

HISTORY OF INDIAN ACADEMY OF **CYTOLOGISTS**

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Member of Goa University AC, EC & Govt.

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Expert for GPSC, MPT and Gujarat Public Service Commission

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Chairman of International Affairs Committee IAC.

Invited as Faculty, Chairman and Moderator for Many International Conferences in Pathology.

Editor of e-books and printed books in Pathology.





































































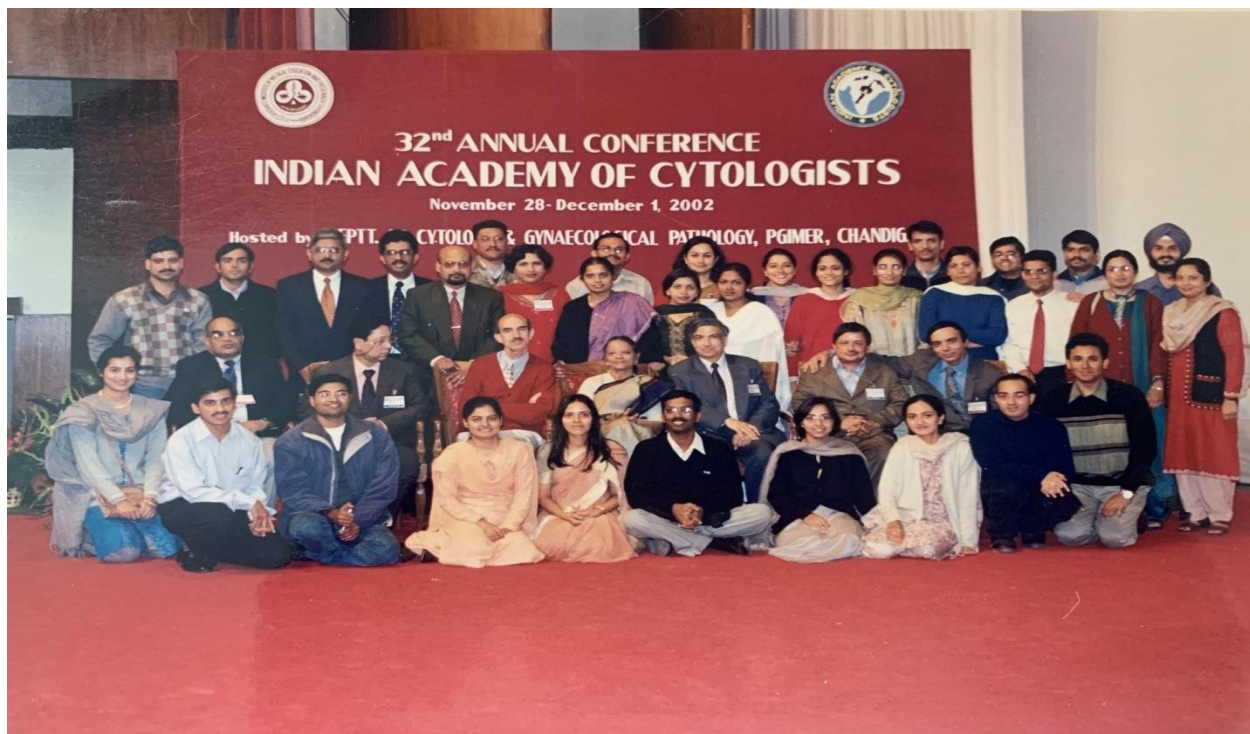






















