



The Lesion

Annual Newsletter of Indian Association of Veterinary Pathologists

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Chief Editor
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Editor
Dr M. Saminathan

Cancer is like a cockroach. It just comes back stronger.

-Eddie Van Halen

Editorial ...

I am extremely happy to present The Lesion 2023. It contains mixed scientific matter including information about forth coming VPC 2023 at IVRI, researches, personal achievements and news of IAVP/ICVP activities. It is matter of great pleasure that President, IAVP Dr B.N. Tripathi was selected and joined as Vice Chancellor of SKAUST, Jammu. Earlier to him; 3 eminent Veterinary Pathologists were also selected and served as Vice Chancellors of Agriculture /Veterinary Universities including Dr R.N.S. Gowda, C. Balachandran and H.D. Narayanaswamy. It is heartening to learn that Dr T.V. Anilkumar was awarded with Fellowship of NAAS and his one of technology Cholederm was commercialized. We are happy to learn that COVID-19 Co-vaccine research done at ICMR-NIV, Pune was considered fit form making a commercial film "The Vaccine War". Historical role of young Veterinary Pathologist and our student Dr Sreelekshmy Mohandas was prominently depicted in film The Vaccine War. During the year our two elderly colleagues and stalwart of IAVP Dr N.S. Parihar and Prof. M. Krishnan Nair passed away. IAVP remembers them and appreciates their contributions in building of IAVP. Another visionary and Father of Indian Green Revolution Dr M.S. Swaminathan also passed away. IAVP pays rich tributes to him for his significant contributions in Indian Agriculture.



R. Somvanshi

PRESIDENT IAVP DR B.N. TRIPATHI ASSUMES CHARGE OF VICE CHANCELLOR, SKUAST, JAMMU

Dr B.N. Tripathi assumed office as Vice Chancellor of Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu. Soon after resuming charge as Vice Chancellor, SKUAST, Jammu. Dr B.N. Tripathi had an interaction meeting with the statutory officers of the university to assess various activities in the field of Teaching, Research and Extension. He laid emphasis on skill development of students and shared his vision for the further development of the university.



Dr B.N. Tripathi graduated from Veterinary College, Mathura in 1984 and completed his MVSc and PhD from Indian Veterinary Research Institute, Izatnagar in 1987 and 1990, respectively. Prior to joining as Vice Chancellor, SKUAST, Jammu, Dr B.N. Tripathi was working as Deputy Director General (Animal Science), ICAR, New Delhi. Dr Tripathi did his Post doctorate from Institute of Animal Health, Compton (UK) in 1998-99 and remained visiting Scientist of Moredun Research Institute, Edinburgh in 2003-04. He is a recipient of International Wellcome Trust Travel Fellowship in 2003-04 and International Travel Grants from Indian National Science Academy (INSA) in 2005.

Dr Tripathi worked in various Institutes of National and International repute in various capacities including Director, ICAR-National Research Centre on Equines, Hisar; Director, CCS-National Institute of Animal Health, Baghpat and Head of Animal Health Division, Central Sheep & Wool Research Institute, Avikanagar. Dr B.N. Tripathi is an Elected Fellow of nine Science Academies/Societies including The Royal College of Pathologists (FRC Path), London UK: National Academy of Agricultural Sciences (FNAAS); National Academy of Veterinary Sciences (FNAVS) and National Academy of Dairy Sciences (NADS). He has published 200 original research papers, 5 books, 4 manuals, 5 technical bulletins, 3 policy papers and has 10 patents to his credit.

Dr Tripathi is currently President of Indian Association of Veterinary Pathologists and has been Chief Editor, Indian Journal of Veterinary Pathology and IAVP Newsletter, The Lesion. He is also an active Member of International delegation of ICAR for various meetings.

VETERINARY PATHOLOGY CONGRESS 2023

Veterinary Pathology Congress-2023 cum XXXX Annual Conference of the Indian Association of Veterinary Pathologists and XIV Annual Meeting of the Indian College of Veterinary Pathologists and National Symposium on “Advances in Veterinary Pathology for Diagnosis and Control of Emerging Diseases of Livestock and Poultry” will held on 20-22 December, 2023. It is jointly organized by Indian Association of Veterinary Pathologists Indian College of Veterinary Pathologists & ICAR-Indian Veterinary Research Institute Izatnagar, Bareilly, Uttar Pradesh, India. VPC-23 will be jointly organized by the Centre for Animal Disease Research and Diagnosis (CADRAD), and Division of Pathology in physical mode. The Veterinary Pathology Congress-2023 will bring under one umbrella the Veterinary Pathologists, Academicians, Researchers, Scientists, Disease Diagnosticians, Practitioners, and Students to share their research findings, ideas and intellectually explore the scope of Veterinary Pathology in the field of disease diagnosis to ensure food security and environmental conservation. The Organizing Committee cordially invites all Veterinary Pathologists, Academicians and Researchers for their contributions in this event to make it a grand success. The conference theme was selected with the simple idea that recently various new diseases were emerged in India in animals and humans like lumpy skin disease (LSD), African swine fever (ASF) and COVID-19. Emerging and transboundary infections are a serious global concern. The well-structured scientific sessions in this Congress cater these needs along with covering all important aspects of Veterinary Pathology.

CONFERENCE VENUE: ICAR-INDIAN VETERINARY RESEARCH INSTITUTE

The ICAR-Indian Veterinary Research Institute (ICAR-IVRI) under the aegis of Indian Council of Agricultural Research (ICAR), Ministry of Agriculture and Farmers Welfare, Government of India, is one of the oldest Institutions in the country. This Institute was established in 1889 as an Imperial Bacteriological Laboratory at Pune, Maharashtra and completed 133 glorious years by making many significant achievements and meeting the food security in the country through control and eradication of various diseases. The Institute has two campuses (Mukteswar and Bengaluru) and three regional stations (Palampur, Kolkata and Pune). The main mandate of this ISO 9001:2008 certified Institute is to conduct basic and strategic research to enhance animal health and productivity and to improve the livelihood of farmers through technology dissemination. This Institute is playing pioneer a role as a torch bearer in the field of Veterinary and Animal Sciences, and providing higher education in all disciplines of Veterinary Sciences.

Presently, the Institute offers under graduation in Veterinary Science (BVSc & AH), MVSc in 19 and PhD in 17 disciplines of Veterinary Sciences, 22 Post Graduate Diploma courses and 68 Certificate and Vocational courses. So far the ICAR-IVRI has awarded 2385 National Diploma and 5423 degrees. The Institute has 202 Scientists and 191 faculty members actively participating in the teaching and student guiding activities of the Deemed University. The Institute has well equipped facilities for teaching and training in the form of smart classrooms, virtual class room infrastructure and excellent R&D Laboratories. The Institute also has facilities-like CADRAD, Referral Veterinary Polyclinic, Centre for Wildlife, Livestock Farms, National Library of Veterinary Science, National Museum, Human Hospital, ATIC, ARIS Cell, Auditorium, and Experimental Animal Facilities.



