

HISTORY OF ONCOLOGY

The eminent gynaecologist Richard Wesley TeLinde (1894-1989) and his contribution to diagnosis of cervical cancer

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Summary

At the beginning of the 20th century, the relation of carcinoma in situ of the cervix to the invasive cancer was poorly understood, resulting in misdiagnosis of the disease and inappropriate treatment. The work of Richard Wesley TeLinde, chairman of Gynaecology at Johns Hopkins University

for almost 21 years, contributed to delineate the diagnosis of cervical carcinoma, providing suggestive evidence that carcinoma in situ often precedes invasive cervical cancer.

Key words: TeLinde, history of oncology, cervical cancer

Introduction

As early as 1886, Sir John Williams (1840-1926), Professor of Midwifery at London's University College noticed the presence of noninvasive epithelial abnormalities adjacent to invasive squamous cell carcinomas of the cervix, providing thus the first description of a superficial, non-proliferative lesion of the cervix [1]. Four years later, in 1890, Samuel Pozzi (1846-1918), in France, published his treatise of clinical and surgical oncology influencing the diagnosis and treatment of cervical cancer for almost half a century [2]. In 1900, the surgeon Thomas Stephen Cullen (1868-1953) noted and illustrated cancer in situ [3] while in 1908, G. Schauenstein and two years [4] later Isidor Clinton Rubin (1883-1958) provided excellent descriptions of this cancer that they called

“incipient” or “atypical lesion”, replacing the term “chronic cervicitis” [5]. The introduction of colposcopy by Hans Hinselmann (1884-1959) in the 1920s provided a new dimension in the assessment of cervical carcinoma while in 1932, Albert-Compton Broders (1885-1964), introduced the term “carcinoma in situ” [6]. However, its relation to invasive cancer was not clearly understood. In 1944, three years after the landmark publication of George Papanicolaou (1883-1962) and Herbert Traut (1894-1963) entitled: “The diagnostic value of vaginal smears in carcinoma of the uterus” [7], this relation was clearly described by Gerald Galvin and Richard Wesley TeLinde (1894-1985), making early cervical cancer a detectable and curable disease [8].

Richard Wesley TeLinde's life and work

Richard Wesley TeLinde was born on September 12, 1894, in Waupun, a small town in Wisconsin where his family, of Dutch origin, was established. After three years of undergraduate studies at Hope College, a small college in Michigan, TeLinde transferred to the University of Wisconsin for his premedical and medical education [9]. At that period, the University of Wisconsin was offering two years of medical studies and TeLinde was moved again, this time in one of the leading Universities of the USA, the Johns Hopkins University School of Medicine [10]. From the early beginning of his medical studies, TeLinde became passionate with histology, which explains his later interest in gynecological pathology. His medical knowledge was based in Baltimore masterpieces, including the work of the leading physician and one of the four founding professors of Johns Hopkins Hospital, Sir William Osler (1849-1919) [9]. Soon after his graduation, TeLinde was trained for few months in general surgery, under the supervision of Theodore F. Riggs (1874-1962), a Johns Hopkins graduate, in Pierre, a city of South Dakota. TeLinde was so impressed by his training in Pierre that when he became professor he was selecting, every year, a recent Hopkins graduate to go to Pierre and work with Riggs at St. Mary's Hospital [11]. In 1921, he became intern at the surgical department of the distinguished William-Stewart Halsted (1852-1922), the surgeon who popularized the use of surgical rubber gloves, introduced antiseptic methods and local anaesthesia and established an effective surgical treatment of breast cancer known as "Halsted radical mastectomy" [12]. From 1922 to 1925 he did a residency in the gynaecology department under the tutelage of Thomas Stephen Cullen (1868-1953), the founder of gynaecologic pathological laboratory, focusing also to histopathology under the supervision of Emil Novak (1884-1957) [9]. For almost fourteen years, from 1925 to 1939, TeLinde was practising in private in Baltimore and at the same time, he was in charge of outpatient gynaecology department at Johns Hopkins in Cullen's service, who succeeded as professor and chairman of gynaecology on September 1, 1939 [9].

In 1946, he published his manuscript "Operative Gynaecology" which was destined to be the standard work on the subject undergoing multiple editions. In his book, written in a comprehensive way, TeLinde mentioned the evolution of gynaecology in the first half of the 20th century including the development of hormones, the newly introduced surgical techniques as well as the in-