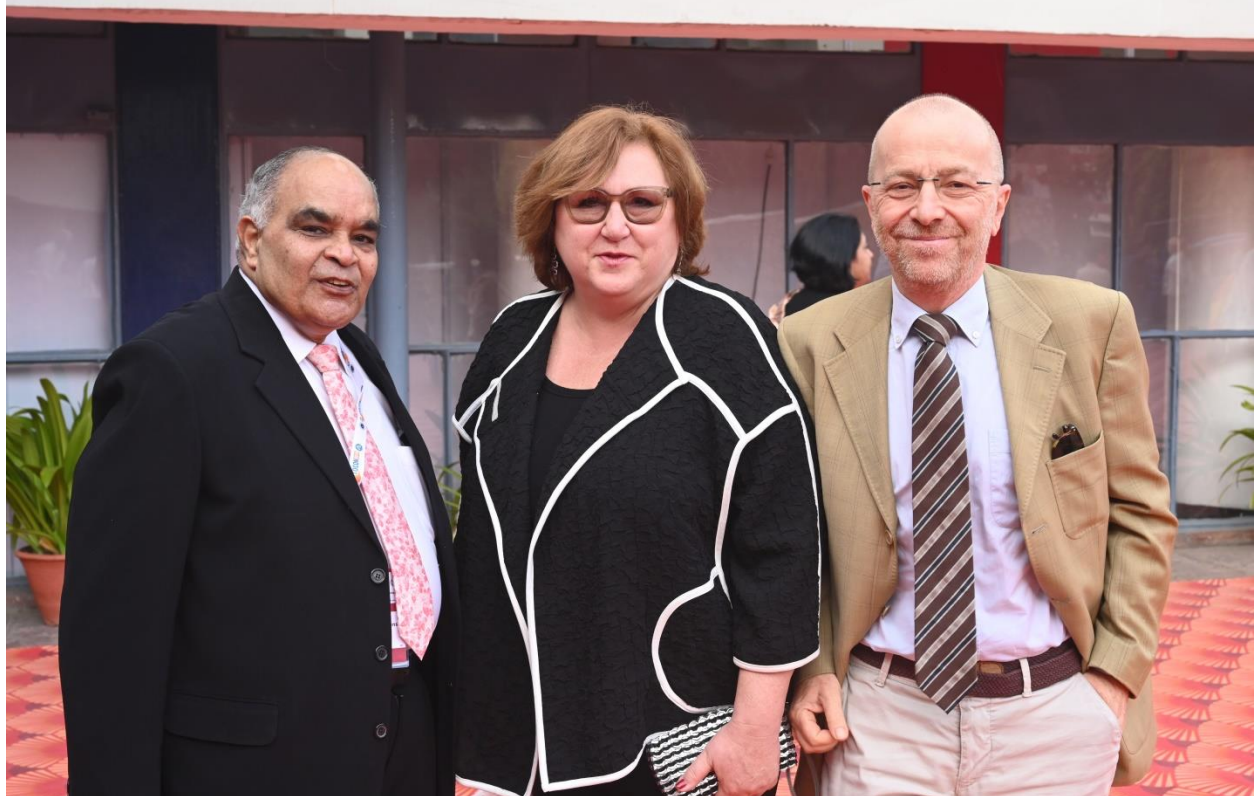














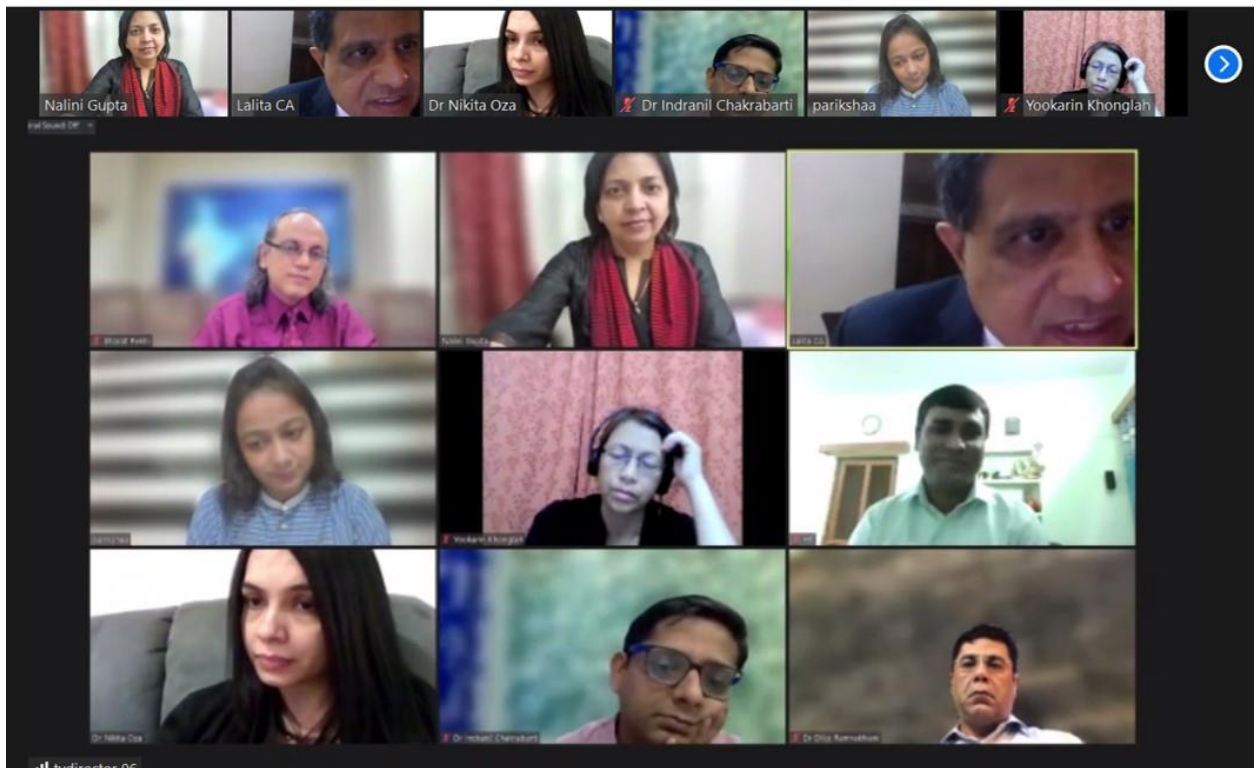


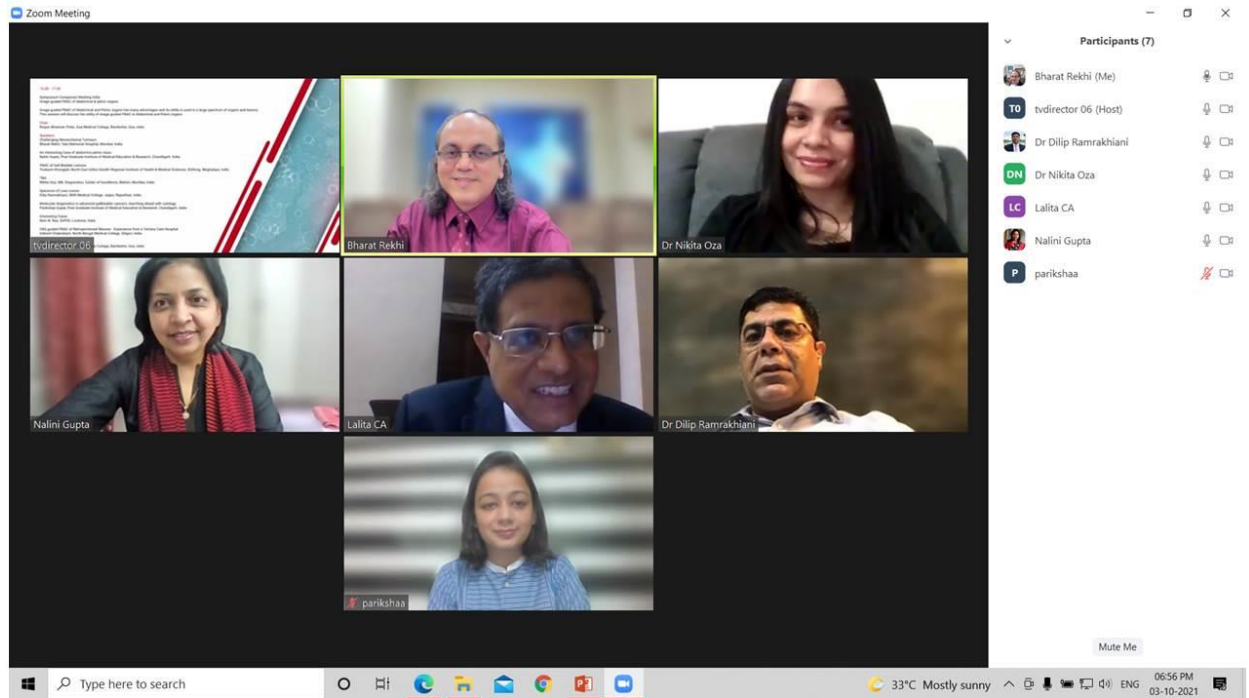








































































































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1st to 4th November 2018

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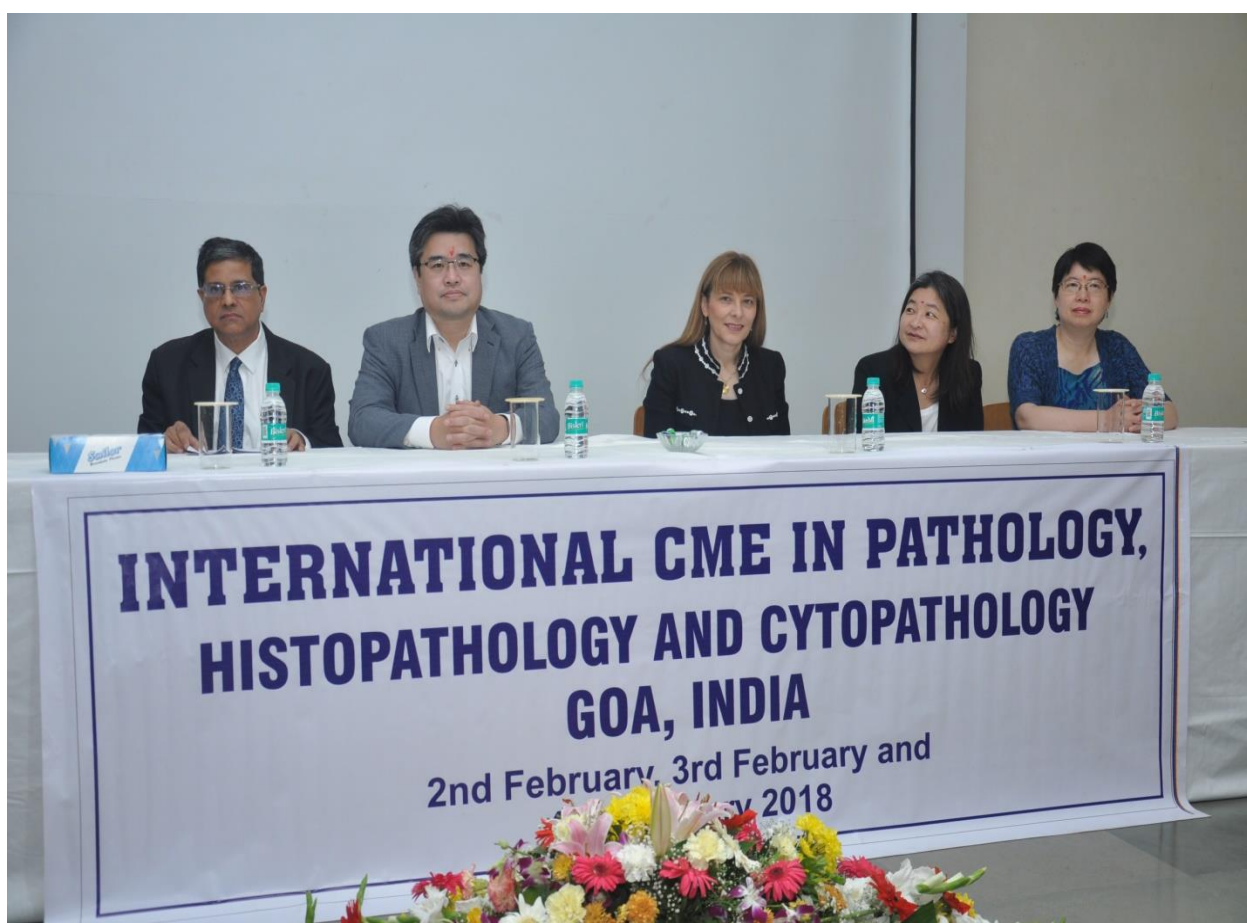
Institute of Nursing Education, Near Military Workshop,
Near Bambolim Cross (Bambolim Holy Shrine), Bambolim Goa







































