Conference Venue: ICAR-Indian Veterinary Research Institute, Izatnagar



Division of Pathology at Modular Laboratory Building, ICAR-IVRI

MEET YOUR ORGANIZING SECRETARY: DR K.P. SINGH

Dr K.P. Singh, Principal Scientist & Joint Director (CADRAD), ICAR-IVRI, Izatnagar, was born in a farmer's family at Village Haiderpur, block Asmoli, Tehsil, Sambhal, Dist. Moradabad, UP on 31-7-1962. He obtained his BVSc&AH degree from Veterinary College, Mathura, MVSc and PhD degree in Veterinary Pathology from Deemed University, ICAR-IVRI, Izatnagar in 1984 and 1990, respectively. After PhD, he joined Agricultural Research Services as Scientist in October, 1990 at ICAR-IVRI, Izatnagar. Served as Head, Division of Pathology, during January, 2019 - February, 2021. Availed many foreign assignments viz. visiting Scientist at Institute for Animal Health, Compton, UK, in 1996; Wellcome Trust Fellow at Institute for Animal Health, Pirbright, UK, during 2002-2004; expert Pathologist at Veterinary Research Centre, Muscat, Oman, during 2008-2009. Beside these, Dr Singh has presented research papers in international conferences and visited countries like- United Kingdom, Italy, France, Netherland, and Oman. Extensively worked on immuno-pathology and molecular epidemiology of rabies and bluetongue diseases. Submitted more than 150 gene sequences to international gene databank. Received and honoured by various awards- like Young Scientist Award of Indian Association of Veterinary pathologists (IAVP), Fellow National Academy of Veterinary Sciences (FNAVS), Fellow-Indian Association of Veterinary Pathologists (FIAVP), Fellow-Society of Immunology and Immunopathology (FSIIP) and Diplomate-Indian College of Veterinary Pathologists (DICVP). Published more than 250 research papers in various journals of national and international repute, presented 150 research papers in various conferences/symposium, delivered more than 100 invited lectures in various scientific forums/trainings. Having life membership of various scientific societies including IAVP and SIIP. Actively involved in research, diagnosis, postgraduate teaching and guided 10 MVSc and 12 PhD students for their theses. Handled various research projects as PI and Co-PI, the important ones are Indo-UK DBT-BBSRC project on "Development of Diagnostic Systems, Reference Collections and Molecular Epidemiology Studies for Important Arboviral Pathogens of Livestock in India" and ICAR-All India Network Programme on Bluetongue (AINP-BT).



Appointment

Dr K.P. Singh, was selected as Joint Director, Centre for Animal Disease Research and Diagnosis, ICAR-Indian Veterinary Research Institute, Izatnagar, He joined as Joint Director (CADRAD) on 14-11-2022. However, he was officiating as Joint Director, (CADRAD) since 8-1-2021.

INDIAN COLLEGE OF VETERINARY PATHOLOGISTS (ICVP) NEWS

The ICVP a peer and independent certification body, first of its kind in the veterinary fraternity was founded by 22 leaders in Veterinary Pathology both from academia and industry with its head quarter at IVRI Izatnagar, Bareilly in 2008 to set the standards of Veterinary Pathology practice in India. ICVP provides certification of Veterinary Pathologists in India.

ICVP is running a successful training program through online lectures from renowned Pathologists working in diverse specialities-like wild life pathology, fish pathology, anatomic pathology, poultry pathology, electron microscopy etc. Enrolment of over 70 young Pathologists for ICVP three years training, a mandatory requirement to sit for its certification examination is a testimony of its growing popularity. As on today the College has 84 certified Pathologists and founders working in industry and academia. A Certified Pathologist is awarded with Diploma of ICVP, now seen as title of distinction and recognition for practicing Veterinary Pathologists in India. The ICVP Diplomates have marked their recognition through acceptance of their reports by international regulatory bodies besides ease in publishing scientific findings in international journals. The aim of Indian College of Veterinary Pathologists is to make ICVP board certified pathologists widely accepted and regarded for their role in maintaining the globally accepted quality and standards of veterinary pathology practice. ICVP is aiming for its international harmonization with its counterparts, world over besides providing opportunity to pathologists of other countries to acquire ICVP certification.

New ICVP Diplomats

The membership to ICVP is by Board Certification Examination, held every year in the month of September, at a designated place. The College congratulates four young lady Pathologists (Dr Nasreen, A., Tirupati; Dr Purnima C., Thiruvananthapuram; Dr Saahithya Rajamohan. Chennai and Dr Stephanie S. Pradhan, Una) for having passed ICVP Board Certification Examination, 2023 held on September 09-10, 2023 in the Department of Veterinary Pathology, Nagpur Veterinary College, MAFSU, Nagpur, Maharashtra.



Dr Nasreen, A.
Tirupati, AP



Dr Purnima, C.
Thiruvananthapuram
Kerala



Dr Saahithya Rajamohan
Chennai, TN



Dr Stephanie S. Pradhan
Barnoh (Una), HP

Source: Dr Amarjit Singh, Vice President, ICVP, Professor of Veterinary Pathology and Financial Comptroller, Guru Angad Dev Veterinary & Animal Sciences University, Ludhiana, Punjab.

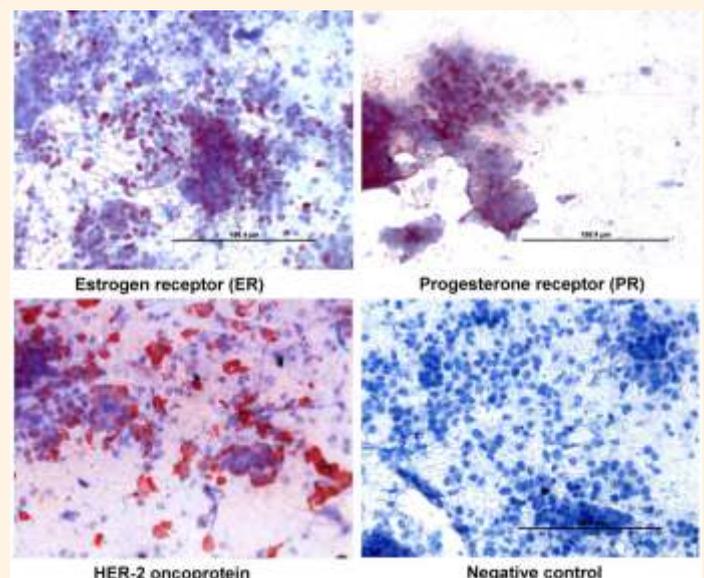
New Research

IMMUNOCYTOCHEMISTRY (ICC): A GAME-CHANGER IN MOLECULAR SUBTYPING AND PROGNOSIS OF CANINE MAMMARY TUMOURS

Immunocytochemistry (ICC) has a pivotal role in the determination of diagnostic, prognostic, and predictive markers of tumours on fine needle aspiration cytology (FNAC) smears. FNAC is a rapid, cheap and reliable tool for diagnosis of lesions, and poses minimal patient risk. ICC is a rapid, time-saving (report will be ready in 24 h) and relatively cost-effective technique with no antigen loss due to fixation for molecular subtyping or immunophenotyping of canine mammary tumours (CMTs) especially for diagnosis of triple-negative CMT subtype, which lacks oestrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor-2 (HER2) expression. ICC can be used for prognostic classification, selecting the right protocol for treatment, and to avoid immediate surgical intervention in clinical cases of CMTs. Recently, we have standardized the ICC technique including primary antibody concentrations of ER, PR and HER2, primary and secondary antibodies incubation time, permeabilization reagent and time, secondary antibody concentration, and chromogen time for rapid diagnosis of triple-negative CMTs. Further, we have compared the results of immunohistochemistry (IHC) with ICC on FNAC or touch impression smears for the diagnostic reliability and determining tumour marker status. We have used 52

cytology smears with high cellularity for immunostaining of ER, PR and HER2, which showed a concordance of 90% with a sensitivity of 86.4% and a specificity of 92% when compared to IHC. Disadvantages of ICC are acquiring cytology specimens with adequate cellularity is crucial, and challenging when CMT is having large cystic cavities. However, ICC has emerged as a promising tool and can serve as a paramount diagnostic adjunct to the routine investigations. The conventional light microscopy should not be ignored for judicious selection of antibodies.

