TAURUNUM
MEDICAL JOURNAL
VOL 39 No 2 2025
DOI: 10.63696/TMJ202502192

ONE HUNDRED YEARS OF COLPOSCOPY: LEGACY AND LESSONS OF HANS HINSELMANN

Ana Dević[1], Nikola Kolarović[2], Marija Nikolić[3]

1. Clinical Hospital Center Zemun, Hospital for Gynecology and Obstetrics, Belgrade, Serbia
2. Department of Urology, Clinical Hospital Center Zemun, Belgrade, Serbia
3. Department of Surgery, Clinical Hospital Center Zemun, Belgrade, Serbia

Corresponding author: Ana Dević, Vukova 9, Belgrade, Serbia
Tel. +381638138333, email: anavjestica74@gmail.com

STO GODINA KOLPOSKOPIJE: NASLEĐE I POUKE HANSA HINSELMANNA

Ana Dević[1], Nikola Kolarović[2], Marija Nikolić[3]

1. Bolnica za ginekologiju i akušerstvo, Kliničko-bolnički centar Zemun, Beograd, Srbija
2. Služba urologije, Kliničko-bolnički centar Zemun, Beograd, Srbija
3. Služba opšte hirurgije, Kliničko-bolnički centar Zemun, Beograd, Srbija

Autor za korespondenciju: Ana Dević, Vukova 9, Beograd, Srbija
Tel. +381638138333 email: anavjestica74@gmail.com

ABSTRACT

The development of colposcopy and the Papanicolaou (Pap) test marked a turning point in the prevention and early detection of one of the most aggressive gynecological cancers—cervical carcinoma. Hans Hinselmann (1884–1959) first used the colposcope in March 1924 and published his research, along with a description of the instrument, in 1925. This year is considered the beginning of the colposcopic era. Using his device, Hinselmann was able to identify early stages of cervical cancer and describe epithelial changes he termed “precancerous lesions.” He emphasized the importance of systematic prevention and advocated for the establishment of centers dedicated to early cervical cancer detection.

Although a persistent and methodical researcher, Hinselmann crossed ethical boundaries under the Nazi regime, participating in forced sterilization programs of women from 1935 onward. After World War II, he spent three years in prison (1946–1949), was removed from clinical work, and later incriminated for his involvement. Following his sentence, he was allowed to practice privately until his retirement in 1949. Hinselmann died in 1959 in Goethehaus.

In Serbia, the first article on the importance of colposcopy in gynecological diagnostics was published by Berislav Berić in 1954. Štucinova and Mladen Broćić were pioneers in introducing colposcopy in the country. The Section for Colposcopy and Cervical Pathology

© The Author(s) 2025. Published by Clinical Hospital Center Zemun.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

was established on September 26, 1995, in Brezovica, marking the institutionalization of this field in Serbia. With the adoption of a new Statute on November 12, 2006, the Section evolved into the Serbian Association for Colposcopy and Cervical Pathology.

Keywords: Hans Hinselmann, colposcope, cervical cancer, colposcopy, history of medicine

SAŽETAK

Razvoj kolposkopije i Papanikolau (Papa) testa predstavljao je prekretnicu u prevenciji i ranom otkrivanju jednog od najagresivnijih ginekoloških carcinoma, karcinoma grlića materice. Hans Hinselmann (1884–1959) prvi je upotrebio kolposkop u martu 1924. godine, a već 1925. objavio je svoje istraživanje i predstavio mikroskop, čime je započela nova era u dijagnostici cervikalnih lezija. Pomoću kolposkopa Hinselmann je mogao da identifikuje rane stadijume karcinoma grlića materice i opiše epitelne promene koje je nazvao „prekancerozom“. Time je istakao značaj sistematske prevencije i potrebu za osnivanjem centara posvećenih ranom otkrivanju karcinoma grlića materice.