Recording

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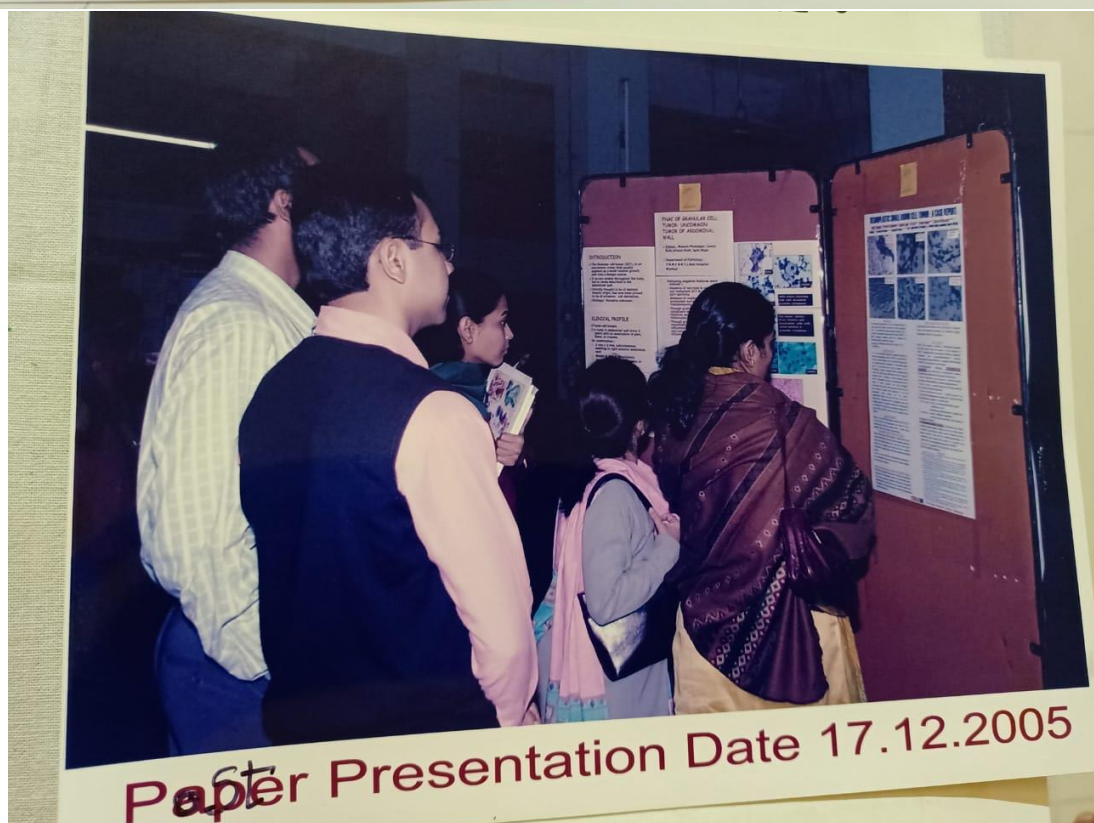






Paper Presentation Date 17.12.2005









23rd to 25th March, 2017

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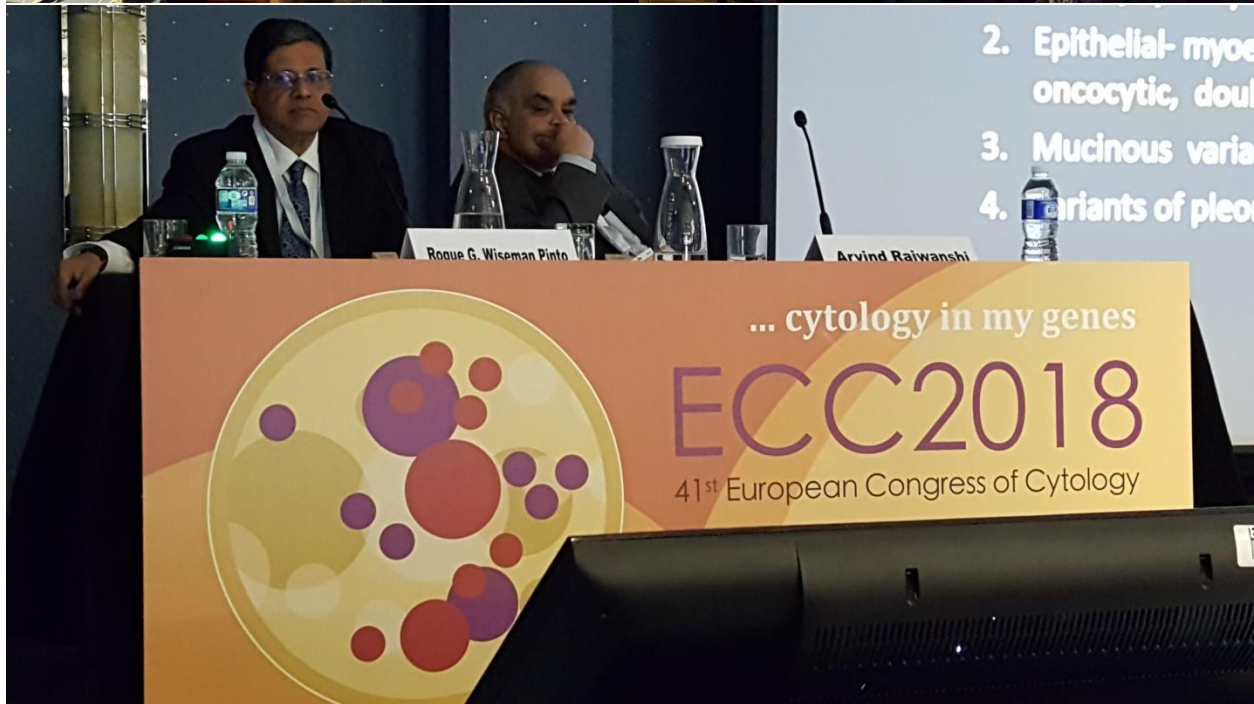






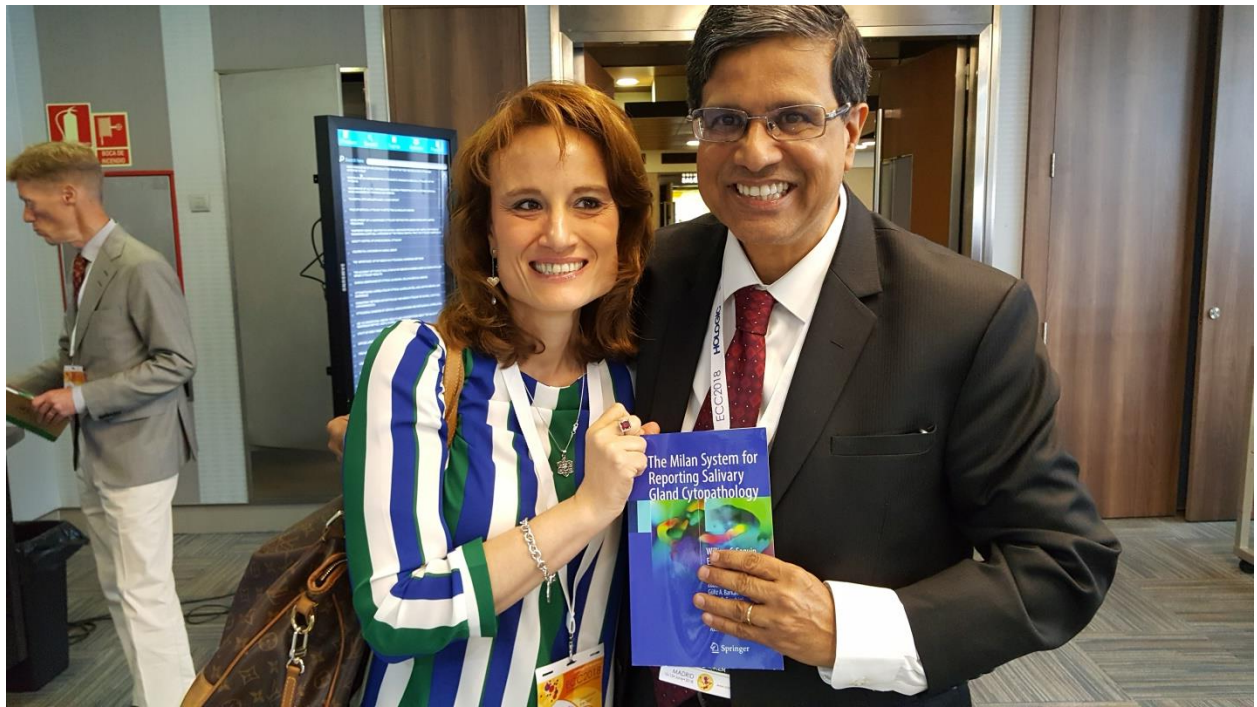












































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NERCON 2022











Dr. Pramod Sawant ✓



42 minutes ago · 🌐

Heartiest **congratulations** to Dr. R. G. Wiseman Pinto, Professor and Head Dept. of Pathology, Goa Medical College Bambolim on being selected as the Chairman, Moderator and Faculty for the 21st International Conference of Cytology, hosted jointly by American Society of Cytopathology and International Academy of Cytology.