Drs M. Saminathan, A.T. Faslu Rahman, Arun Chatla and K.P. Singh, Centre for Animal Disease Research and Diagnosis, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly, 243 122, UP



New Research

HISTORICAL ROLE OF YOUNG VETERINARY PATHOLOGIST DR SREELEKSHMY MOHANDAS IN FILM "THE VACCINE WAR"

We are proud of our student **Dr Sreelekshmy Mohandas**, young Veterinary Pathologist who is working as Scientist C, at ICMR-National Institute of Virology, Pune. Her research contributions are depicted in recently released film "The Vaccine War". She obtained BVSc & AH degree from College of Veterinary & Animal Sciences, Mannuthy, Kerala in 2012; MVSc and PhD in Veterinary from Division of Pathology, ICAR-Indian Veterinary Research Institute, Izatnagar in 2014 and 2019, respectively. She is having current research interests in viral pathogenesis studies as well as preclinical studies in laboratory animal models for human viral infections. Working as Scientist-C in the ICMR-NIV, Pune. she performed evaluation of the susceptibility of various animal models to SARS CoV-2 and developed Syrian hamster model for SARS CoV-2 which was instrumental in pathogenicity and transmission studies of different SARS-CoV-2 variants, preclinical studies for various vaccine candidates and prophylactic measures against COVID-19. She was involved in the preclinical collaborative research in animal models for various vaccine candidates approved for emergency use in India including COVAXIN, ZyCoV-D and therapeutic studies against SARS CoV-2. She has published more than 40 research articles. Her two-research abstract are as below:



Mohandas, S.; Yadav, P.D.; Shete, A.; Nyayanit, D.; Sapkal, G.; Lole, K. and Gupta, N. (2021). SARS-CoV-2 Delta Variant Pathogenesis and Host Response in Syrian Hamsters. *Viruses* 13, 1773. <https://doi.org/10.3390/v13091773>

B.1.617 was becoming a dominant Severe Acute Respiratory Syndrome-Coronavirus-2 (SARS-CoV-2) lineage worldwide with many sub lineages, of which B.1.617.2 was designated as a variant of concern. The pathogenicity of B.1.617.2 (Delta) and B.1.617.3 lineage of SARS-CoV-2 was evaluated and compared with that of B.1, an early virus isolate with D614G mutation in a Syrian hamster model. Viral load, antibody response, and lung disease were studied. There was no significant difference in the virus shedding pattern among these variants. High levels of SARS-CoV-2 sub genomic RNA were detected in the respiratory tract of hamsters infected with the Delta variant for 14 days, which warrants further transmission studies. The Delta variant induced lung disease of moderate severity in about 40% of infected animals, which supports the attributed disease severity of the variant. Cross neutralizing antibodies were detected in animals infected with B.1, Delta, and B.1.617.3 variant, but neutralizing capacity was significantly lower with B.1.351 (Beta variant).

Mohandas, S.; Yadav, P.D.; Shete, A.; Nyayanit, D.; Jain, R.; Sapkal, G. and Mote, C. (2022). Protective Immunity of the Primary SARS-CoV-2 Infection Reduces Disease Severity Post Re-Infection with Delta Variants in Syrian Hamsters. *Viruses* 14, 596. <https://doi.org/10.3390/v14030596>

The Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) Delta variant has evolved to become the dominant SARS-CoV-2 lineage with multiple sub-lineages and there are also reports of re-infections caused by this variant. We studied the disease characteristics induced by the Delta AY.1 variant and compared it with the Delta and B.1 variants in Syrian hamsters. We also assessed the potential of re-infection by these variants in Coronavirus disease 2019 recovered hamsters 3 months after initial infection. The variants produced disease characterized by high viral load in the respiratory tract and interstitial pneumonia. The Delta AY.1 variant produced mild disease in the hamster model and did not show any evidence of neutralization resistance due to the presence of the K417N mutation, as speculated. Re-infection with a high virus dose of the Delta and B.1 variants 3 months after B.1 variant infection resulted in reduced virus shedding, disease severity and increased neutralizing antibody levels in the re-infected hamsters. The reduction in viral load and lung disease after re-infection with the Delta AY.1 variant was not marked. Upper respiratory tract viral RNA loads remained similar after re-infection in all the groups. The present findings show that prior infection could not produce sterilizing immunity but that it can broaden the neutralizing

Film : The Vaccine War

The Vaccine War is a 2023 Hindi-language medical docudrama film directed by Vivek Agnihotri and produced by Pallavi Joshi. It tells about the development of Covaxin during the COVID-19 pandemic in India, shedding light on the efforts of scientists involved in its creation. It is based on the book "Going Viral" by Prof. Balram Bhargava of Indian Council of Medical Research. The film features Nana Patekar, Pallavi Joshi, Raima Sen, Anupam Kher, Girija Oak, Nivedita Bhattacharya, Sapthami Gowda, and Mohan Kapur. The Vaccine War was theatrically released on 28 September 2023.

Story is that Scientists at the Indian biomedical lab rolls out an indigenous vaccine at the height of the COVID-19 pandemic in the race against time. The Director General of ICMR Dr Balram Bhargava spearheads the vaccine development project. A high level expert committee is set-up by the Ministry of Health and Family Welfare, ICMR, and Bharat Biotech. A scientific team of bioengineers led by Dr Priya Abraham, Director of ICMR-National Institute of Virology, Pune consists of Virologists (all) Drs Sreelekshmy Mohandas, Nivedita Gupta, and Pragma Yadav; Epidemiologists and Infectious Disease Scientists Rajni Kant Srivastava, Raman Gangakhedkar, Samiran Panda, Varsha Potdar and Enna Dogra Gupta. Sapthami Gowda played role of Dr Sreelekshmy Mohandas, Scientist at ICMR-NIV. The SARS-CoV-2 strain (NIV-2020-770) used in developing the BBV152 vaccine is retrieved from tourists who arrive in New Delhi, India. The scientific team sequences the 'Vero CCL-81' cells and the genome sequence is deposited in the GISAID database. The team then reports the development of an inactivated whole-virion SARS-CoV-2 vaccine BBV152, which elicits a neutralizing antibody response in animal studies, and phase I clinical trial against hCoV-19/India/2020770. The Vaccine War is marketed as "India's first bio-science film".



Late News

Eminent Veterinary Pathologist Dr D.V. Joshi, Principal, College of Veterinary Science and Animal Husbandry, Kamdhenu University, S.K. Nagar, Gujarat retired on 31.10.2023 after 38 years of excellent service. Dr Joshi is active life member and office bearer of IAVP.



