Episteme

The official bulletin of AIIMS Guwahati
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MESSAGE: PROF. BABUL KUMAR BEZBARUAH, PRESIDENT, AIIMS GUWAHATI

It is a matter of pride that AIIMS Guwahati is going to publish its first ever journal. Health care is a very challenging field. A multi domain specialty, it demands active involvement and collaboration of different departments. Role of health professionals in delivering quality care and attaining positive outcomes has been widely appreciated. Considering the present health care scenario and needs, this journal will be a much-needed effort to provide a dais from all the stakeholders. I hope the journal will produce rich outcomes for everyone and serve as a platform for new ideas and will create opportunities for research and collaboration. I hope that the faculties of different departments will show the path of research and academic up-liftment through this journal.

MESSAGE: PROF. ASHOK PURANIK, EXECUTIVE DIRECTOR, AIIMS GUWAHATI

It gives me immense pleasure to unveil the second edition of the news bulletin of AIIMS Guwahati "Episteme." The bulletin aims to throw light on the key achievements of the institute with respect to the services started and new initiatives that have been launched in the field of patient care and research. The Institute has grown in leaps and bounds since its inauguration in April 2023 by our Honourable Prime Minister Shri Narendra Modi. Full-fledged OPD services, OT services, specialized clinics in various disciplines, laboratory services have started making this institute a hub of preventive, promotive and curative care in this region. Therefore, the primary aim of this bulletin will be to keep the medical fraternity and the general public updated on the services, initiatives and various events conducted at Regional, National and International levels in the Institute. The bulletin also gives an insight into the various extracurricular activities in the Institute along with the ongoing student activities and events related to culture, literature, sports and environment initiative.

The primary focus of all these endeavours is to bring about a holistic development of the students, faculty and all the staff. This issue also carries an academic section where scientific articles of impact and recent advances in Medicine are being highlighted to provide an enriching learning experience for the readers. I congratulate and wish the editorial team success in their endeavours.

Major institutional events

- The 77th Independence Day was celebrated at a grand scale in the Auditorium complex with participation from local community members as well as students from nearby schools. It comprised of Executive Director's address remembering the unsung freedom fighters from Assam and a series of cultural programs on the theme of love for our nation.
- L. S. Changsan, Additional Secretary & Mission Director (NHM) made a visit to AIIMS Guwahati on 12th Oct.,2023 to take review of functioning of AIIMS Guwahati.
- Prof. Babul Bezbaruah took charge as President, AIIMS Guwahati on the occasion of teachers' day 2023 amidst a welcoming ceremony for incoming president and farewell for former president of AIIMS Guwahati.
- A gender sensitization program was conducted for all members of institute with the theme 'WE ACCEPT, WE INCLUDE' on 12th of October, 2023. Esteemed invited experts delivered talks on important aspects, and the audiences pledged towards the goal of fostering a campus environment that champions gender inclusion and acceptance.
- AIIMS Guwahati hosted WOUNDCON 2023 (25th National Conference of Indian Society of Wound Management) with the presence of esteemed national and international wound management experts, and leading industry members showcased their wound management products during the same. More than 350 doctors, nurses and students attended the program and hands on workshops to enhance their knowledge and skill.

- AIIMS Guwahati has started undertaking various outreach activities at nearby PHC, CHC and villages under the Ayushman Bhavah Campaign and Viksit Bharat Sankalp Yatra Program starting December 2023.
- AIIMS Guwahati welcomed its 4th batch of MBBS students on September, 2023.

Services Started

- The Department of Diagnostic and Interventional Radiology inaugurated a state-of-the-art Digital Radiography (DR) 1000mA X-ray Facility in September 2023.
- The Department of Community and Family Medicine inaugurated the first Yellow Fever Vaccination Centre approved by the Ministry of Health and Family Welfare - Government of India (GoI) for the entire North East India region in September 2023.
- The Department of Biochemistry commenced immunoassay investigations and HPLC services in September 2023.
- Cytopathology services, including FNAC, USG-guided FNAC, PAP smear screening, and body fluid analysis, were introduced by the Department of Pathology in September 2023.
- AIIMS Guwahati began conducting major surgeries starting from October 2023.
- AIIMS Guwahati initiated services for Central Government Health Scheme (CGHS) beneficiaries in November 2023.
- On World Diabetes Day in November 2024, the Department of General Medicine launched a dedicated Diabetes Clinic.
- The Department of Pediatrics inaugurated Video EEG services and a Pediatric Neurophysiology Laboratory in December 2023.