Congratulations to
DR. R. G. WISEMAN PINTO

on his selection as the Chairman,
Moderator, and Faculty for the
21st International Conference of Cytology.

f | t | i DrPramodPSawant

Congratulations



DR. R. G. WISEMAN PINTO

on being selected as the Chairman, Moderator & Faculty
for the 21st International Conference of Cytology



Vishwajit P. Rane



@visrane

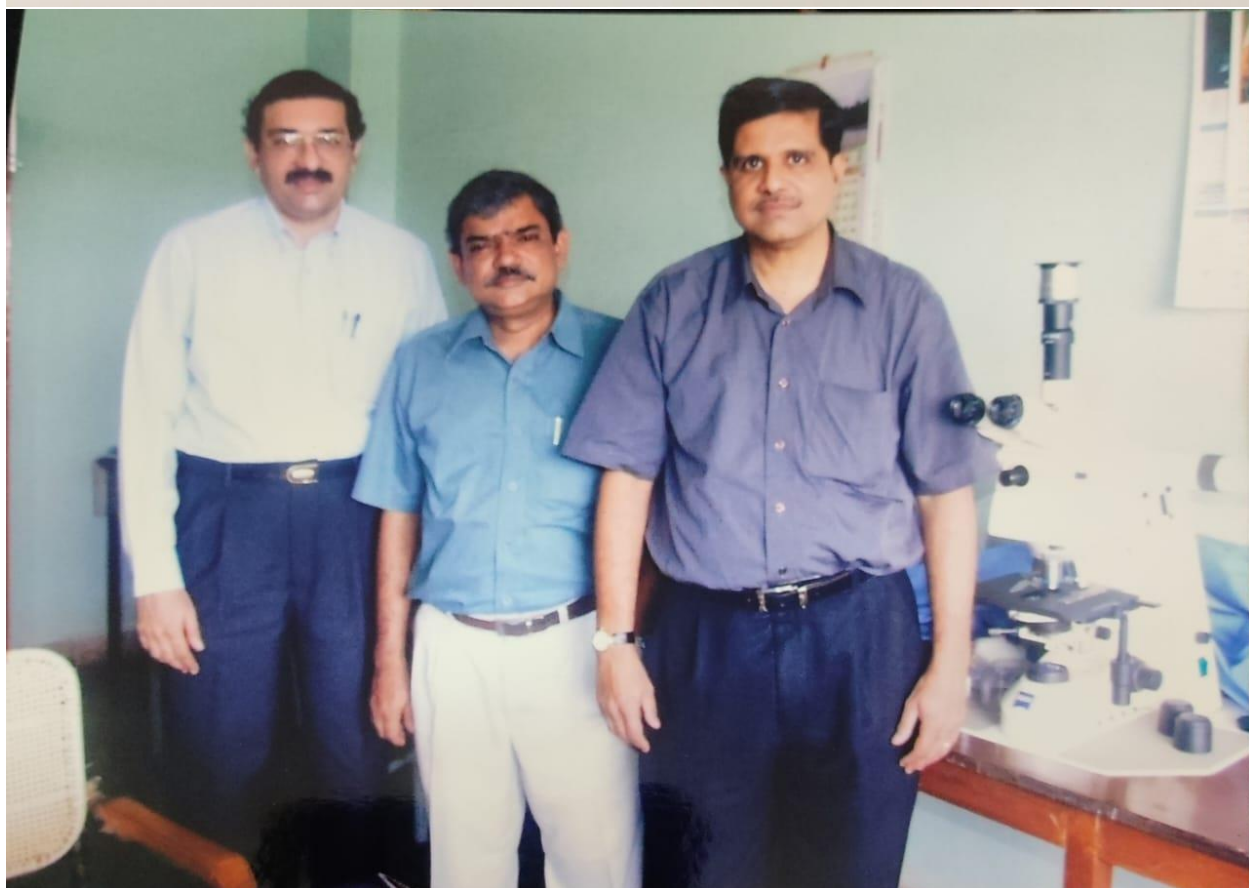
















































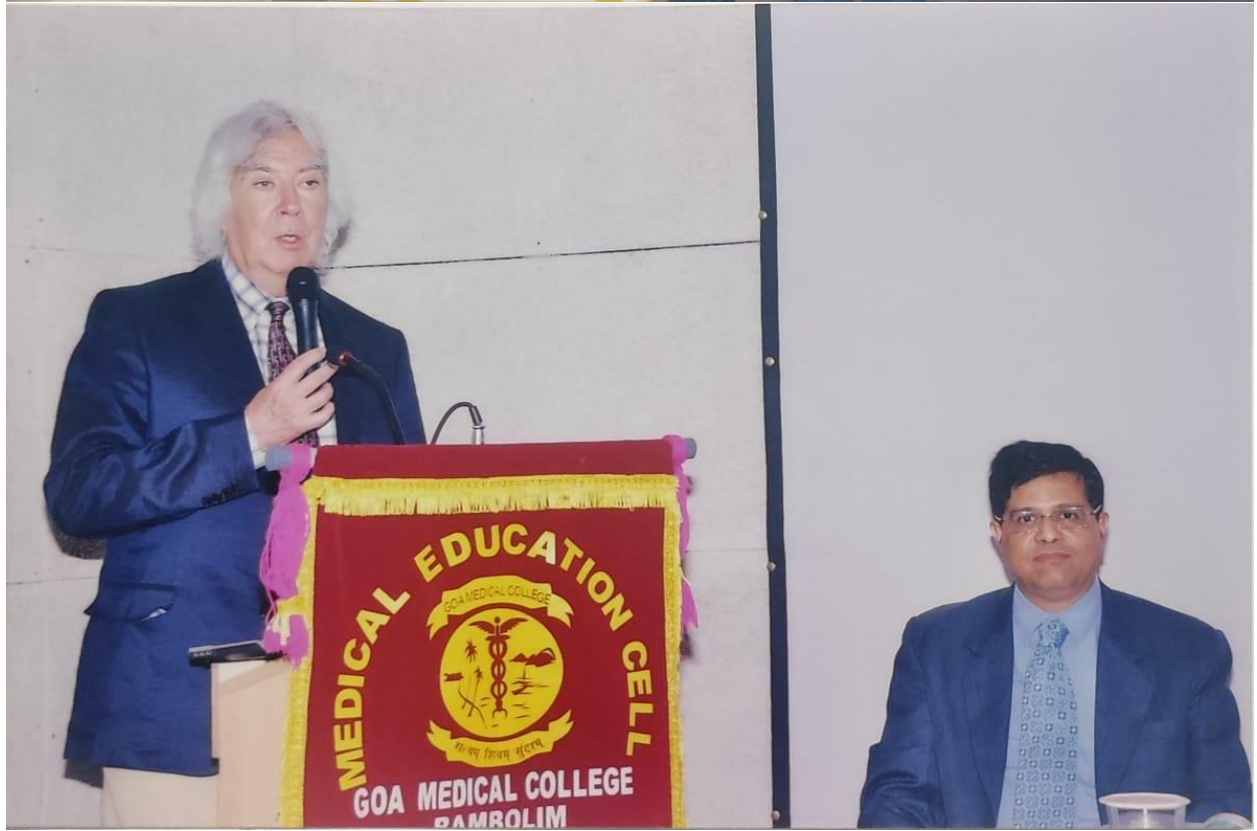


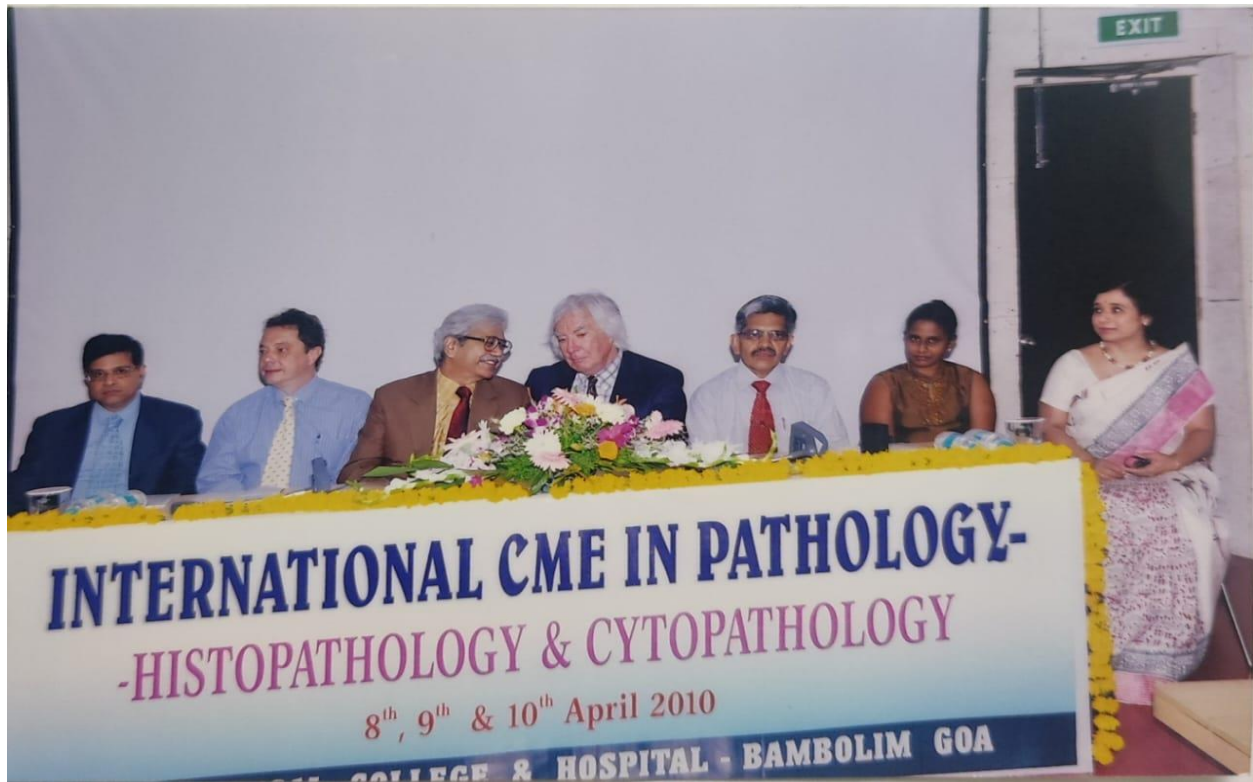


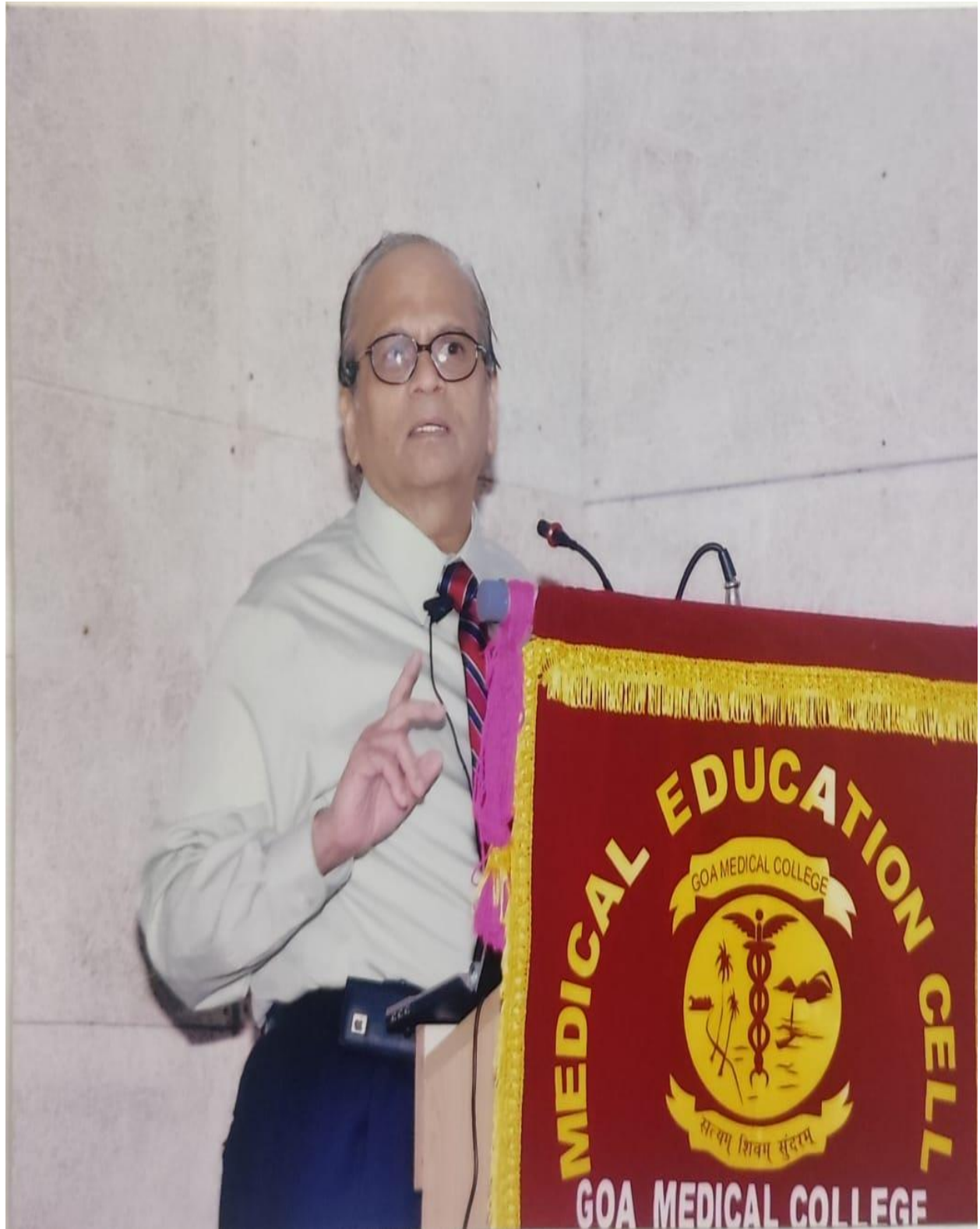






















Historical Review of Cervical Cancer Screening by Cytology

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Historical Review of Cervical Cancer Screening by Cytology

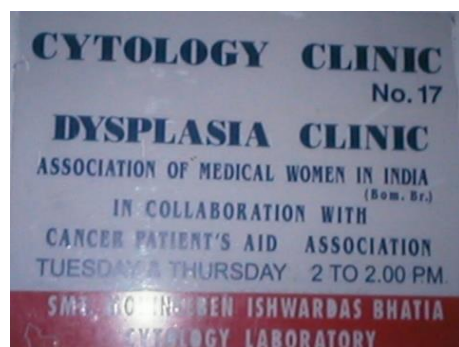
By Usha B. Saraiya



My journey in Cytology started in 1965. I joined ICMR to do research in Cytology and Colposcopy on Contraceptive users.

There were hardly a handful of centres doing Pap Smear tests in India. Cervical Cancer cases were seen in all OPD's almost daily, most were advanced. Facilities for treatment were limited to major cities. Mortality was very high. The situation was truly grim and many people were concerned.

In 1966, I was appointed as Assistant Honorary Professor in Obstetrics and Gynaecology to Grant Medical College and posted in Cama Hospital. In 1967, Association of Medical Women in India had a Superintendent, Dr. Segulla Aptekar who had trained in UK. She was aware of the value of Pap Smear test and decided to start the facility in Cama Hospital. She put me in charge and gave facilities and encouragement to start a Cancer Detection Centre.



We had a clinic in the OPD where we took smears and a small laboratory space where we set up staining. One of our technicians was sent to Tata Hospital to learn the Pap Smear technical preparation. I used to screen the Smears. After that, I went to London to study Cytology at Hammersmith Hospital with Dr. Erica Wachtel.

On my return, Dr. Wahi, the DG of ICMR called me to read a paper on Cytology at the first ever Seminar on Pap Smear held in India by ICMR. That was in 1969.

This then, became my entree point into the fascinating world of Colposcopy and Cytology.

It was dominated by International giants who over the years became close friends of me and my family and also of FOGSI and India. I came to understand how this Science evolved and accepted new concepts and kept the goal of saving lives of women at the forefront.