Achievements

TWIN RESEARCH ACHIEVEMENT OF PROF. T.V. ANILKUMAR

Prof. T.V. Anilkumar, Scientist-G and Head of the Division of Experimental Pathology, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) at Thiruvananthapuram, a national institution under the Ministry of Science and Technology, Government of India has been admitted as a Fellow by the National Academy of Agricultural Sciences. Secondly, in June 2023, his research product Cholederm (an advanced wound healing matrix fabricated from porcine cholecyst extracellular matrix for dermal applications), the first indigenous 'Class D' medical device of animal origin, satisfied all statutory requirements of the Central Drugs Standards Control Organisation for manufacturing and marketing in India (<https://pib.gov.in/PressReleasePage.aspx?PRID=1931904>).



Prof. Anilkumar is an acclaimed Scientist in Comparative Medicine. He is the first veterinarian practicing pathology in India to have a Fellowship (2021) of the much-revered Royal College of Pathologists (England), based on publications. He is also the first Fellow of the International Academy of Toxicological Pathology (USA) from India. Currently, he is a Visiting Professor in Laboratory Animal Science at the Indian Institute of Science Education and Research, Thiruvananthapuram (a national institute under the Ministry of Education, Government of India). He has guided many students at SCTIMST (Six PhD thesis, One M. Phil thesis and Two M.Sc. thesis) and won several laurels at international and national platforms. The Indian Association of Veterinary Pathologists remembers his contributions as the First Web Manager (2004-2008) and Ex-Secretary General (2008-2011). He played a key role in establishing the Indian College of Veterinary Pathologists as a co-Founder (Charter Member), First Chair of Examinations (2008-2010) and Ex-President (2017-2019).

Prof. T.V. Anilkumar completed BVSc&AH with the first five-year batch (1978-1983) at Veterinary College, Kerala Agricultural University, Mannuthy, continued for MVSc (1983-1985) and began his career in Veterinary Pathology as Junior Assistant Professor (1985-1987) under the guidance of several eminent pathologists including Prof. M. Krishnan Nair and Prof. A Rajan at the Centre for Advanced Studies in Veterinary Pathology. Then he joined SCTIMST as a Research Scientist (Veterinary Surgeon, 1987-1990), underwent training in Non-Human Primate Husbandry (Indian Institute of Science, Bangalore) and established a non-Human Primate Research facility for biomedical experiments. Later, he completed further education in Experimental Pathology and Toxicology (1991, MSc; University of London) and Pathology (1996, PhD; Faculty of Medicine, University of London) at the Hammersmith campus of the Imperial College School of Medicine. In addition, he expanded his professional expertise in Biomaterial Sciences (2004-2005, Post-Doctoral Research, National University of Ireland), Comparative Pathobiology (2011-2012, Research Sabbatical, The Johns Hopkins University School of Medicine, Baltimore, USA) and Laboratory Animal Medicine (2012, Post-Doctoral Certificate, University of Guelph, Canada).

After a brief tenure as Assistant Professor at Kerala Agricultural University (1997-2000), Dr Anilkumar rejoined the SCTIMST as Scientist-C. Here, he established a Confocal Microscopy Laboratory and the Division of Experimental Pathology for providing veterinary and toxicologic pathology support to his colleagues in testing and developing of biomaterials and biomedical devices, as per the mandate of the institution. He also, conducted extensive research on the use of farm-animal-derived biomaterials. Remarkably, he pioneered the use of decellularized cholecyst (gall bladder) for human and veterinary medical applications. Specifically, he developed an innovative technique for preparing tissue engineering scaffolds from porcine gall bladder and fabricating advanced wound care products. The grafts promoted a pro-regenerative reaction in skin, subcutis, skeletal muscle and cardiac tissue. The research findings were supported by at least 20 peer reviewed publications and ten patents. In the year 2017, the technology for preparing Cholederm (cholecyst extracellular matrix for dermal applications) was successfully transferred to M/s Alicorn Medicals (), a start-up biopharmaceutical firm. Consequently, gall-bladder of farm animals, normally discarded as slaughterhouse waste became a highly value added pharmaceutical raw-material thereby generating additional income for pig farmers. The research/technology development was supported by two extramural funded research projects (Department of Biotechnology, Government of India) and two institutional research projects.

Contact details: Prof. T. V. Anilkumar, Scientist-G and Head, Division of Experimental Pathology, Biomedical Technology Wing, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Biomedical Technology Wing Campus, Poojappura, Thiruvananthapuram 695012 E-mail: tvanilkumar@sctimst.ac.in, tvanilkumar@iisertvm.ac.in

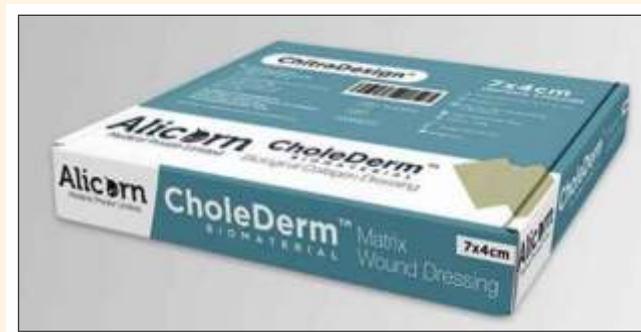
New Technology

INDIGENOUSLY DEVELOPED ANIMAL-DERIVED TISSUE ENGINEERING SCAFFOLD FOR HEALING SKIN WOUNDS WITH MINIMUM SCARRING

The first indigenously developed tissue engineering scaffold from mammalian organs, an animal-derived Class D Biomedical Device that can rapidly heal skin wounds at low-cost with minimum scarring, has received approval from the Indian Drugs Controller. With this, the Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), an autonomous institution of the Department of Science and Technology (DST), became the first institution in the country to develop Class D medical devices that satisfy all statutory requirements of the Central Drugs Standard Control Organisation, Government of India. The concept of using animal-derived materials as advanced wound care products is not new. However, indigenous technology was so far not available for fabricating quality products that satisfy the requirements of the Drugs Controller General. Therefore, such products were imported making them expensive. Researchers of the Division of Experimental Pathology in the Biomedical Technology Wing of the institute developed an innovative technology for preparing tissue engineering scaffolds from mammalian organs. Investigations conducted in the Division in the past 15 years under the leadership of Prof. T.V. Anilkumar decellularised pig gall bladder and recovered extracellular matrix.