Workshop /CME/ conferences

- The Department of Burns and Plastic Surgery organized a CME on "Multidisciplinary Approach in Wound Healing and New Age Dressing Materials" on World Plastic Surgery Day, June 15, 2023.
- The central library of AIIMS Guwahati organized a "Regional User Training and Awareness Session on NML-ERMED Consortium" for North-Eastern zone medical libraries on July 3, 2023.
- A workshop on Q-Med courses covering literature search and reference management for students and faculty was conducted by the Central Library on July 20, 2023.
- In collaboration with the Department of Community and Family Medicine and UNICEF, the Department of Pediatrics conducted an awareness program for World Breastfeeding Week 2023 at Changsari State Dispensary on August 4, 2023.
- A CME on "Novel Technologies for 21st Century Molecular Diagnostics and Research" was conducted by the Department of Pathology, in association with the Department of Biochemistry and Research Cell, on August 22, 2023.
- The Department of Ophthalmology observed Eye Donation Fortnight from August 25 to September 8, 2023, and organized a workshop on Eye Donation and Keratoplasty in the College Auditorium on August 26, 2023.
- The Department of Forensic Medicine and Toxicology conducted a CME on "Medicolegal Case Management in Hospital Setting" on September 7, 2023.
- The Department of Pharmacology, in collaboration with NCC-PvPI, IPC, Ghaziabad, observed National Pharmacovigilance Week from September 17 to 23, 2023, which included a CME, awareness programs, and student competitions.
- An Oral, Breast, and Cervical Cancer screening camp was organized by the Department of Community and Family Medicine at Bezera CHC on September 21, 2023.
- The Departments of Biochemistry, Pathology, Microbiology, and Transfusion Medicine jointly organized a workshop on Best Practices in Sample Collection on September 23, 2023.
- Pre-Conference workshops of the 20th National Conference of IAP Chapter of Neurodevelopmental Pediatrics 2023 on "Behaviour in Children: Basic and Beyond" and "Developmental Assessment – Screening and Surveillance" were conducted by the Department of Pediatrics in collaboration with IAP Assam State Branch and UNICEF, Assam on October 6, 2023.
- The Department of Community and Family Medicine organized a webinar on "Artificial Intelligence: Applications and Implications on Public Health" on October 7, 2023.
- The Medical Education Unit conducted three faculty development hands-on workshops from July to December 2023. The first workshop on OSCE was on October 11, the second on OSPE on October 30, and the third on MCQ and Item Analysis on December 8.
- The 36th IAP Undergraduate Quiz 2023 was conducted by the Department of Pediatrics in collaboration with IAP Guwahati City Branch and IAP Assam State Branch on October 26, 2023.
- A Basic SPSS Workshop was organized by the Research Cell in collaboration with the Department of Pediatrics, supported by IAP Assam State Chapter on October 28, 2023.
- The Department of ENT, in collaboration with the Department of Anatomy, organized a Hands-on Cadaveric Temporal Bone Workshop on November 1, 2023.
- The Department of General Medicine observed World Diabetes Day on November 14 by conducting various events such as a guest lecture, bicycle rally, and diabetes screening.
- The Department of Community and Family Medicine organized an awareness cum health check-up camp with the distribution of diabetic kits on World Diabetes Day at North Guwahati Block PHC on November 14, 2023.
- The Department of Physiology celebrated World Physiology Week 2023 under the aegis of The Physiological Society, UK, from November 20 to 24, 2023, with guest lectures, community outreach activities, and student competitions.
- The Department of Ophthalmology, in collaboration with the local gram panchayat, organized a free Eye Checkup Camp in Changsari on November 25, 2023.
- The Department of Pharmacology, in collaboration with the Department of Physiology, organized a workshop on "Research Illustrations and Data Visualization" as part of APPICON on November 28, 2023.

- The Department of Burns and Plastic Surgery organized a socio-cultural awareness program on burn prevention and management amongst school-going children at Changsari Model Higher Secondary School on December 4, 2023.
- The International Day of Persons with Disability was observed by the Department of Physical Medicine and Rehabilitation over a two-day program on December 4 and 5. An outreach program was held at Bezera CHC in collaboration with the Community and Family Department.
- A CME on "Good Laboratory Practices and Essentials of Quality Control in Clinical Chemistry" was organized by the Department of Biochemistry on December 9, 2023.
- The Department of Pathology & Lab Medicine arranged a guest lecture on "Globalizing Pathology Education in the Era of eLearning: The PathCast Experience" by Dr. Rifat Mannan, Associate Professor of Pathology and Lab Medicine, City of Hope, University of Pennsylvania, California, USA, on December 12, 2023.