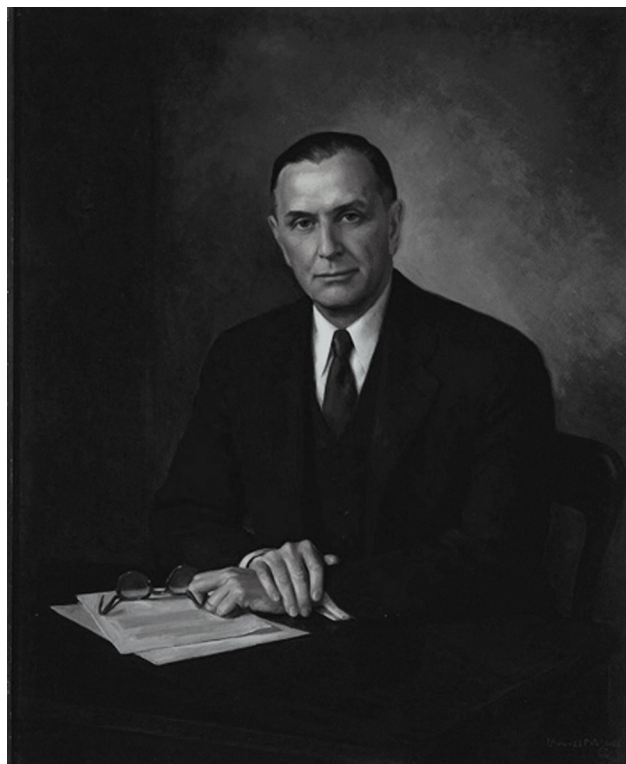


Figure 1. The gynaecologist Richard W. TeLinde in 1960

fluence of pathology pointing out that "without an understanding of it, surgery becomes merely a mechanical job, and errors in surgical judgment are inevitable" [13]. TeLinde's scientific work was emphasizing the operation for urinary incontinence, modifying Goebell-Stoeckel fascial sling operation; the study of endometriosis; the treatment of menopause with estrone; and the cervical carcinoma *in situ* [10].

It was said that TeLinde was known for his excellent surgical judgment and his fine surgical technique. As teacher, he was clear and enthusiastic. His Grand rounds of Saturday at 8 o'clock in the morning were widely known and were attracting students and physicians from U.S. and abroad [9] (Figure 1).

In 1960, he retired from Johns Hopkins and he continued the private practice till 1978, giving up operating in 1966 after a recurrent fracture of the femoral neck [9].

In his personal life, he married in June 1927 Catharine Davenport (-1964), a graduate of Goucher College in Baltimore which met in a blind date. The couple had no children perhaps due to Catharine's diabetes [13].

TeLinde died on November 16, 1989 at the age of 95 in Baltimore. One of his major achievements as university teacher and scientist is the building team of trusted collaborators and pupils who continued his work in gynaecology such as J. Donald

Woodruff Woodruff (1912-1996) in gynaecologic pathology, Howard W. Jones (1910-2015) in genetics and developmental abnormalities, Georgeanna Seegar Jones (1912-2005) in reproduction endocrinology and infertility and Bernard Brack (-1963) in gynaecologic oncology [9].

TeLinde's contribution to cervical cancer

In 1900, Cullen, TeLinde's predecessor at Johns Hopkins, described cellular changes in cervical epithelium that he named "cancer at its very beginning". Cullen and his fellow Robert Meyer (1864-1947) refused to speak of "pre-cancerous" lesion believing that the term implies the idea of an inevitable neoplastic transformation [9]. In early 1930s, TeLinde was intrigued by some histological sections considered as an early stage of cervical cancer. Since 1933, he started to follow 24 women with this type of lesion and none of them developed invasive cancer. In 1944, TeLinde and Galvin, referring to 16 cases, estimated that "glandular invasion is often one of the earliest signs of micro-invasion"[14]. At that point TeLinde was exposed to the harsh criticism of pathologists "these are leukoplasic lesions," says one, "dr. TeLinde, you are supposed to be a clinician. You do not know anything about pathology" said another [9]. Then, TeLinde undertook with Galvin and Howard W. Jones (1910-2015) another type of study. Among 723 cases of invasive cervical cancer treated at Johns Hopkins between 1940 -1950, scientists found 13 patients who had cervical biop-

sies 1 to 17 years earlier. Re-examing the biopsy material, 11 were presenting carcinoma *in situ* providing thus a suggestive evidence that carcinoma *in situ* often precedes invasive cervical cancer [15]. Furthermore, TeLinde and Galvin mentioned the external os or the junction of the squamous and columnar epithelium as the most vulnerable spot for the beginning of cervical cancer [10].

TeLinde became a precursor of early detection of cervical cancer, demonstrating that practitioners should perform a systematic cervical smear, as advised by George Papanicolaou. "Without biopsy, the smear alone is of little value. If both methods are combined, advanced cervical cancer becomes a rarity in gynecological practice" wrote TeLinde, adding later: "when I left my chair of gynaecology at Hopkins in 1960, we had operated 300 cases of *in situ* carcinoma. There were 8 recurrences including 3 invasive cancer deaths. Thus the mortality rate of cervical cancer was reduced from 75% to 1%" [13].

Conclusion

Richard Wesley TeLinde is considered one of the leading gynaecologist of the 20th century. During his career he performed much of the preliminary work in delineating the diagnosis of cervical carcinoma *in situ*. Even if his therapeutic approach was much criticized (he was a strong supporter of radical hysterectomy), TeLinde must be placed at the forefront of researchers who contributed to the eradication of cervical cancer.

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