Membrane forms of the scaffold, identified as CholeDerm, healed different types of skin wounds including burn and diabetic wounds in rat, rabbit, or dog faster than similar products currently available in the market with minimal scarring as proved by several in-depth laboratory investigations focusing Type I and Type III collagen. The team unravelled the probable mechanism of the healing reaction and showed that the graft-assisted healing was regulated by anti-inflammatory (pro-regenerative) M2 type of macrophages. Indeed, the scaffold modulated or mitigated the scarring reactions in subcutaneous, skeletal muscle, and cardiac tissues. In 2017, the technology was transferred to Alicorn Medical, a start-up biopharmaceutical firm in the Technology Incubation Facility of the Institute namely TIMed. "Considering the stringency of the compliance requirements for Class D Medical Devices as per the 2017-Medical Device Rules of India and the general belief among stakeholders that development of animal-derived Class-D Medical Devices is not practical in India. This is a milestone achievement for the Institute, especially the research team as well as Alicorn Medical," said Dr. Harikrishna Varma, the Head, Biomedical Technology Wing of the institute. In a recent research paper accepted for publication in Comparative Medicine, the team showed that the scaffold has the ability to mitigate fibrotic scarring in rats suffering an experimental myocardial infarction. It is expected that with the introduction of CholeDerm to the Indian market, the treatment cost can be reduced from Rs 10,000/- to Rs 2,000/- making it more affordable to the common man. Moreover, the technology for recovering extracellular matrix from the gall bladder is not available to others and it gives a fair chance for competition in the international market. In addition, the above findings made gall bladder of pigs, normally a slaughterhouse waste without any monetary value, a highly value-added raw material for biopharmaceutical industry thereby creating an additional income-generating opportunity for pig farmers. However, the application of membrane forms of the scaffold for treating cardiac injury was cumbersome. Therefore, the team is developing injectable gel formulations of the scaffold that permits transvenous on-site delivery of the scaffold and for surface modification of polymeric medical devices. "Further investigations in multiple species of animals are necessary to confirm the claim. If true, these observations are likely to revolutionaries the contemporary modalities of managing patients suffering from myocardial infarction," said Prof. T. V. Anilkumar.

Source: <https://pib.gov.in/PressReleasePage.aspx?PRID=1931904> Posted On: 13 JUN 2023 1:34PM by PIB, Delhi



PICTORIAL GLIMPSES OF INTERNATIONAL VETERINARY PATHOLOGY CONGRESS, 2022, HYDERABAD

**Image Source: Dr M. Lakshman, Organizing Secretary cum Professor & Head,
Department of Veterinary Pathology, College of Veterinary Science,
PVNRTVU, Rajendranagar, Hyderabad**



Inauguration of the International Veterinary Pathology Congress-2022 by Chief Guest Dr Krishna Ella, Chairman of Bharat Biotech; Shri Adhar Sinha, IAS, Special Chief Secretary (AH), Govt. of Telangana; Dr B.N. Tripathi, DDG (AS), ICAR & President, IAVP; Dr V. Ravinder Reddy, Vice Chancellor, PVNRTVU; Dean and Organizing Secretary. College of Veterinary Science, PVNRTVU, Rajendranagar, Hyderabad



Awarding Fellowship of IAVP, 2021 to Dr M. Lakshman, Professor & Head, Department of Veterinary Pathology, College of Veterinary Science, PVNRTVU, Rajendranagar, Hyderabad



Awarding Fellowship of IAVP, 2021 to Dr K. Sujatha, Professor, Department of Veterinary Pathology, College of Veterinary Science, SVVU, Tirupati, Andhra Pradesh



Lead paper presentation by Dr Rahul Nelli, Assistant Professor, Veterinary Diagnostic Laboratory, Iowa State University, Ames, IA, US



General Body meeting of IAVP 2022



Poster presentations and evaluation by Committee

Annual IAVP/ICVP Conference



Active interaction of the participants with the lead speakers on current topics



Winners receiving their awards in the Valedictory function



Dr M. Lakshman, Organizing Secretary, College of Veterinary Science, PVNRTVU, Rajendranagar, Hyderabad addressing in Valedictory Function



Scene of cultural programs held on the evening of Inauguration IVPC-2022

IAVP Chapter Activity

CELEBRATION OF 61ST ESTABLISHMENT DAY OF THE DIVISION OF PATHOLOGY, ICAR-INDIAN VETERINARY RESEARCH INSTITUTE, IZATNAGAR, BAREILLY, UP

The Division of Pathology, ICAR-Indian Veterinary Research Institute was established on 6th September 1963 and to celebrate the occasion of 61st Establishment Day, a one-day Seminar on “Research Advances in Neurological and Toxicological Pathology” as well as competitive educational activities for the students were organized by the Division in association with the IAVP, IVRI, Izatnagar Chapter. Serving and superannuated scientists including Drs R. Somvanshi, S.D. Singh, Rajendra Singh, and students of the Division participated in the event. The proceedings of inaugural session were chaired by Dr K.P. Singh, Joint Director (CADRAD). In his opening remarks, Dr R.V.S. Pawaiya, Head of the Division of Pathology, gave a brief overview of the Division's accomplishments throughout the course of its long history. Dr K.P. Singh talked about the significance of Veterinary Pathology and Pathologists in disease investigation during animal diseases outbreaks, their diagnosis and control. He emphasized to the students about the importance of postmortem examination and report writing. Drs R. Somvanshi, S.D. Singh, Rajendra Singh and G. Saikumar recollected the glory of the Division during the period spanning from Drs S.B.V. Rao, B.S. Rajya to P.K.R. Iyer, N.S. Parihar and O.P. Palwal and recounted the interesting happenings during the course of their active service period and shared experiences to motivate the students and faculty. Academic activities such as Quiz competitions for BVSc&AH, MVSc and PhD students, and Case Presentation competitions for MVSc and PhD students were organized on this special day.

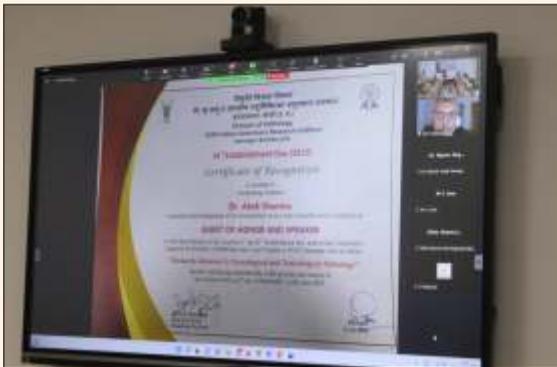
Also, consequent upon the sad demise of Dr N.S. Parihar, former Head of Pathology Division on 15th November, 2022, a 'Dr N.S. Parihar Memorial Lecture' was organised on this occasion to commemorate the immense contributions made by him for the development of this Division. Late Dr Parihar's eminent student, Dr



Dr R.V.S. Pawaiya, Head of the Division of Pathology, IVRI addressing guests, faculty and students



Dr R. Singh, former Head & Emeritus Professor, Division of Pathology, delivered "Dr N.S. Parihar Memorial Lecture" on Comprehensive overview of neuropathology.



Dr Alok Sharma, Director, Global Anatomic Pathology, Labcorp Drug Development, Madison, Wisconsin, USA delivered online lecture on "Role of pathologist in drug development studies and process"



Dr Triveni Dutt, Director, ICAR-IVRI, Izatnagar distributing certificate and prize to winner student. The occasion was graced by Drs K.P. Singh, S.K. Mendiratta, R. Somvanshi, R. Singh and R.V.S. Pawaiya

Rajendra Singh, former Head & Emeritus Professor, Division of Pathology, delivered hybrid mode memorial lecture and gave audience a comprehensive overview of the neuropathology. In addition, Dr Alok Sharma, Director, Global Anatomic Pathology, Labcorp Drug Development, Madison, Wisconsin, USA and an eminent alumnus of the Division delivered online talk on his journey as pathologist and "Role of pathologist in drug development studies and process". Valedictory function was graced by Dr Triveni Dutt, Director of the Institute, Dr K.P. Singh, Joint Director (CADRAD) and Dr S.K. Mendiratta, Joint Director (Academic). The Director emphasised the importance and contribution of Division of Pathology, as a core discipline in resolving the issues related to livestock and poultry disease investigation, diagnosis and control. He appreciated the online talk delivered by Dr Alok Sharma, and invited him to get associated with the forth coming Global University, IVRI as Professor of Practice in order to enrich and motivate the students by sharing professional experiences. Mementoes, certificates and prizes were distributed to the speakers and winner students of various competitions. Vote of thanks was proposed by Dr Vidya Singh, Senior Scientist.