CHANGSARI MODEL
HIGHER SECONDARY SCHOOL
AWARENESS PROGRAM

EPISTEME: Journal section

Review article: Patient as Partner approach in Healthcare: Topic for future research

Author: Prof. Babul Kumar Bezbaruah,
Principal cum Chief Superintendent, Nalbari Medical College, Nalbari, Assam and President, AIIMS Guwahati

Patients are not only active members of their own health care team but also are involved in research and provide valuable training to health sciences students. Including patients as full partners in the health care team entails a significant shift in both the medical practice and medical education cultures.

With the sharp increase in the involvement of patients (including family and informal caregivers) as active participants, collaborators, advisors and decision-makers in health systems, a new role has emerged, the patient partner. The role of patient partner differs from other forms of patient engagement in its longitudinal and bidirectional nature.

In recent decades, the epidemiological transition from infectious to chronic diseases has become a major public health challenge facing all countries, regardless of their economic status. Chronic non-communicable diseases such as heart disease, stroke, cancer, chronic respiratory diseases, and diabetes are now by far the leading causes of death and disability in the world, accounting for two of every three deaths worldwide according to the Global Burden of Disease Study 2010. Patient-as-partner (PP) approach appears both more relevant and better adapted to today's challenges and the needs of most patients with chronic diseases.

Because self-care is a technique—that is, an activity based on a certain knowledge held by the individual—we must determine what knowledge a patient needs (or already has) to take care of herself. When dealing with incurable chronic diseases, experience becomes a well of critical information. Of course, the patient, not the doctor, is more intimately connected to the experience of illness.

The key to successful doctor–patient partnerships is therefore to recognize that patients are experts too. The doctor is, or should be, well informed about diagnostic techniques, the causes of disease, prognosis, treatment options, and preventive strategies, but only the patient knows about his or her experience of illness, social circumstances, habits and behaviours, attitudes to risk, values, and preferences. Both types of knowledge are needed to manage illness successfully.

Seeing the patient as a caregiver does not mean involving him at every level of care, it does not mean including him in every meeting or consulting him on every decision. The doctor, nurse, physiotherapist, and other health care professionals each possess a certain expertise, similarly, so does the patient. None of the major inter-professional collaborative care models argue that all professionals on a care team must act together at all times and take part in all steps of the process. The PP approach does not argue this either.

Today, universities and research funding agencies have been called on to respond to these changes. In the United States, the Patient-Centered Outcomes Research Institute has been established by the 2010 Patient Protection and Affordable Care Act. An example of such research is the pilot program "Zone of Openness" at the Palo Alto Medical Foundation Research Institute in California, which was designed to dispel patients' fear of repercussions for asserting themselves in clinical decision-making processes and to help clinicians invite patients' points of view. In medical education, the relationship-centered care initiative at Indiana University demonstrated that culture change is possible at a large medical school with a competency-based curriculum. At Yale University, the Department of Psychiatry has developed the Citizens Project, which provides peer mentor support services and nontraditional classes geared toward the rights, responsibilities, roles, and resources of community membership to adults currently in treatment for a psychiatric illness.

In addition, experiential knowledge is being shared between patients worldwide via healthtalkonline.org (formerly DIPEx from Oxford University), a web site devoted to the sharing of patient experiences. Furthermore, over the past four years, patient universities have been created, most notably in Barcelona (Spain), Hanover (Germany), Paris (France), and soon Marseille (France), offering programs to develop patients' knowledge in various areas. Expanding on this idea, in 2010, the University of Montreal (Canada) created the Office of Patient-as-Partner Expertise (now the Direction of Collaboration and Patient Partnership [DCPP]), co-led by a patient and a physician.

Therefore, Patient as Partner approach in Healthcare may be an excellent topic for the collaborative research.

Reference: Karazivan P, Dumez V, Flora L, Pomey MP, Del Grande C, Ghadiri DP, et al. The patient-as-partner approach in health care: a conceptual framework for a necessary transition. Acad Med. 2015 Apr;90(4):437-4.

Review article : **Artificial intelligence in Medicine: A brief overview.**

Author: Prof. Ashok Puranik, Executive Director, AIIMS Guwahati.