Iako je Hinselmann bio uporan i metodičan istraživač, tokom nacističkog režima prešao je granice medicinske etike učestvujući u programima prisilne sterilizacije žena (od 1935. godine). Nakon Drugog svetskog rata proveo je tri godine u zatvoru (1946–1949), bio udaljen iz kliničke prakse i inkriminisan, ali mu je kasnije dozvoljen rad u privatnoj praksi. Penzionisan je 1949. godine, a preminuo 1959. u Getehausu. U Srbiji je prvi članak o značaju kolposkopije u ginekološkoj dijagnostici objavio Berislav Berić 1954. godine. Pioniri uvođenja kolposkopije kod nas bili su Štucinova i Mladen Broćić. Formiranjem Sekcije za kolposkopiju i cervikalnu patologiju 26. septembra 1995. godine na Brezovici, započela je institucionalizacija ove oblasti u našoj zemlji. Usvajanjem novog Statuta 12. novembra 2006. godine, Sekcija je prerasla u Udruženje za kolposkopiju i cervikalnu patologiju Srbije.

Ključne reči: Hans Hinselmann, kolposkop, karcinom grlića materice, kolposkopija, istorija medicine

INTRODUCTION

The introduction of colposcopy and cytological screening significantly transformed gynecological oncology by enabling early diagnosis and prevention of cervical cancer. The pioneering work of Hans Hinselmann and later George Nicholas Papanicolaou laid the foundations for modern cervical cancer screening. However, Hinselmann's career also reflects the moral complexities of scientific progress in times of political extremism.

LIFE AND WORK OF HANS HINSELMANN

Hans Hinselmann (1884–1959) was one of the most prominent German gynecologists of his era. He was born on August 6, 1884, in Neumünster, Holstein, as the only child of Hans Peter Gustav and August Sophie. After graduating from Hagen High School, he studied medicine in Heidelberg and completed his degree in Kiel in 1908, passing his final examination that same year (1).

After earning his diploma, Hinselmann trained at several clinics, including the Neurology Hospital in Neu-Coswig, the Medical Clinic in Heidelberg under Professor Krehl, and the Gynecology Clinic in Kiel. From 1910, he worked in Jena with Professor Max Henkel, later joining Professor Otto von Franqué's team in Giessen and Bonn. In 1912, he followed his mentor to the University of Bonn, where he remained until 1925, eventually becoming an assistant professor (1,2).

World War I interrupted his clinical and academic work (1914–1918), but after the war, he was appointed head of the Department of Gynecology in Bonn. He married his cousin Margarete, with whom he had seven children (1).

THE INVENTION OF THE COLPOSCOPE

In 1921, as an associate professor at the University of Hamburg, Hinselmann began researching methods to better visualize the cervix and vulva. Using von Eicken's frontal lens, he initially achieved a magnification of 1.2–1.7×, later collaborating with technicians from Leitz to design an improved optical device, the colposcope (1,3).

The history of colposcopy formally began in March 1924, and his findings were published in 1925, marking the official "birth" of colposcopy (1). Early models were cumbersome and difficult to operate, prompting further technical refinements. Hinselmann's instrument made possible the visualization of cervical epithelium in unprecedented detail, allowing the detection of early-stage lesions, what he termed "precancerous changes." He emphasized the necessity of establishing centers for cervical cancer prevention (1,4).

To correlate clinical and histological findings, he systematically compared colposcopic images with microscopic pathology. Initially, he examined the cervix without using acetic acid or Lugol's iodine solution. In 1928, Walter Schiller introduced the iodine test for rapid cancer detection, revealing that dysplastic and carcinomatous tissues lacked glycogen (2,5). Schiller's sampling technique, using a small curette, allowed histologic evaluation with minimal trauma (2,6). Hinselmann quickly adopted these innovations to complement colposcopy.

By 1926, Hinselmann became director of the Department of Gynecology at Altona City Hospital, where he established the world's first colposcopy service. His 1930 contribution to the Veit-Stoeckel Handbook further consolidated colposcopy as an accepted diagnostic procedure (2,6). In 1932, the Hamburg Allgemeine Ortskrankenkasse began offering free colposcopic examinations to insured women, the first such program worldwide (2,5,6).