I. The Era of Papanicolaou and Hinselmann History of Cytology and Colposcopy Beginning of 20th Century

Cytology has a fascinating history. It is a story of the 20th Century, as little was known about the subject prior to that.

Dr. George Papanicolaou is considered the father of Cytology. He was born in Kymi in Greece in 1883. He trained as a Zoologist and completed his Ph.D. in 1910. In 1913 he migrated to the USA and joined the Cornell Medical School, Department of Anatomy. Papanicolaou did fundamental work in the discovery of ovarian hormones and their effect on vaginal cells. His method of fixation and staining were devised to display the stages of maturation of squamous cells. He wrote number of papers on this subject. It was while studying vaginal smears at the Women's Hospital, New York, that Dr. George Papanicolaou saw tumour cells in smears from women with asymptomatic cervical cancer. "The first observation of cancer cells in a smear was the most thrilling experience of my scientific career", he wrote. He communicated this discovery to the medical world in 1928, but unfortunately it aroused no enthusiasm at that time.

Papanicolaou then left the subject for ten years. It was only in 1941 that he published his work once again, this time in the American Journal of Obstetrics and

Gynaecology, with Dr. Herbert Traut. The duo also presented a monograph titled 'Diagnosis of Uterine Cancer by the Vaginal Smear' in the year 1943. This time the climate of opinion was quite different. The concept of carcinoma in situ was more widely accepted and many Gynaecologists felt the CONQUEST of cervical cancer was in sight. Papanicolaou finally received the acclaim he deserved.

Screening was initiated in Massachusetts in 1945. The American Cancer Society sponsored a national Cytology Conference in Boston in 1948 and about the same time a regular training course in cytology was instituted at the New York Cornell Medical Centre.



History of Colposcopy :

Colposcopy also has a fascinating historical background.

At about the same time that Papanicolaou was advocating cytology for early detection of cancer, Hinselmann was working on the use of an instrument called Colposcope devised for the same purpose. The two men worked independently and were separated by the Atlantic Ocean and did not get a chance to communicate. Hinselmann was born in New Munster, Holstein, Germany and graduated as a medical doctor from the University of Kiel in 1908.

In 1924, Hinselmann was working in Bonn under Professor Von Franque. At the time it was believed that cancer started as a pin spot and Hinselmann set out to discover a method which would identify this spot.

Thus he began to view the cervix with a binocular magnifying lens. He felt it imperative to provide an intense light source for the magnified image without sacrificing binocular vision. He soon realised that carcinoma started as a field or

sheet and not as a pin point. With his pathology skills, he biopsied all suspicious lesions and learned to correlate optical images with the microscopy findings.

Like many innovators in history, Hinselmann was not taken seriously by his contemporaries, in the beginning. Once he moved to Hamburg a few years later, things seemed to improve, but only temporarily. Then came the 2nd World War with all its calamities. Hinselmann lost his two eldest sons in the war. In the post war period a jury of British generals sentenced him to three years imprisonment because six gypsy women had been sterilised in his services by his assistants. The sentence was later reduced to half for health reasons. With all these setbacks, Colposcopy was forgotten for many years in Germany, but continued to prosper in South America under Hinselmann's students Rieper and Jakob.

Having recovered from the war and imprisonment, Hinselmann decided to restart his work in 1949, at the age of 65. By that time the great success of Papanicolaou's smear test distracted attention from Colposcopy. Nevertheless, Hinselmann proved that all modalities used correctly were necessary to perfect Early diagnosis and prevent invasive cancer. In 1949, Hinselmann migrated to Brazil where he was treated with due honour. To quote his own words " They gave me back my honour, and made me feel like a human being again".



With Adolf Stafl and Wespi who was a
Contemporary of Hinselmann
ROME 1990



With Rene' Cartier of Paris who
described loop biopsy

Hinselmann made several trips all over the world lecturing and demonstrating his skills. In 1957, he was granted the title of Doctor Honoris Causa of the University of Brazil. Thanks to increasing International communication colposcopy underwent an enthusiastic revival outside Europe, especially in United States. The ability to obtain a biopsy specimen from the correct site and reduce the number of conizations was responsible for the eventual acceptance of Colposcopy.

Hinselmann died in 1959 at the age of 75. He was a brave and courageous Scientist who till the end believed that Colposcopy would always have an important place in the early detection of cervical cancer.

Hinselmann's work was ably carried out by Mesterwerdt, Wespi at Zurich and Navratil and Burghardt at Graz. James Maclean, Rieper and Jacob developed colposcopy in South America. In Australia, the credit for developing colposcopy goes to Coppelson, Pixley and Reid.

II) The Era of 2 Georges, George Papanicolaou and George Weid. Formation of International Academy of Cytology and Acta Cytologica (1957).

Diagnostic Cytology developed exponentially Post World War II. George Papanicolaou started several screening programmes in USA. He had a large number of Medical Personnel collaborating with him. One of them was George Wied of Chicago. Wied had the unique distinction of being Professor of Pathology and Professor of Obstetrics and Gynaecology.

The Pap test with its unique 5 stain method of staining was proving effective in diagnosing pre-cancerous lesion of the cervix. There was a great interest in Europe as well and a number of centres were started. Diagnostic Cytology had 2 distinct parallel streams. One was Cytopathology and the other Clinical Cytology which included Colposcopy.

The time was ripe for Americans and Europeans to Meet and share their knowledge and experience. Accordingly, George and Mary Papanicolaou took the first journey back to Europe since their arrival in USA in 1913.

So it was in 1957 when George Papanicolaou and George Wied attended an International Conference in Belgium and collaborated in the formation of The International Academy of Cytology. At the same time they launched the Journal of Clinical Cytology and Cytopathology “Acta Cytologica” with both of them as Editors. Today this Journal has completed 6 decades of its existence. It’s 2017 issue, is a historical treasure trove. For a number of years, the office of IAC was in Chicago in the home of George Wied.

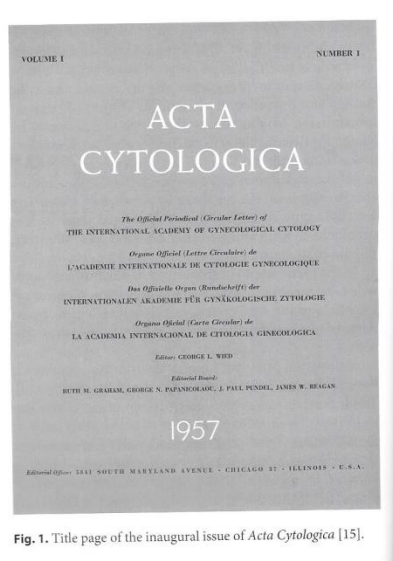
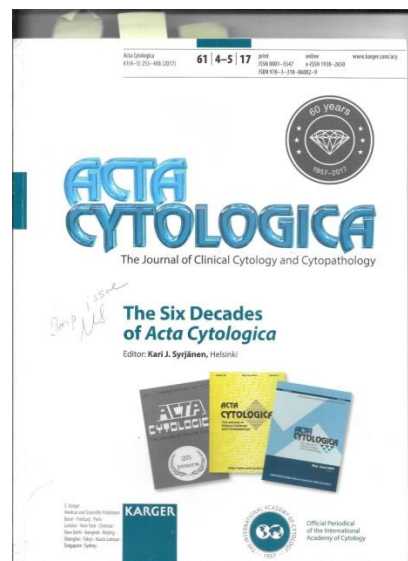


Fig. 1. Title page of the inaugural issue of *Acta Cytologica* [15].



I had the pleasure of being accepted as Member of The International Academy of Cytology in 1970 and was elevated to Fellowship in 1972 and till today I receive and read Acta Cytologica seriously. The other Indian Doctors who were Fellows were the illustrious duo of ICMR, Dr. P. N. Wahi and Dr. Usha Luthra who founded the Indian Academy of Cytologists in 1969.

I had the good fortune to serve as the National Editor for India on the Editorial Board of IAC for 5 years (from 1994-1998). It is a 5 year term and many Cytologists from India have enjoyed holding that post. It gives one the chance to meet and interact with International celebrities in the field of cytology. Initially there were very few articles published in Acta Cytologica from India. However

gradually more and more articles were published from India. I have also contributed to it.