Artificial intelligence (AI):

AI referred to algorithm driven intelligent machine, mimicking human cognitive capacity. These intelligent machines are capable of learning and problem solving. The strengths of these AI models lies in the fact that it can identify the patterns in large multimodal (containing clinical, biochemical, pathological variables, image) datasets marking itself as a future diagnostic/therapeutic partner for physicians. These machines have come up to such a stage that, today, these intelligent machines can anticipate problems and adapt to problems (1). Machine learning (ML) is a subset of AI, which uses statistical methods and algorithms to enable machines to incorporate real world experience (data) without the requirement of assistance or intervention by humans and thus improving the performance of itself over time. ML can be either supervised (e.g. annotation), un-supervised, semi supervised, self supervised, reinforcement learning (trial and error) to name a few. On the other hand, deep learning is a sub-family of machine learning, which uses neural networks (similar to humans) to mimic human brain information processing patterns and is helpful in identifying patters in data.

Similar to teaching human kids step by step, the machine learning models also need to be taught with datasets, their performance is to be evaluated using goodness of fit criterias before applying it as an intervention, more specifically as a public health intervention. Many of these machine learning models are extensions of different regression models. In deep learning also, a layered regression model is applied to a dataset (including thousands of variables). In comparison to a simple linear regression model denoted by the equation $Y=mX + C$, these multilayered models contain thousands of variables and thus are too complex. However its very useful in identifying patterns (2).

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Virtual reality and augmented reality

Virtual reality is 3D computer generated environment, where the users can interact with and the computers take input from the user and present the VR information based upon position/input from user. VR can be non-immersive (e.g. driving or flight simulations, where, the user sit on a seat and is surrounded by multiple screens) or immersive (user wears a display e.g. head mounted display). Augmented reality technology is an intermediate form between non-immersive and immersive VR (3). Both virtual reality and augmented reality are becoming important component of medical science both in terms of training and therapeutics. VR is an age-old technology, while, AR is a relatively new concept. Both AR and VR uses synthetic 3D technologies, however, the AR uses VR and superimpose it with an environment simulating real world (4). Although AR and VR is not artificial intelligence, however, there is immense use of artificial intelligence in both of these technologies (4).

AI in healthcare:

1. Medical teaching/learning:

The future role of artificial intelligence in achieving teaching/learning objectives is already reviewed (5). The role of artificial intelligence in Medical Education cannot be undermined with the increasing popularity of tools like Chat GPT, Osmosis, Up to Date, Visual Dx etc. AI tools can encompass creation of virtual environments, AI based assessments and adaptive e-learning systems which can provide a personalized learning experience to the students. One of the important roles of AI is to provide students with a tailored and adaptive instructional content thereby allowing students to detect their knowledge gaps and improve their satisfaction level. At the same time, it is important to appraise the medical students of the need to use these tools ethically and critically appraise the contents presented by the AI generated tools. AI can assist Instructors and institutions to develop and assess the curriculum helping them to make evidence based informed decisions and solve multidimensional problems. Moreover, AI can make

the assessment process more accurate, rapid and cost-effective including provision of customized feedback. It is thereby pertinent that both teachers and students need to rapidly adapt to the integration of AI tools in medical education and develop AI literacy for better learning outcomes (6). Flipped Classroom With Artificial Intelligence performed better than flipped classroom alone in terms of student performance (7). Lio et al, 2022 evaluated the application of artificial intelligence (AI) based smart classroom teaching mode using CNN (convolutional neural network) and LSTM (long short-term memory) mode. They found that compared to LSTM, performance of CNN mode was better compared to the LSTM mode (8). The use of AI in teaching flourished more in the COVID era (9).

2. Surgery:

In surgery/surgical anatomy, VR based cadaver models are already in use for better learning/better planning a procedure. VR based models are already in use for training budding surgeons, as well as, for practicing surgeons for enhancing practice and better safety of the patient. THE VR models can help in pre-operative, operative and post-operative planning and can be very helpful for the patient. In surgery, VR/AR can be incorporated significantly for planning the surgery. Pre-operative images (e.g. CT scan) of the patient can be used and superimposed to the field of surgery e.g. Hololens technology. Other strategies includes guided surgery (TGS), where TGS imparts real time guidance image. AR can be used to enhance visual field of the operating surgeon (2).

3. Medicine:

In medicine teaching, AI based technologies can help in design planning, training (mimic a clinical scenario/medical emergency) so as to enhance better preparedness to tackle a complicated scenario. The role of AI in disease diagnosis is already reviewed by a state of art review by Kumar Y et al, 2023 (10). AI based disease diagnostic apps and suggestive therapeutics has also came up. However, real life validation is required. Other important domains are screening of diseases, predictive modelling and precision medicine.