In 1938, Hinselmann introduced the acetic acid test as a routine procedure, while in 1939, Helmut Kraatz of Berlin emphasized the importance of the green filter for evaluating vascular morphology (1,2).

ETHICAL CONTROVERSIES AND WAR CRIMES

Despite his scientific contributions, Hinselmann's involvement with the Nazi regime casts a dark shadow over his legacy. From 1935 onward, he served as a surgeon responsible for the forced sterilization of thousands of Roma women, performing hysterectomies to study correlations between colposcopic and histologic findings (1,3).

Archival research (Hamburg Ärztekammer, Goethe-Institut, Wiesenthal Center, Bra-

zilian Embassy, Rome) revealed his participation in Nazi medical experiments (1,2). These operations, often performed without anesthesia or sterile conditions, resulted in numerous deaths from infection or hemorrhage.

Hinselmann also supported research by Dr. Eduard Wirths, the SS physician at Auschwitz, who used colposcopy for racial experiments (1,7). Although Wirths committed suicide before trial, Hinselmann was tried by a British military court, found guilty of participating in forced sterilizations, sentenced to three years in prison (1946–1949), fined 100,000 DM, and expelled from the university administration (1,2,6).

After serving his sentence, he was permitted to resume private practice. He lived in Hamburg in a thatched-roof home called Goethehaus, and retired in 1949 at age 65 (1).

LATER LIFE AND LEGACY

After the war, Hinselmann traveled extensively through Latin America, learning Spanish and Portuguese. In Rio de Janeiro, he received an honorary doctorate for his contributions to cervical cancer prevention. His visits to Argentina inspired Alfredo Jacobi to introduce colposcopy there (7,8,9).

Even after retirement, he remained academically active, preparing a paper for a Vienna congress when he died suddenly of a myocardial infarction in 1959 (1,2). He lost two sons in the Battle of Stalingrad.

Hinselmann published over 330 scientific papers, focusing primarily on colposcopy but also addressing eclampsia, placental pathology, peritoneal effusions, and infertility testing (the “blue test”) (1,7).

GLOBAL DISSEMINATION OF COLPOSCOPY

The slow acceptance of colposcopy was due in part to Hinselmann’s rigid approach and to the concurrent success of **Papanicolaou’s cytological method (1943)**(10-14,17). Nonetheless, colposcopy spread gradually across Europe and beyond: Limburg, Mestwerdt, and Ganse in Germany; Wespi, Glatthaar, and De Wattville in Switzerland; Antoine and Grumberger in Austria (10,11,12).

In Italy, Professor Cattaneo of Perugia translated Hinselmann’s 1933 Einfuehrung in die Colposcopie as Introduzione alla colposcopia (1940) (13,14,15). Despite early resistance in the English-speaking world, Shaw introduced colposcopy in Britain (1936), and after World War II, Albert Singer (UK), Carl Bolton (USA), and Malcolm Coppleson (Australia) helped establish colposcopy clinics internationally (16-19).

By the 1970s and 1980s, national associations had been founded in Brazil (1958), Britain (1971), Italy (1980), Japan (1983), and **Canada (1987)** (15,20,21). Technical improvements followed, including the introduction of halogen illumination and digital imaging (14,21).

DEVELOPMENT OF COLPOSCOPY IN SERBIA

In Yugoslavia, Berislav Berić published the first article on colposcopy in 1954, titled "The Importance of Colposcopy in Gynecological Diagnostics." Pioneers Štucinova and Mladen Broćić further developed the method domestically, with the production of local Soča binocular colposcopes (22,23).

At the initiative of Professor Branko Stanimirović, the Section for Colposcopy and Cervical Pathology was founded on September 26, 1995, in Brezovica, under the Yugoslav Society of Gynecology and Obstetrics (UGOJ)[23]. Following socio-political transitions, it became the Association for Colposcopy and Cervical Pathology of Serbia on November 12, 2006.