Dr. George Wied with Dr. Saraiya
At 4th Conference of IFCPC – Tokyo,
Japan 1984. Also seen Dr. Jayashree
Roy Choudhary, President IAC with
Japanese President and his wife



Dr. Meisels visit to Cama Hospital in 1999

Dr. Alexandre Meisels of
Canada was the person
who described the cellular
morphology of a cell
affected by HPV. This
article is based on his
epoch making lecture
given at Munich at a
Conference of IAC.

The Story of a Cell
The George N. Papanicolaou
Award Lecture

983,

Alexander Meisels, M.D., F.R.C.P.,
F.I.A.C.

Before one begins to write the story of Cytology in India, one must pay one's
tribute to the memory of this great person .

Dr. P. N. Wahi is considered the father of Cytology in India.



He was born in 1908 in Moradabad. He completed his MBBS from King George's Medical College, Lucknow in 1932.

He won several prizes and gold medals including the prestigious Hewlett Gold Medal of Lucknow. Dr. Wahi pursued a postgraduate career in pathology and completed his M. D. in 1934. He then went to UK to do the MRCP, which he completed in 1938.

It was during Dr. Wahi's tenure at the S. N. medical College, Agra, that he worked tirelessly on the subjects of oral and cervical cancer. His experimental work on Swiss albino mice established beyond doubt the fundamental understanding of the natural history of the disease.

He trained a large number of students who later developed centres of cytology at Chandigarh, Delhi, Lucknow and Pondicherry.

Dr. Wahi is the recipient of several awards, including the Padma Bhushan. He had more than 300 publications in both national and international journals. He was the founder member and first President of the Indian Academy of Cytologists.

History of Cytology and Colposcopy in western Maharashtra and Mumbai

Dr. Hannah Peters was perhaps the first cytologist in Mumbai. She started a nucleus of Cytology at Tata Cancer Hospital. Her publications on 'Cytology of Menopause' is chronicled in Acta Cytologica 1960 4;146.

By 1960, Hannah Peters had left Bombay but 2 centres of cytology had developed by then. One was the Contraceptive Testing Unit of Indian Council of Medical Research where all women accepting contraceptive had cytology and colposcopy performed on them. The second was the Cytology laboratory of Tata Cancer Hospital.

This Cytology Laboratory was started by the Indian Cancer Society and in 1976 it was amalgamated with the hospital. It is accredited by the International Academy of Cytology.

In 1967 the Association of Medical Women in India celebrated its Diamond Jubilee. At this time funds were collected which were used to start a Cytology Clinic at the Cama and Albless Hospital. The Superintendent of Cama and Albless Hospital at that time was Dr. Segulla Aptekar, who spearheaded the project.

In 1976 a special 'Dysplasia Clinic' was started where cases with abnormal findings were studied by colposcopy and long term study carried out.

In 1984 when the state Cancer Control Programme was launched. Detection centres were started all over Maharashtra especially at district hospitals. Training of personnel was carried out at the Cama and Albless Hospital. An innovative approach of conducting Cancer Detection Camps in urban and rural areas was greatly successful and spread the message of early detection.

Ref: "Colour Atlas of Cytology and Colposcopy"

Editors : G. Miniello and U. Saraiya, Publs : CBS Publishers and Distributors, New Delhi, India.

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Formation of Indian Academy of Cytology was a key intervention which started screening programmes. It was in 1969, that about 30 cytologists working in India met in New Delhi and became Founder members of Indian Academy of Cytologists. I am one of the Founder Members. Dr. P.N. Wahi was the 1st President. As D. G. of ICMR, he helped establish many Detection Centres to do Pap Smear and encouraged Research. The Centre at Cama Hospital was started in 1970 with the support of ICMR and Government of Maharashtra.



IAC Indore Conference

The IAC encouraged training of Cytologists, Cyto Pathologists, Cyto technicians and Lab technicians. Later Accreditation and Examination Committee was formed which maintained quality control. Initially, a Newsletter was started to spread knowledge and information. Later it transformed into a good Scientific Journal. For a brief period IAC had it's section of Colposcopy affiliated to International Federation of Colposcopy and Cervical Pathology. All these activities helped to establish Cervical Cytology as a definitive tool in the Control of Cervical Cancer in India.

Today, the Indian Academy has completed 50 years and is well established all over India. However, Pap Smear is freely available in major cities but not easily available in smaller cities. Further, Pap Smear is now considered just one of the tools to do Screening. Other Methods like HPV testing and visual inspection with acetic acid or Schiller Iodine have gained in popularity. Indian Academy of Cytologists was affiliated to the International Academy of Cytology since its inception.

IV) Era of Expanding Technology



Pap Smear was a low cost, low technology test. It was a stand alone test which had a significant effect in lowering the incidence of invasive cancer. The impact was seen in 1960-1970 all over the world.

- 1) Developments in Cytology: Computers were introduced to screen the slide. Pap-net was introduced which enabled the slides to be screened by programming the computer. It would mark all the abnormal cells and the technician/pathologists had to only study the marked slides. Thousands of slide could be screened. However, Pap-net did not succeed for long.

Next was the introduction of Liquid based Cytology by Becton Dickinson. In 1998-1999, it got FDA approval. Soon, thereafter Thin Prep-automated screening got approval by FDA. By 2008, both Surepath and Thin Prep had FDA approval and were introduced in clinical practice. Advantages of LBC are many.

Advantages of LBC

1. Higher potential for detecting epithelial lesions.
2. Diminishing interferences (such as red blood cells and leukocytes) that obscure the slides in conventional cytology.
3. Better distribution of epithelial cells in the preservative liquid medium in the slide, thereby reducing the overlap of cells.
4. Better sampling of the cells onto the slides as the entire collection of cells is transferred to the flask with the preservative medium.
5. Cells are better preserved, therefore better dyed and more likely to be morphologically examined.
6. Shorter slide scrutiny time.
7. Use of the residual sample for molecular tests for HPV detection.

The use of the collection brush called the Dutch Broom “or Rovers-Cervix Brush would pick up the Endocervical cells as also sweep the 360 degree of the squamo-columnar giving a much better sample. The performance of the test improved significantly.

The staining process also improved with ready made stains being available in the market.

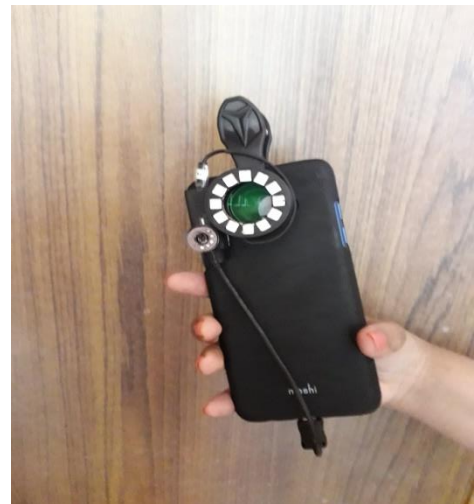
However, costs kept increasing!

- 2) Development in Colposcopy: Technology however was developing fast all over the world. In 1970, Colposcopes were manufactured globally and also in India. It was a Science not restricted to Germany or Eastern Europe after the end of 2nd World War. Developments in Colposcopy were also vast and rapid. It became an easy tool in the hands of Gynaecologists to clinically assess the cervix. By the end of the 20th Century, technology had started improving the use of Cytology and Colposcopy.

Pocket sized, similar to mobile phone Instruments.

Colposcopes became universally available.

For low income countries Magnascope which gives Magnification of 5 is very popular in Rural India.



- 3) Classification was standardized for global use. For Cytology, Bethesda classifications was recommended. For Histology the classification introduced by Ralph Richart of New York was recommended. Cervical Intra-epithelial Neoplasia(CIN) was a term coined by him. He described CIN I, CIN II and CIN III.



With Ralph Richart at IAC
Conference in Madrid, Spain
in 1993.

V) The Era of Zur Hausen

VIRAL ORIGIN OF CERVICAL CANCER



**2013
Poland**

Zur Hausen H

It was in the 1970s that Zur Hausen in Germany implicated that the Human Papilloma Virus was the causative organism which led to the development of Cervical Cancer. In 2008, Harald Zur Hausen received a Nobel Prize for his Research on Cervical Carcinogenesis due to HPV Infection.

At least 30 of these affect the genital mucosa. Cervical Cancer is the first solid tumour associated with virus infection.

The entire approach to Cervical cancer changed with this information. Virologists, Immunologists and Vaccine making Pharmaceuticals got involved. With the dawn of 21st Century, HPV tests and HPV vaccines were introduced in practice.