4. Pharmacology:

Artificial intelligence was used in COVID-19 drug discovery, drug repurposing, COVID vaccine development and even for antibody development (11). AI/ML technology is also commonly used in drug design/development. A machine learning protocol for drug development against SARS-CoV-2 is already published (12).

Clinical trial simulation is another domain, where artificial intelligence has a huge scope. Another domain is development of medical device/biosensors. Different methods of nanobiosensor development is already discussed (13). Artificial intelligence based biosensors are coming up to enhance precision medicine and therapeutics.

5. Other domains:

VR based rehab tools are already in use for stroke rehabilitation and for geriatric population. Other important advancements included automated bone cutting in orthopaedics, automated suturing machine etc. The drone technology is also being increasingly incorporated in healthcare. AI based drones are delivering quality healthcare in terms of sample/drug/vaccine delivery to remote locations and its taking healthcare to very next level. However, this field has just started. It has a long way to go and we can expect that AI/ML technologies will be taking a lion's share in majority of the medical technologies within next 10-20 years.

Limitations:

Requirements of very large datasets for optimal learning, which is difficult to get and poor quality of training datasets are major limitations. In many times, especially in case of surgery, the AI/ML models may be optimal for fixed structures, however, in case of moving soft tissues, the challenges are more.

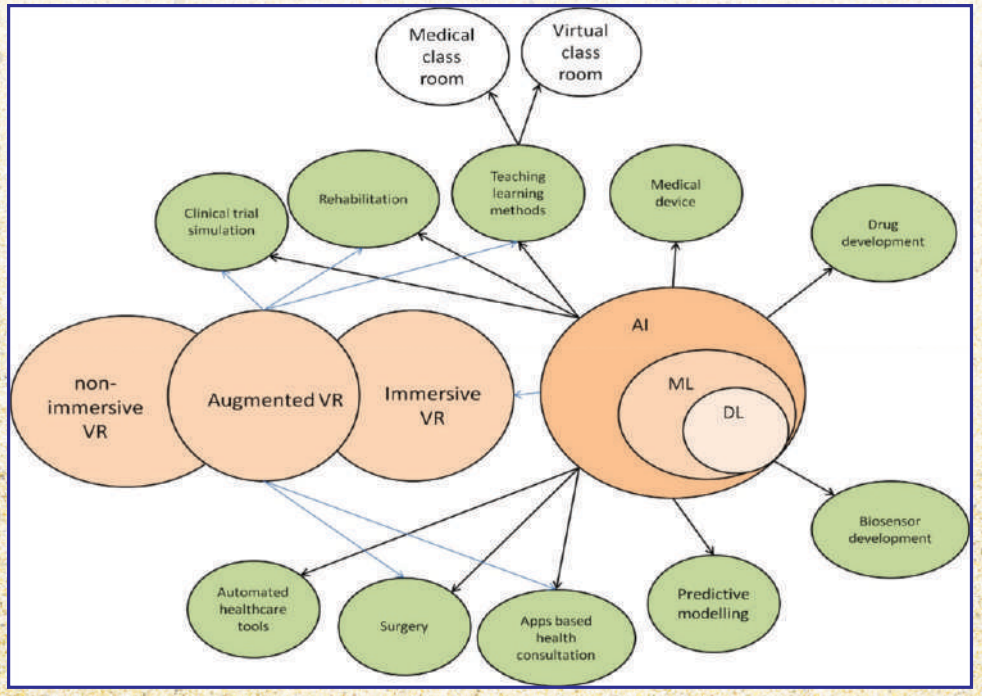

Figure 1: Role of AI/ML/DL and VR/AR in different domains of medicine.

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Invited article: A candid account of the early years in the formation of an Institute of National Importance.

Prof. Manasi Bhattacharjee, Dean (Academics), Professor & Head of the Department, Physiology, AIIMS Guwahati

The primary aim of establishing Institutes of National importance (INI) in the health care sector in every nook and corner of our country, is to provide equitable health care, promotion of state of art research and academic excellence among medical undergraduate and post graduate students. The experience of the officials initially appointed in these INIs is worth exploring.

This is an account of the initial years of one such INI. Although this is not a technical/scientific article, the general format followed is similar to that of a SWOT analysis.

