Nissen fundoplication" for esophageal hiatus hernia surgery and Rx of GE reflux.
- With Sauerbruch, Nissen performed the first lung lobectomy and the first total pneumonectomy.
- 1949: he performed the first esophagectomy (for Ca).

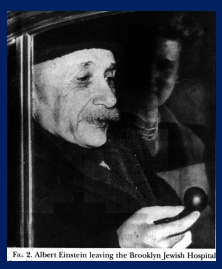


FIG. 2. Albert Einstein leaving the Brooklyn Jewish Hospital

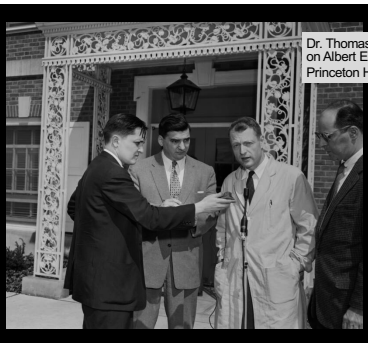
THE FINAL DAYS OF EINSTEIN AFTER RUPTURE OF THE ANEURYSM

From 1949 until 1955, Einstein lived in semi-retirement at Princeton University without much evidence of any further symptoms from the aneurysm.

Cohen JR, Graver LM. The ruptured abdominal aortic aneurysm of Albert Einstein. *SG&O 1990;170:455-458.*

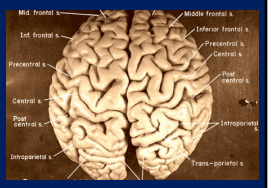
On Tuesday, 12 April 1955, he complained of abdominal pain, which became more severe the next day. On Wednesday, Rudolph Ehrmann and Gustav Bucky, two long time medical friends and consultants, were summoned to Princeton from New York. Both consultants and his personal physician, Guy Dean, believed that his aneurysm was leaking. He was given two sedatives that Wednesday, but on Thursday, he continued to experience a good deal of pain in the abdomen and back (12). At that time, Frank Glenn, then Chief of Surgery at the New York Hospital-Cornell Medical Center, was asked to consult and later related, "One spring morning, I was called in consultation to the home of the world's then most outstanding scientist, aged 76. Examination revealed that he had an enlarging abdominal aneurysm. Surgery was urgently indicated. I spent the day with him in his home.

Up to that time I had done only a few resections with replacement by cadaver vessels. I told him that should his aneurysm rupture further, he would die. He said he had lived a long time, had always been busy and enjoyed life, and why go to all the trouble of an operation." In rejecting surgical treatment, Einstein said, "I want to go when I want. It is tasteless to prolong life artificially. I have done my share, it is time to go. I will do it elegantly" (13).



Dr. Thomas Harvey details his autopsy on Albert Einstein for reporters at Princeton Hospital

Within seven and a half hours of Einstein's death, pathologist Thomas Stoltz Harvey *took out the famous physicist's brain from his cranium without approval from his family*. He hoped that neuroscientists of the future would be able to study the preserved brain and be able to learn what made the physicist so intelligent. Stoltz then took the brain to the University of Pennsylvania, slicing it into several pieces. He kept some of the samples to himself while giving the others to eminent pathologists.



Harvey's actions and continued obsession with Einstein's brain and unending pursuit to *uncover a physical basis for high intelligence* led – eventually – to the total undoing as a man and pathologist as he lost his job, his medical license, and his marriage.

Albert Einstein's desk exactly as he left it. The equations on the chalkboard are his "Unified Field Theory" that summarizes all physical force. This photo was taken hours after he died. (1955)