Appointment

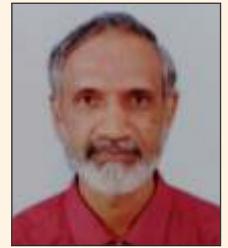
Dr Rajveer Singh Pawaiya, BVSc&AH, MVSc, PhD, Post-Doc (Grenada), FNAVS, FIAVP, FSIP and ICVP Diplomate was selected as Head, Division of Pathology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly, UP. He joined as HOD Path. on 27-06-2023. Dr Pawaiya completed 21 research projects (both institutional-13 and network/externally funded-8) as CPI, PI and Co-PI; developed/involved in developing 2 IT based database software, 10 Technologies including 1 patent obtained and 1 technology commercialized and 5 new genes identified. Dr Pawaiya has published 321 research/ technical publications, including 9 books/manuals, 65 book chapters and 115 research papers in national-75 and international-40 journals; 110-presentations/abstracts in seminar/symposia. He received a number of awards and recognition including Dr C.M. Singh Award for Best PhD Scholar of IVRI; ICAR-Jawaharlal Nehru Award; Diplomate, Indian College of Veterinary Pathologists; Fellow of Indian Association of Veterinary Pathologists; Fellow of National Academy of Veterinary Sciences (India); Fellow of Society for Immunology and Immunopathology and Editor of Indian Journal of Veterinary Pathology.



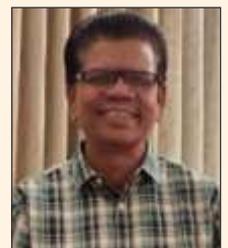
Superannuations

DR M. GOPALAKRISHNAN NAIR SUPERANNUATES

Dr M. Gopalakrishnan Nair completed his graduation (BVSc & AH) in 1983 and MVSc in Veterinary Pathology from College of Veterinary & Animal Sciences, Kerala Agricultural University, Thrissur, Kerala. He was awarded Commonwealth Academic Research Scholarship for doing PhD in Toxicologic Pathology at Liverpool School of Tropical Medicine, University of Liverpool, UK. He served in CV&AS, KAU as an Assistant Professor from 1985 till 1997, as an Associate Professor from 1997 till 2005, as Professor from 2005 till 2016 and as Professor and Head, at Department of Pathology from 2016 till August 2023. During his professional carrier of about four decades, he worked in the area of toxicological pathology, infectious diseases and tumors. His works included mycotoxicosis in domestic animals and birds and comparative biochemistry and pathology of aflatoxin B₁ and fumonisin B₁. He also contributed significantly in the area of animal and human tuberculosis, bovine lymphosarcoma and canine neoplasms. During his service he led many research projects in different capacities including an international research project on canine transmissible venereal tumor in collaboration with Department of Veterinary Pathology, Veterinary Gynecology and Obstetrics of RIVER and Department of Veterinary Medicine, University of Cambridge, UK. He also led a collaborative project on Performance validation of artificial intelligence-based solutions in the analysis of peripheral blood smears, urine and semen on samples collected from animals in collaboration with RIVER and SigTuple Technologies, Pvt., Ltd., Bengaluru. During his entire service, Dr Gopalakrishnan Nair published 70 research papers in the peer-reviewed journals, 48 conference proceedings, besides few book chapter and popular articles. He has supervised 13 MVSc students as major advisor and 22 MVSc students as the member of the advisory committee and also one PhD student at Mahatma Gandhi Medical College and Research Institute, Pondicherry. He has delivered many invited lectures in different seminars and conferences. He has been members of the Pondicherry State Veterinary Council, Life member of Indian Association of Veterinary Pathologists and Associate Member of British Society of Toxicologic Pathologists. Besides, he has also been member of board of studies for undergraduate and postgraduate courses at Pondicherry University, member of Institute Animal Ethics Committee for ICMR-VCRC, Puducherry. He has also been external examiner for many universities including Pondicherry University, Calicut University, KVASU, TANUVAS, SVVU, IVRI, CAU and Bangladesh Agricultural University. He superannuated from the post of Professor and Head, Department of Veterinary Pathology at Rajiv Gandhi Institute of Veterinary Education and Research, Kurumbapet, Pondicherry on 31st, August, 2023. **IAVP wishes Dr Nair prolonged, peaceful, happy, and healthy life.**

**DR S.D. MOREGAONAKR SUPERANNUATES**

Dr S.D. Moregaonakr superannuated from the post of Professor and Head Department of Veterinary Pathology, College of Veterinary and Animal Sciences, Parbhani, Maharashtra on 30.09.2023. He completed his MVSc and PhD in Veterinary Pathology and has served for more than 33 years in the profession. He also qualified ICVP Diplomate in Veterinary Pathology. He has taught various courses of Veterinary Pathology to BVSc, MVSc and PhD students at three different colleges under KKV, MAU & MAFSU Universities. He has been life member of many national associations including IAVP, IACVP, Alumni Association of COVAS, Udgir and BVC, Mumbai and Annual Member of WPSA (1B) etc. He published 186 research articles and 10 technical papers in the reputed scientific journals, participated in 25 National Seminars/Conferences and presented over 125 papers. He was associated with several research projects as Principal Investigator and Co-Principal Investigator. Five of his research findings were recommended for field applications by MAFSU, Nagpur. Dr Moregaonakr guided 22 MVSc and 4 PhD students of Veterinary Pathology discipline as a major guide and as a member of advisory committee for over 23 PhD and over 80 MVSc students. He was a member of the IAEC at COVAS, Udgir and Parbhani, member of PME Cell at BVC, Mumbai and COVAS, Parbhani. His research papers have got a total of 2192 citations to the credit, with h-index-23 and i-10 index-48. He has acted as an expert panel



member for evaluation of research articles submitted to journals viz. IVJ, Journal of BVC and UVASR. He has been associated with the extension activities of the institutes as PI and/or Co-PI in different extension projects and disseminated the knowledge through over 121 popular articles, 35 radio talks, 4 TV talks, 2 leaflets/folders, 4 booklets/compendia/ manuals, 7 articles published in booklets & 11 extension talks as a resource person. He has been a member of the college, university and state level committee for the control of LSD in Maharashtra. He has also contributed significantly in administrative assignments of the institute and the university in different position He has also served as Associate Dean and Principal, Veterinary College, Udgir and COVAS, Parbhani. He has recipient of many awards and recognitions including IAVP-Dr C.M. Singh Award-1997; AVP-Poultry Pathologists Award-2016; Ballruja Shetimitra Joddhande Vishayak Lekhan Puraskar-2016; Diplomate of ICVP-2021; Fellow of Indian Association of Veterinary Pathologists-2022 and Best Academic Award-2022. IAVP wishes Dr Moregaonakr happy, peaceful, healthy and prolonged life.