One sunny yet chilly winter morning in the month of December, a group of individuals of diverse background, assembled in the so-called temporary campus of an INI. They were soon joined by few others over the ensuing weeks. Some of these individuals had merely begun their journey and were junior-most in the hierarchy of professors, additional professors etc. Some were mature and had been in the field for a number of years. They all had a varied experience and were accustomed to diverse work cultures. However, they all had somethings in common, and those were dedication and passion. Everyone realized that the initial years would not be easy and for most, the challenges faced were beyond their imagination. Nevertheless, they were determined to make things work and find ways, when there seemed to be none. In addition, they had a somewhat water like property, metaphorically, they could assume the shape of the vessel in which they were placed. In other words, this group was highly adaptable. In my opinion, these were few of the greatest strengths of these individuals shouldering the burden of commencing an INI. There are a number of other strengths like co-operation, readiness to do all kinds of task irrespective of speciality and total involvement to name a few. Sharing collective joy of small developments like procurement of items or students winning prizes was also a priceless experience and a major impetus to move ahead. A particular incident of the temporary campus where tables were procured so that every faculty member could have a personal table and designated space to sit, is an example of one such collective joy. It is also worth mentioning that the non-faculty staff of the institute shared the same bonding and dedication towards the betterment of the institute. The second wave of the COVID 19 pandemic brutally lashed on to this community, but yet again their resilience was proved beyond doubt. The pivotal role of the mentor institute in guiding these individuals, naïve to this environment was also a major strength.

It is difficult to list the weaknesses, but slow progress in development of requisite, adequate and expected infrastructure is a major weakness in the early years of an INI. Sometimes the change over from the previous work culture may also be seen as a hindrance for some, but this again varies from person to person.

Opportunities in these infant INIs are numerous, innovations in medical education, primarily in imparting skills to budding doctors during the virtual classes during COVID was grabbed by most as an opportunity. Most of the faculty members underwent the process of self-discovery of hidden skills as leaders, administrators, collaborators, technology buffs, designers, data handlers, store managers, finance supervisors, negotiators, event managers and so much more.

The only threat that looms in the backdrop is a sense of regret or frustration and a tendency to give up. However, it is not a threat in the real sense as the inherent passion and dedication always seems to win over.

The initial bunch of individuals who worked in unison since the inception of the institute soon grew in number with the addition of new faculty members and office staff. The strength doubled and tripled; new ideas kept flowing in. The queer community of

individuals seemed to feel lighter as responsibilities were shared more widely with the addition of helping hands. With time, the founding team drifted apart as they got more engrossed in their own departmental activities. The initial diversity became much more pronounced but only to unite for a greater cause. The INI then began to progress by the day under an able leader.

Looking back, the satisfaction of being a part of a great institute in the making and the memories, often hilarious of the many pragmatic solutions or so called "jugads" done to make things work, is fondly locked up in the hearts of those individuals who had gathered at the temporary campus on a cold December morning.

Many lessons have been learnt, technicalities, administrative procedures, rules and regulations but the primary lesson learnt is that dedication, passion and interpersonal relationships form the backbone of any organisation. Even in this era of digitisation, a human touch is all that is needed to pave a way forward.

Disclaimer: This is not a scientific or factual article; it is simply a rendition from personal experience.

Clinical image: Sickle Cell Trait presenting as Proliferative Retinopathy

Authors: Dr. Harsh Vardhan Singh, Dr. Iva Rani Kalita, Dr. Ratul Charan Deka

Department of ophthalmology, AIIMS Guwahati

Figure Legends:

Figure 1A: 43-year-male with apparently normal looking fundus

Figure 1B: Widefield fundus evaluation showed presence of peripheral sea-fan neo-vascularization (indicated by black circle) with superficial retinal haemorrhage (indicated by black arrow). Systemic workup confirms the presence of sickle cell trait confirming the diagnosis of Sickle cell proliferative retinopathy. He is planned for fundus fluorescein angiography followed by sectoral laser.

Review article : Organ Transplantation: Present scenario in India

Prof. Roonmoni Deka, Dean (Research), Prof. & H.O.D., Dept. of anatomy, AIIMS Guwahati.

Organ transplantation is the treatment of choice for the chronic failure of the major organs. While organ transplantation has achieved remarkable milestones, serious challenges remain prevalent even as improvements are continuously being explored and implemented. Among these challenges, the dearth of donated human organs remains the primary concern.

