

Emil Herman Grubbé (1875–1960) with special reference to priority for X-ray cancer therapy

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The American scientist Emil Herman Grubbé (1875–1960) in Chicago, claimed to be the first to treat cancer with X-rays. However, there is some doubt about this claim as essential case history documentation in 1896 does not now exist. This brief biography describes Grubbé's claim to be the world's first radiation oncologist: treating a breast cancer patient. Reference is also given to the first use of X-ray therapy for pain relief. This was performed by Victor Despeignes (1866–1937) in Lyon, July 1896. X-ray therapy for pain relief was also administered by a Dr Voigt in November 1896 in Hamburg to a patient with cancer of the pharynx. The first verifiable priority claim for X-ray therapy was in Stockholm and can be credited to two general practitioners. Tage Sjögren (1859–1939) and Thor Stenbeck (1864–1914).

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Introduction

Priority for the first X-ray treatment of cancer, as distinct from priority for the first X-ray treatment of benign conditions such as naevi and lupus, has been claimed by Emil Grubbé (1875–1960) (Fig. 1) only in the X-ray literature of 1933 and 1949 [1–6] which is much later than January 1896 (only two months after the discovery of X-rays) when the treatment was alleged to have been performed. There is no doubt that Grubbé was an X-ray pioneer and eventually suffered from chronic dermatitis followed by radiation induced skin cancer. However, he was only 21 years old in January 1896 and was not awarded his MD degree until 1898. It is now generally accepted that the claim is fraudulent although in the early years of the 20th century it had been considered to be true and Grubbé's statement that he was the "founder of X-ray therapy" was correct.

Chicago, January 1896, breast cancer X-ray treatment?

Grubbé claimed [1, 2] that he received a letter on 29 January 1896 (this was only one month after the discovery



Figure 1. Emil Grubbé when a young man

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of X-rays) from a Dr Ludlam when the patient opened the door of his laboratory. "This will introduce Mrs Rose Lee who has carcinoma of the left breast. She is willing to have you make X-ray applications. I hope you can help her." (This letter has never entered the public domain.) Grubbé described how a Crookes tube was suspended three inches above the breast, healthy tissue was protected by lead sheet from a Chinese tea chest (a priority claim for X-ray protection) and the exposure time was about one hour. Similar applications were given daily until the cumulative effects were shown in the development of dermatitis. No subsequent follow-up was described.

Lyon, July 1896, stomach cancer pain relief

On 4–12 July in Lyon, Victor Despeignes (1866–1937) treated a 52-year old male patient with advanced cancer of the stomach. (Publication of this case was the first published X-ray therapy case history for cancer [7–10].) This patient was treated by fractions each of 30 minutes given twice daily with an overall treatment time of 8 days. The apparatus consisted of a pear-shaped vacuum tube, a six-cell battery and an induction coil giving a spark over a distance of 5 mm. At the end of treatment Despeignes noted a significant improvement in the condition of the patient and that opiates were no longer necessary. In the addendum to the case in the *Lyon Medical Journal* he stated that the improvement to the patient lasted only 4–5 days and the patient died on 24 July 1896 [8–10].

Dieter Kogelnik of Salzburg [11] discussing this case several decades later, assessed that with the apparatus used by Despeignes he would only have been able to generate X-rays up to 18 kV which at 2 mm tissue depth would only deliver 50% of the surface dose, and at 1 cm depth less than 10% of the surface dose. There was no mention by Despeignes of any skin reaction and therefore no biological effect would have been possible on the huge gastric neoplasm. Concerning pain relief, this might have been a *suggestive effect*. What was notable though, was the Despeignes attempted to outline the "borders of the tumour" on the skin of the patient before and after treatment. Despeignes work preceded that in Stockholm in 1899, but whereas Sjögren & Stenbeck were successful in their treatments, Despeignes was unsuccessful although I should be noted that he was not attempting *cure*.

According to Foray [9–10] Despeignes was first of all a hygienist physician. The conjunction of Pasteur's ideas, the discovery of X-rays and a probable technical help of the Lumière brothers led him to irradiate a cancerous tumour. He worked in Lyon 1866–1894 where he became a physician and researcher in parasitology, working on the quality of tap water and on tuberculosis. He then worked in Les Echelles in Savoie where he was a district physician. From 1907–1937 he was the Director of Town Hygiene in Chambéry.

Hamburg, December 1896, pharynx cancer pain relief

In November 1896, a Dr Voigt treated a patient with cancer of the pharynx and reported that there was significant pain relief. He delivered a report of the case to the Society of Physicians of Hamburg, but did not publish the case history in any medical journal [12]. However Leopold Freund (1868–1943) mentioned that the treatment had resulted in a heavy skin reaction, but because the patient died during this phase, the expected subsequent severe dermatitis did not manifest itself [13].

Stockholm, December 1899, cancers of the nose & cheek

The first verifiable priority claim for X-ray therapy was in Stockholm and can be credited to two general practitioners. Tage Sjögren (1859–1939) and Thor Stenbeck (1864–1914), who at the 19 December 1899 meeting of the Swedish Society of Medicine, simultaneously reported two successful cancer treatments [14]. Figure 2 shows Stenbeck's Roentgen Institute about the year 1900 when the same X-ray apparatus used for diagnosis was also typically used for therapy. These two cancer cases were also presented by Elis Berven (1885–1966) at the 1961 RSNA Annual Meeting [15]. The patient with a basal cell carcinoma of the nose had been followed up for 30 years and the patient with squamous cell carcinoma of the cheek for 2.5 years. Both had histological proof accompanied by photographs at follow-up. Sjögren [14] commented on dosimetry in 1899 in the following manner. "I want only to mention that the dosage of roentgen rays is at present very difficult. One has namely no safe method to measure their intensity or more precisely to measure the intensity of their active agent. One has therefore more to work on feeling, if I may say so, only on the basis of the experience one has been able to collect."