The most significant progress was achieved under Professor Vesna Kesić (2012–2023), who also served as President of the European Gynaecological Cancer Society (ESGO, 2013–2015) and founded the Association of Gynecological Oncology of Serbia. She introduced oncofertility as a new interdisciplinary field linking oncology and reproductive medicine (23).

CONCLUSION

Hans Hinselmann's invention of the colposcope revolutionized gynecologic oncology by enabling early visualization and diagnosis of cervical pathology. However, his legacy is deeply ambivalent, intertwined with grave ethical violations committed under the Nazi regime. The global history of colposcopy thus serves as both a testament to medical innovation and a moral reminder of the boundaries that must never be crossed in scientific pursuit.

CONFLICT OF INTEREST AND FUNDING

The authors declare no conflict of interest.

This research received no external funding. The study and manuscript preparation were conducted solely within the regular professional activities of the authors.

REFERENCES:

1. Torres JE, Riopelle MA. History of colposcopy in the United States. Obstet Gynecol Clin North Am. 1993;20(1):1–10.
2. Hinselmann H. Die Essigsäureprobe als Bestandteil der erweiterten Kolposkopie. Dtsch Med Wochenschr. 1938;2:40–2.
3. Fusco E. Relazione al 2° corso di aggiornamento in colposcopia. Riccione; 1990 Apr.
4. Kraatz H. Farbfiltervorschaltung zur leichteren Erlernung der Kolposkopie. Zentralbl Gynäkol. 1939;63:2307–9.
5. Hinselmann H. Meine zweite Reise nach Südamerika. Hamb Ärztebl. 1952 Aug;S164–7.
6. Hinselmann H. Vier Monate in Südamerika. Münch Med Wochenschr. 1952;94:—.

7. Hinselmann H. Meine Reise nach Brasilien. Hamb Ärztebl. 1950 May;S93–5.
8. Wespi HJ. 50 years of colposcopy: a retrospective and a look ahead. Ann Ostet Ginecol Med Perinat. 1988 Nov–Dec;109(6):319–50.
9. Mestwerdt G, Wespi J. Atlante di colposcopia. Padova: Piccin Ed; 1972.
10. Bret J, Coupez F. Colposcopie. Paris: Masson Ed; 1960.
11. Emmert F. The recognition of cancer of the uterus in its earlier stages. JAMA. 1931;97:1684–8.
12. Hinselmann H. Verbesserung der Inspektionsmöglichkeit von Vulva, Vagina und Portio. Münch Med Wochenschr. 1925;77:1733–5.
13. Hinselmann H. Einführung in die Kolposkopie. Hamburg; 1933.
14. Masciotta A. La colposcopia. Bologna: Cappelli Ed; 1954.
15. Marziale P, Zichella L. La diagnosi colposcopica. Roma: Abruzzini Ed; 1960.
16. Mossetti C, Russo A. La colposcopia nella diagnostica ginecologica. Torino: Minerva Medica Ed; 1962.
17. Peroni M. Colposcopia e fisiopatologia cervico-vaginale. Milano: Poli Ed; 1980.
18. Burghardt E, et al. Atlante di colposcopia. Milano: Masson Ed; 1984.
19. Contini V, et al. Colposcopy and computer graphics: a new method? Am J Obstet Gynecol. 1989;160:535–8.
20. Fusco E. Colposcopia dinamica. Urbino: USL 5; 1984.
21. Montanari GR, et al. Il consultorio familiare. In: L'esame citologico: controllo di qualità e cadenza. Roma: CIC Edizioni Internazionali; 1990. p. 497.
22. Remotti G, Gilardi EM. Il consultorio familiare. In: I Consultori familiari: quale colposcopia. Roma: CIC Edizioni Internazionali; 1990. p. 507.
23. UKCPS. Serbian Association for Colposcopy and Cervical Pathology [Internet]. Available from: https://ukcps.rs