Alongside a shortage of donated organs, grave concerns also arise from the commercialization of organ donation. Particularly in low-income demographics, a massive surge in organ transplant tourism has been seen which has given rise to corresponding ethical and regulatory issues. The Transplantation of Human Organs and Tissues Act, 1994 including subsequent ammendments, which is the solitary dedicated legislation on the subject, has fallen short when it comes to addressing organ trade as well as sensitisation of masses towards organ donation programs. As such, world over, the gulf between available donated organs and prospective recipient patients is ever-widening.

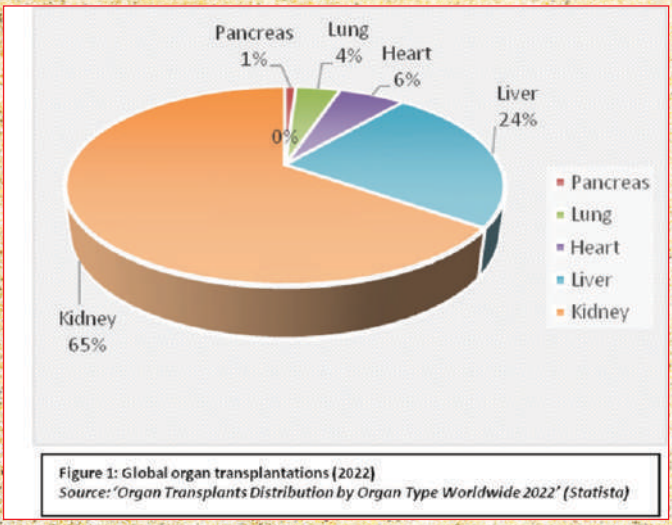

Figure 1: Global organ transplantations (2022)
Source: 'Organ Transplants Distribution by Organ Type Worldwide 2022' (Statista)

Globally, kidney transplants account for the largest proportion of organ transplantations (Fig. 1). In India as well, the situation concerning kidney transplants depicts a similar picture. High cost of medical procedures, reluctance of families of brain-dead patients to donate organs of the deceased owing to religious and cultural reasons, are some of the factors that hinder organ availability. To address this, it is important to not only devise interventions and strategies that enable the timely identification of kidney diseases but also to drastically heighten the donation rate of organs from deceased donors.In doing so, a multistakeholder approach that involves the combined capacities of state, non-state and other independent bodies will be imperative.

At the subsequent post-transplant stage as well, multiple factors must be addressed to ensure the success of the transplantation. For instance, enhanced immunosuppression can drastically impact the viability of the grafts; similarly, ischaemic injuries, a potential cause of organ failure, could be minimised through better preservation and transportation methods such as the creation of green corridors.

In conducting a status review of organ transplantation globally, it is important to note that remarkable advances have been made that have significantly improved one-year kidney allograft survival. Technological advancement has enabled the introduction of molecular techniques of histological diagnostics and better immunosuppressives to tackle critical sensitization and prevent the elaboration of anti-human leukocyte antigen (HLA) antibodies. Further, innovative interventions such as telemedicine have ensured a wider, more effective communication channel with patients awaiting organs who can be intimated promptly upon the availability of suitable donors. Despite these commendable changes, long-term kidney allograft outcomes have not improved significantly. Several complications, ranging from chronic and acute antibody-mediated rejection (ABMR) to recurring primary kidney diseases, infections, and cardiovascular diseases, among others, continue to result in the failure of kidney transplants.

As of January 2024, according to data made available by the National Organ and Tissue Transplant Organization (NOTTO), a total of 49,745 people in India await organ replacement. Further, 15,561 organ transplants were carried out in India in 2022 while 4,49,760 organ donors are registered in the country. It is noteworthy that as compared to global averages, India has a strikingly high rate of living donor transplantations.

The COVID-19 pandemic caused some interesting changes and patterns in such donations. In 2020, 6459 living donations were seen while 2021 saw the figure rise to 10,644. The dip in 2020 was attributable to the nationwide lockdown and associated restrictions. In 2022, upon the lifting of restrictions and a heightened consciousness, the figure rose to 12,791 demonstrating an improvement from pre-pandemic patterns. While India's living donation numbers are commendable, the deceased donation rate remains abysmal at 0.34 per million population. India holds immense untapped potential for deceased donations given its high fatal road traffic accident rates which can be harnessed through the collaborative efforts of medical institutions and civil society organisations. Attempts to improve the organ donation scenario have been made in the recent past which include steps such as sensitisation and awareness efforts of the NOTTO, the Regional Organ and Tissue Transplant Organizations (ROTTOs) and State Organ and Tissue Transplant Organizations (SOTTOs).