- 1) Vaccines against Cervical Cancer: These are prophylactic vaccines which offer Primary Prevention against the disease. Since they are based on Virus like Particle (VLP's) and there is no viral DNA, so they are very safe. At present there are two types of vaccines available. The Bivalent against strains 16 and 18 and has powerful adjuvant.

The other is Quadrivalent which is effective against 6, 11, 16, and 18 sub types and has an adjuvant of aluminium hydroxide.

Both vaccines have been in use for over 20 years and have given consistently good results.

In many countries mass vaccination has started through Government Legislation. In Australia, all the school girls get free vaccination. The Nordic countries too have implemented mass vaccination programme.

Serum Institute of India from Pune launched the quadrivalent vaccine in India in September 2022.

- 2) HPV testing is an essential part of Screening . Many tests are being introduced but they are still unaffordable and unavailable. Hopefully, HPV test will be available at least for triaging.

It being a molecular test, it is more reliable. HPV test is also available as a self-collecting test making it more user friendly.

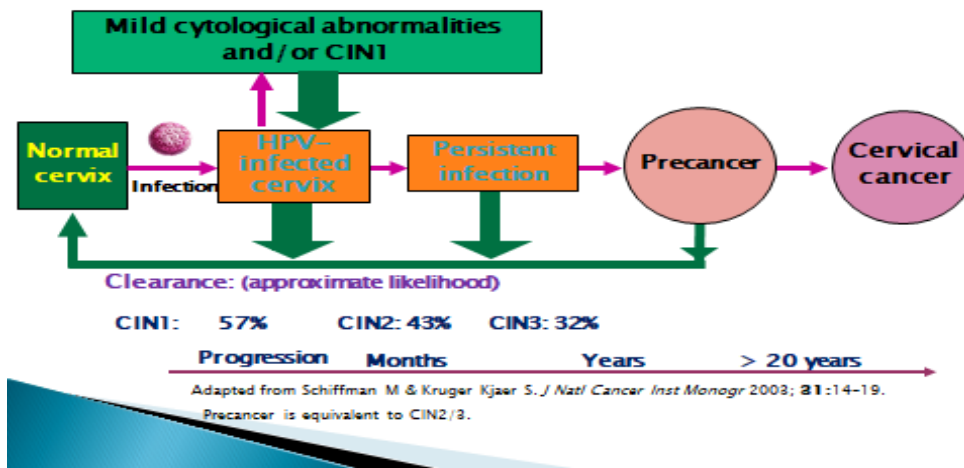
The interval for screening can be increased to 5 years. Hence technically a woman would need only 2 or 3 tests in her life time.

Testing currently has been recommended to continue also in vaccinated women.

- 3) Current acceptance of the natural History of HPV Infection.

This diagram gives the current acceptance of the development of Cervical Cancer (2003). This diagram has evolved over the last 50 years. It may evolve still with new Research and new developments.

Progression of cervical carcinogenesis



It may also become redundant when primary prevention succeeds and invasive cancer is eliminated!

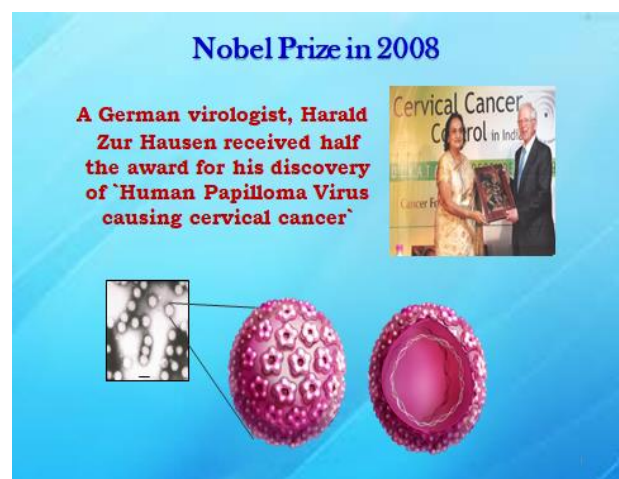


HPV DNA kit Hybrid capture 2



Rover's Brush for LBC

VI) Era of Changing Strategies 2018 Call for Elimination of Cervical Cancer



Initially in 1970's we talked of "War on Cancer" and strategies for the same were established. Tremendous research was being done all over, but results were not leading to a "cure". Then the strategy was suitably changed to "Control of cancer" which meant early detection and prompt and adequate treatment. This promised good results. It was meant to avoid high mortality.

Preventive Oncology became an important component of Oncology in addition to Surgical, Medical and Radiation Oncologies. To that we have added Rehabilitation and Psycho-social support. Research has continued into Genetic fields and Immunology.

It was always known that this disease affected the poor and disadvantaged women. It was related to multiparity and sexual habits in a community. So the focus was more on the developing countries to control this disease.

Globocan of WHO and IARC has given us statistics every 4 years to follow the trends the World over.

At the dawn of the 21st century, the incidence in developed countries was under 10 per 1,00,000 women in the age of 35 and 65. In the developing countries it ranged from 20-40/1,00,000. As also the mortality was very high as cases were detected late.

So in most parts of the developed world it was time to move on from Control of Cervical Cancer to Elimination of Cervical Cancer by 2030.

The final announcement came in 2018, exactly 51 years after the one in 1967.

The WHO statement said that "the Policy of Control of Cervical cancer continues, strengthened and made effective also intensify Palliative Care". Further WHO promised support to all its Member States.

The way to reach this goal is clearly set

1. All girls must have access to vaccines. There must be 90% coverage.

2. All women must have access to affordable screening and proper treatment of Cervical pre-cancerous lesions. 70% of women in the age group of 30-65 to be screened.
3. Media and all stake holders must disseminate this information.
4. All partners must work together, Governments, development partners, private sector, medical community.

Elimination is different from Eradication. In Elimination we continue all the intervention to eliminate the disease in subsequent generations. When this has been successful then comes the phase of Eradication. In the phase of Eradication all interventions are stopped as they are no longer required.

For this programme to succeed in India all like minded organisations like FOGSI, ICOG, AOGIN, ISCCP and AGOI must work together synergistically with government agencies.

- 1) At present coverage is important. It must reach women in District towns and Rural Areas.
- 2) Training programmes must be held to involve paramedical and medical workers.
- 3) Quality must improve. Proper data keeping and Cyto-Histo-Colpo correlation should be studied.
- 4) All Medical Colleges and Institutions must be involved. Our goals will be reached only when Primary Prevention is achieved by vaccination.

Future Trends

Hopefully Vaccines will be introduced in the National Immunisation programme. It may also be incorporated in the School Health programme. If this happens then we will have started on Primary Prevention of this deadly disease. It may take a while but in 25 years, the sun may finally set on invasive Cervical Cancer. It will be a great achievement for Humanity.

Medical Science is so vast and constantly moving forward .

This happens through Research and is brought about by people who live and work in Research institute.

Through this article I wish pay a Tribute to all those who have paid a major role in the story of Cervical Cancer. But for their contribution the world would not have come to the threshold of Elimination.

For what is in the realm of Research today, will come into clinical practice tomorrow. Research has far reaching impact on Humanity.



The sun will set on Prevention, Early Detection
Public Education, HPV Testing
HPV Vaccines for Primary Prevention and
Research.

And a new Era will begin!

Dr. Usha Saraiya

Dr. Usha Saraiya is a practising Obstetrician and Gynaecologist. Her sub speciality is Preventive Oncology. She is one of the Founders of the subject of Cytology and Colposcopy in India.

She has over 50 years of experience in teaching at UG and PG level and also undertaken teaching assignments abroad.

She enjoys writing and has contributed several scientific papers to reputed Journals. She is the author/Editor of 8 books.

She is interested in History of Medicine and has written several articles on the topic.

She has travelled extensively in India and abroad for conferences. Many of her friends and contacts have become great friends of India and visited many times. She has received many awards in her career spanning over 50 years.

The important awards are :

1. Outstanding Women Obstetrician and Gynaecologists by FIGO in 2003.
2. Lifetime achievement award by AOGIN in 2017 and FOGSI in 2019.
3. A “Living Legend Award” by IFCPC in 2021.

Dr. Saraiya was always a good sportsperson in her younger days and still enjoys swimming and evening walks. She has 2 children and 4 grandchildren. Her daughter who is a gynaecologist is also active in Preventive Oncology.