Obituaries

DR N.S. PARIHAR (1939-2022) PASSES AWAY

Eminent Veterinary Pathologist, animal disease diagnostian and great teacher **Dr Narendra Singh Parihar (83)**, former Joint Director, CADRAD (Acting), retired Head, Division of Pathology, Indian Veterinary Research Institute, Izatnagar, Bareilly, UP was born on 1st July, 1939 at Distt. Damoh, MP. He did his BVSc in 1960 and MVSc (Veterinary Pathology) in 1963 from MP Veterinary College, University of Jabalpur, MP. He obtained his PhD degree (Veterinary Pathology) from Haryana Agricultural University in 1970 under able guidance of Dr C.M. Singh. Dr Parihar was a meritorious student since his school days and obtained 19th position in M.P. State in Secondary School Certificate Examination. He obtained gold medal from Jabalpur University for standing first in BVSc and Gold-plated medal of Haryana Agricultural University for first position in 1969-70. He earned honours by receiving Scholarship/Fellowship during his BVSc, MVSc and PhD studies.



He started his service career in field as Veterinary Assistant Surgeon followed by Research Associate at Veterinary College, Jabalpur (01.07.63-16.07.65). For a short spell of time he served as Graduate Assistant at IVRI, Izatnagar (19.12.69-15.03.70). Dr Parihar served Division of Pathology, IVRI in different capacities as Pathologist (S-2) during (16.03.70-30.06.76), Pathologist (S-3) during (01.07.76-31.12.83), Pathologist (S-4) during (01.01.84-31.12.85) and Principal Scientist during (01.01.86-22.02.99). He was selected as Head, Division of Pathology, IVRI and served during 23.02.99-30.06.99 period. Actually, he Headed the Division of Pathology for about a decade. He also served as Joint Director, Centre for Animal Disease Research and Diagnosis, IVRI, Izatnagar for about 9 months. Dr Parihar had image of strict administrator and served as Officer Incharge of Engineering Section, IVRI, Izatnagar for more than 2 years.

His significant scientific contribution included pathological research on avian respiratory and ovine nervous system diseases, tuberculosis sensitivity, reproductive disorders, pneumonia, ocular pathology, etc. He carried out disease investigation and diagnosis of cattle, buffalo and wild animal diseases. Malignant catarrhal fever, pulmonary lymphosarcoma in buffaloes, infectious synovitis, mucormycosis and certain tumorous and pathological conditions were first time recorded in the country. He was instrumental in reintroduction of biological test for diagnosis of rabies and restart of swine fever vaccine production in the Institute. The ocular lesions in buffaloes, sheep and goats were elucidated. The clostridial diseases in sheep, goats, cattle and pigs were studied. Certain mycotic and Pasturella species lesions were reproduced in sheep. The reproductive lesions in both male and female pig genitalia were detailed. Dr Parihar was associated with development of recombinant epsilon toxin for diagnostic and vaccine use. Paratuberculosis was studied in relation to its early diagnosis.

Dr Parihar was a distinguished teacher and had vast teaching experience and was associated with post-graduate teaching for 15 years in Deemed University, IVRI, Izatnagar. He guided 8 PhD and 7 MVSc students in Veterinary Pathology for their thesis research work. His most eminent students included Drs S.K. Chattopadhyay, B.N. Tripathi, A.K. Sharma, R. Singh, K.P. Singh, G. Sai Kumar etc. He had more than 200 research publications to his credit. He authored two books viz. "*Pashu Shava Pariksha*" (in Hindi) published by G.B. Pant University of

Agriculture & Technology, Pantnagar in 1987 and “*Guinea pigs (Cavia porcellus) in Biomedical Science*” along with Dr B.M. Arora in 1978. He organised Staff Course on Cattle diseases in 1980, Workshop on Bluetongue in 1982 and ICAR-Summer Institute on cattle diseases in 1984 at Division of Pathology, IVRI. He very actively and significantly contributed to several professional associations. He was member of a number of associations/societies viz. Indian Veterinary Association, Indian Science Congress Association, Indian Public Health Association, Indian Association of Veterinary Pathologists, Indian Association of Microbiologists, Immunologists and Specialists in Infectious diseases, Veterinary Alumni Association, Punjab Agricultural University, Society for Immunology & Immunopathology and Association of Indian Zoo & Wildlife Veterinarians. He had registration with Veterinary Council of India and Veterinary Council of Uttar Pradesh. Dr Parihar served as Editor of Indian Journal of Veterinary Pathology (1979 to 1982), Treasurer-cum-Joint Secretary, Indian Association of Veterinary Scientists (1984 to 1985). General Secretary, Indian Association of Veterinary Scientists (1989 to 1993) and Treasurer, Indian Association of Veterinary Pathologists (1988 to 1997).

Dr Parihar received International and National recognition of his hard work in form of Certificate of Appreciation awarded by USDA for work in PL 480 Scheme on Bovine Lymphosarcoma and IVRI Faculty's Best Teacher Award, in 1995; Dr Ganti A. Sastry Award for 1991; Fellow of National Academy of Veterinary Sciences, 1998; Professor Nils Lagerlof Memorial Award, 2000; Dr C.M. Singh-Salihotra Samman, 2004 and Professional Excellence Award, 2007 by Association of Indian Zoo & Wildlife Veterinarians. Dr Parihar passed away on 15-11-2022 at the age of 83 to his heavenly abode journey after short illness at Bareilly. He is survived by his wife and one son and a daughter. May God give peace to departed soul and strength to his grieved family members to bear this great loss. **IAVP conveys deep condolences to bereaved family to bear this irreparable untimely loss and prays almighty God for eternal peace to departed soul.**

PROFESSOR M. KRISHNAN NAIR (1933-2023) PASSES AWAY

Prof. M. Krishnan Nair (90) was an eminent Veterinary Pathologist, researcher, educationist, author, research administrator, and one of founder pillar of IAVP. Mr Krishnan Nair was born on 25th July, 1933, at Nagarcoil, Tamil Nadu. He did his BSc in Zoology and later worked as a school teacher for a short period before joining the Government Veterinary College of Travancore-Cochin State located at Mannuthy, Thrissur in the year 1955 as a student of the First Batch of BVSc. As an undergraduate student, he was the Speaker of the College Union and Captain of the College Cricket Team. After completing BVSc in 1959 with a meritorious rank, he joined as Lecturer in the than Kerala Veterinary College, Mannuthy. Later he joined MVSc in the discipline of Veterinary Pathology at the Madras Veterinary College in 1964 under the guidance of Dr K.P. Chandrasekharan Nair and completed post-graduation with first rank in the year 1966. He then went to Royal Veterinary College, Stockholm, Sweden for doing FRVCS. Due to his excellence in studies, Dr Nair was admitted there for PhD programme under eminent Veterinary Pathologist, Professor Carlson Rubarth. in 1969 and obtained doctorate degree in 1973. After higher studies he joined back the Kerala Veterinary College, Mannuthy and later became the Head of the Department. The Department came to lime light through a Kerala State Science and Technology Award for a study on pollution in water streams in Kerala and fish mortality. His contribution in elucidating the ultrastructural pathology of 'Bovine Ethmoid Carcinoma' and 'Mycotoxocosis in farm animals' is worth remembering. He also played a significant role in elevating the status of the Department along with Prof. A. Rajan in upgrading its status to a 'Centre of Excellence in Veterinary Pathology' under the Indian Council of Agricultural Research.