Hahnemann Medical College, Chicago

In 1896 Grubbé was a lecturer in chemistry and physics at the homeopathic institute which later became Hahnemann Medical College, Chicago. However, in 1896 he did not

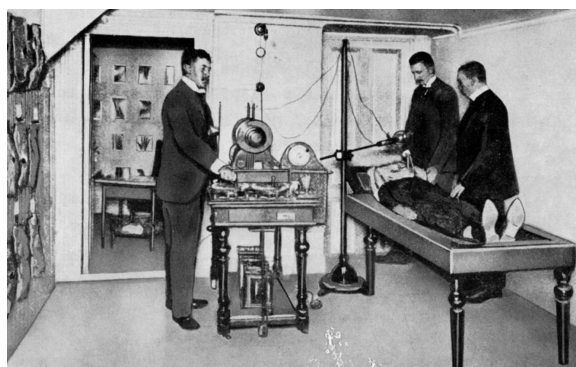


Figure 2. Stenbeck's Roentgen Institute, Stockholm, in about 1900 [15]

yet possess a medical degree. His MD was only awarded in 1898. He was described by del Regato [5] as an X-ray apparatus manufacturer and pharmacist-homeopath. His initial laboratory was at 12 Pacific Avenue, Chicago. He employed a German immigrant Albert Schmidt as a glass blower and they made and sold incandescent light bulbs and Geissler and Crookes tubes [4].

Illinois School of Electro-Therapeutics

In 1899 the Illinois School of Electro-Therapeutics was founded, teaching technique for both electricity and X-rays [2, 4, 6]. The School was situated in 1301-2-3 Champlain Building, Chicago. Officers were C.S. Neiswanger (President), E.H. Grubbé (Vice President) and A.B. Slater (Secretary & Treasurer). The Faculty taught electricity in gynaecology, electricity in diseases of the eye, general electro-therapeutics, electrolysis, neurology, radiotherapy and photochemistry. Grubbé's specialty was described as electro-physics, radiography and X-ray diagnosis [4].

Advertising in 1900 was the following. "This School is for physicians and is equipped with the most modern, up-to-date apparatus. All the rudimentary physics will be profusely illustrated and made plain even to the uninitiated in electro-therapy. No mail courses will be given and no degrees will be conferred, but a handsome engraved certificate of attendance can be obtained, if desired, after completion of the course. The courses will be of three weeks duration, and consist of both clinical and didactic instructions. A two weeks course will make you self-dependent. Write for further information, terms and printed matter."

The School closed in 1920, because of what Grubbé called "the disruption of postgraduate medical teaching produced by World War I" [1, 2]. Wilson [6] describes this comment as a defensive way to rationalise the advent of the more stringent standards for medical education that would close many such Schools. Grubbé estimated that more than 5000 students attended courses at the School before it closed.

Radiation injuries

As with many X-ray pioneers, he suffered from radiation dermatitis for which he was extensively treated, undergoing more than 90 operations. The radiation damage he received was described by Grigg [4] when he interviewed Grubbé on 22 July 1959 at the Swedish Covenant Hospital, Chicago and is reproduced here.

"Grubbé's left ala nasi was gone (with exposure of the nasal septum), as was his upper lip (with exposure of the dental plate); his left forearm and several fingers from the right hand had been amputated years before, and now he was hospitalised because of a mass in the right axilla (it turned out to be a metastatic lymph node, removed the next day). Grubbé had moderate loss of both vision and hearing,

yet he was relatively easy to contact. He tended to wander off into digressions, but seemed lucid as well as cooperative. When asked about early reports, Grubbé stated that he had written many such reports during his tenure as director of the X-ray Department at the Hahnemann Hospital in Chicago. He reminisced that in the very year 1896 he had been promoted to "Professor of X-rays in Union Medical College" (which owned Hahnemann Hospital). He seemed to think that some of the records might still be in existence. He also volunteered the information that he saved old documents in his home, and he invited me to come and visit with him, and perhaps search through those documents".

However, when Grigg visited Grubbé at the latter's home on 24 November 1959, Grubbé could not remember anything from the July discussions [4].

Biography funded by Grubbé's will

When he died he left his library and money in his will to the University of Chicago, but there was one stipulation: that a biography be written recounting his life and achievements. Paul Hodges (1893–1997) who was the longtime director of the X-ray Department eventually with reluctance took on this biographical task [3]. Unusually for a published biography there was much criticism of Grubbé and many acquaintances testified to his "relentless bitterness" which was thought to be due to his radiation injuries and the non-acceptance by radiologists of him being the "father of radiotherapy". Hodges is particularly biting in his comments



Figure 3. Emil Grubbé in later life.

[3, 6]. “A more disagreeable character can hardly be found in radiology’s history”. The more Hodges learned of Grubbé the less he liked him. Hodges in later years gave this advice to an historian. “If you’re going to be fool enough to leave your money to have your biography written, then try to lead an exemplary life. Failing that, for God’s sake remember to tell your lawyer to stipulate that it be a positive biography.

Grubbé’s bibliography

Grubbé claimed to have “written more than 125 monographs (he must have meant papers since a monograph is a small book) dealing with X-rays, electricity and chemistry in their application to medicine and the treatment of diseases” [2]. However, only 90 references are listed in his 1949 book [2] with none for the period 1919–1932 and the last reference listed dated 1948. The small selection given here shows the range of his publication topics. [16–47].

Conflict of interest: none declared

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