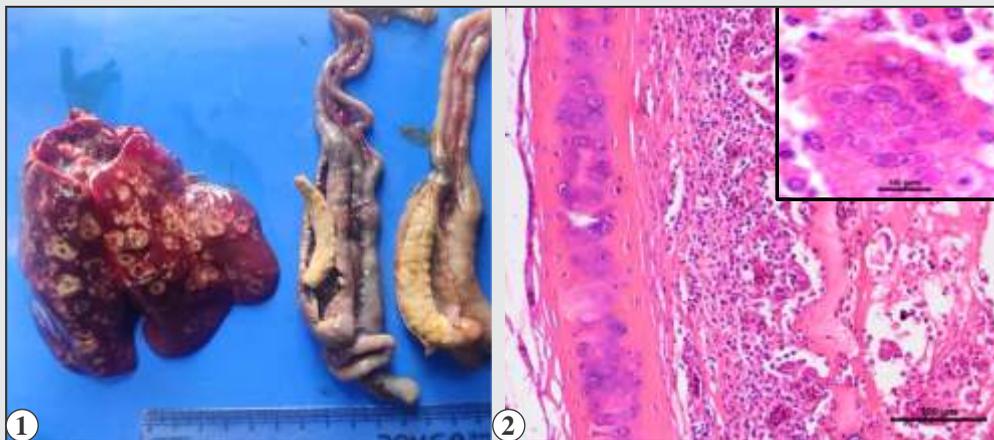
Prof. Krishnan Nair served as the Dean of College of Veterinary and Animal Sciences, Mannuthy for a term from 1980 till 1985. After completing the five-year term of Deanship, he preferred not to continue and Kerala Agricultural University created the post of Director, Veterinary Research and Education. He continued in that position until superannuation in the year 1993. Subsequent to retirement, Prof. Nair was re-employed by the University as Research Professor in fish diseases for 2 more years. Prof. Krishnan Nair was a gentle and knowledgeable person, a wonderful teacher, outstanding researcher and a widely respected Veterinary

Pathologist. He was a role model for the veterinarians at large and Veterinary Pathologist in particular. His role in strengthening Indian Association of Veterinary Pathologists during the early years is well known. He served as President, IAVP during 1987-1993. The virtuous advices given by Prof. Krishnan Nair to many pathologists of his time, especially young budding pathologists and students throughout India. Indeed, he was duly acknowledged and recognised by many in various spheres. He was awarded Fellowship of IAVP. From their memoirs, we could understand the realm of influence and the aura Prof. Krishnan Nair has created among his students as well as fellow Veterinary Pathologists of the country.

Prof. Krishnan Nair was an internationally renowned pathologist who unveiled several intricacies of avian inflammation and was a doyen in the field of avian diseases. He had led several studies in Epizootic Ulcerative Syndrome in fishes and was an expert oncologist too. He was the trailblazer of electron microscopy in the field of veterinary science in India. He was instrumental in establishing Electron Microscopy Facility in the Department of Veterinary Pathology, Veterinary College, Mannuthy, Kerala. Prof. Krishnan Nair's passion towards the subject of pathology was countless which he pursued until a few months prior to his passing away. It was on 14th June 2023 on the occasion of 13th institution day of KVASU a monograph entitled "The Chicken Heterophil-Structure and Function" authored by Prof. M. Krishnan Nair was released by the University. His passion towards pathology, in his own words was engendered around the book "Text book of Pathology" written by the human physician and pathologist William Boyd to the extent that he had said to his family "Whenever I die, bury the book along with me". The great luminary, Prof. Krishnan Nair, in his last days was in USA with his son and family, succumbed to the malady of prostate cancer. Being a proficient oncologist, probably he was well aware of the consequences of his disease and said "no to all conventional treatment protocols except palliative care". Professor M. Krishnan Nair passed away on 31st July 2023 at the age of 90. He is survived by his wife, son, daughter in law and two grandchildren.

The IAVP expresses deepest condolences and pray the Almighty to give strength to the family, friends and students to bear the great loss caused by his demise. Even though the veterinary fraternity has lost one of its finest personalities, the legacy that Prof. Krishnan Nair left behind will always live in hearts of Veterinary Pathologists.

IDENTIFY THE LESIONS AND DIAGNOSE THE DISEASE



Images Source: Drs Megha Sharma and Asok Kumar, M. Avian Disease Section, Division of Pathology, ICAR-IVRI, Izatnagar, Bareilly-243122 (U.P.)

Answer of Identification of the lesions and diagnose the disease
Fig.1: Histomoniasis in chicken. Liver showing multifocal to coalescing yellow necrotic areas, surrounding reddish hemorrhagic depressed centres (Saucer shaped lesions). Distended caeca with the presence of pale-yellow caseous material representing caecal cores.
Fig.2: Infectious laryngotracheitis in chicken. Presence of basophilic intranuclear inclusion bodies within the multinucleated syncytial cells surrounded by inflammatory exudate. Denudation of pseudo columnar epithelium, infiltration of inflammatory cells in the lamina propria and pseudomembrane formation (H&E, 200X).

Homage

PROF. M.S. SWAMINATHAN (7-8-1925-28-9-2023) FATHER OF INDIA'S GREEN REVOLUTION PASSES AWAY

Dr M.S. Swaminathan (98) was a pioneering plant geneticist and agronomist whose work revolutionised farming and brought self-sufficiency in food production to India. Swaminathan was a global leader of the green revolution. Mankombu Sambasivan Swaminathan was born in 1925 at Madras. He was only 18 when he witnessed the devastating effects of the Bengal famine, which led to the deaths of about 3 million people. The experience triggered him into a career in the agricultural sciences. Prof. Swaminathan, who has died at 98, is renowned as the “Father of the green revolution in India”, for his introduction of high-yielding genetic varieties of rice and wheat. His work alongside Prof. Norman Borlaug led to the doubling of wheat yields in India in the late 1960s. Because of Prof. Swaminathan's efforts, India went from being drought-stricken and dependent on US imports in the 1960s to being declared self-sufficient in food production in 1971. He was awarded the first World Food prize in 1987 for his historical work. He established M.S. Swaminathan Research Foundation which aims to accelerate the goals of the evergreen revolution, taking a “pro-poor, pro-women and pro-nature” approach.



Dr Ashok K. Singh, Director of ICAR-Indian Agricultural Research Institute, New Delhi stated Dr Swaminathan's legacy as “An era of agricultural research, education and extension filled with disruptive innovation comes to an end,”. Dr Singh summed up Dr Swaminathan's work by saying: “If God appears to the poor and hungry in the form of bread, as Mahatma Gandhi said, then that God is Dr Swaminathan, who should be revered by every citizen while partaking in their daily meals. IAVP acknowledges his significant contributions to Indian Agriculture and pays rich tributes to Dr Swaminathan.



Archival Photo: Dr R. Somvanshi receiving his PhD degree in Veterinary Pathology from Dr M.S. Swaminathan in First Convocation at Deemed University, IVRI, Izatnagar in 1990.

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