Bearing the foregoing in mind, it is safe to say that the cornerstone of enhancing organ donation in India lies in extensive sensitization and awareness-building efforts on the necessity as well as the benefits of voluntary organ donation. Encouraging individuals not only to pledge their own organs but also to consent to post-death donations of their family members' organs is paramount while dismantling underlying social, cultural, and religious stigmas that drive their reluctance. Simultaneously, exploring alternative sources of organs, such as xenotransplantation and organ development utilizing patients' own stem cells is also crucial. Undoubtedly, xenotransplantation entails obvious compatibility issues. Exploring the possibility of developing organs using the stem cells of prospective recipients could not only overcome the dearth of organs but also address compatibility issues minimize the dependence on immunosuppressants. While the ability of current technological advancements to achieve long-term organ viability has been limited, the strides already made in enhancing one-year allograft survival cannot be undervalued. As we steer through the intricacies of organ donation, striking a balance between awareness-building and exploring alternative organ sources through technical and research initiatives will carve the path for a more effective and comprehensive future for organ transplantation.

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CASE REPORT: Silent intruder: A case of unusual corneal foreign body

Authors: Dr. Ratul Charan Deka, Dr. Iva Rani Kalita, Dr. Swatishree Nayak, Dr. Harsh Vardhan Singh
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A 34-year-old male patient presented with complaints of photophobia in right eye. There was no history of ocular trauma. His best-corrected visual acuity was 6/9 in right eye. Slit-lamp examination revealed a foreign body embedded in stroma of right cornea, surrounded by thin stromal reaction and an intact overlying epithelium (Figure 1). The foreign body looked like a fragment of hair (Figure 2). Direct questioning revealed he had a pet cat at home. The foreign body removed under topical anaesthesia was recognised as cat's hair. At follow-up, cornea was clear with no signs of stromal scarring.

Corneal foreign bodies, especially those involving hair can present unique challenges in terms of diagnosis and management. Hair usually enters the eye at limbus, migrates in a centripetal fashion to the paracentral cornea and eventually compromises vision on further migration into central visual axis. The mechanism may vary depending upon nature of hair and individual's immune response. In this case, its noteworthy that the patient didn't experience significant symptoms despite presence of foreign body and potential for corneal scarring. The fact that foreign body was recognized as cat's hair emphasizes the importance of thorough history taking, including enquiries about patient's environment and possible sources of irritation.

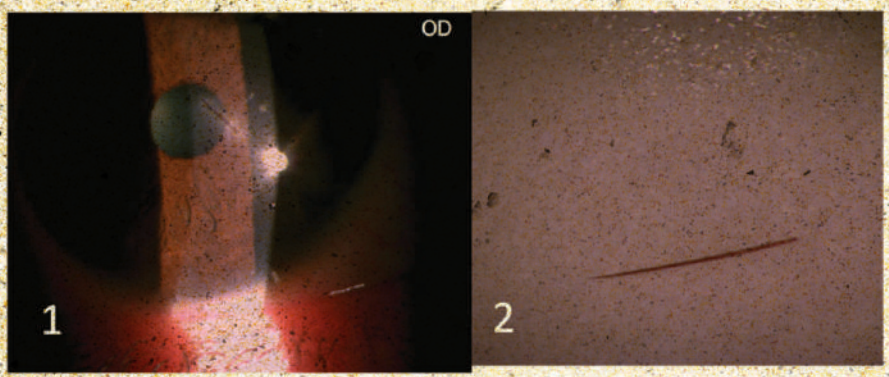

Figure Legends:

Figure 1: Slit lamp examination of right eye in oblique illumination showing embedded hair in cornea

Figure 2: Magnified image of cat's hair

Review article: **"RISE ABOVE THE STORM TO FIND SUNSHINE"-CHANGING ROLES OF PATHOLOGISTS.**

PROF (DR). S. P. SINHASAN*, Professor and HOD, Dept of Pathology & Lab Medicine, DEAN- EXAMINATION, AIIMS- Guwahati.

Rapid progress in Molecular Pathology and genetic testing have tremendously impacted the morphological diagnosis given by pathologists. It goes without saying that diagnosis is the first step toward better patient management. The recognition of genetic alterations, particularly associated with tumors has greatly improved the basis for understanding the biological background and clinical behavior of disease, thus adding a dynamic component to the snap-shot picture provided by the histopathology slide. Application of genomics, proteomics and artificial intelligence (AI) have significantly the changed role of pathologist in the 21st century. There is re-classification of almost all tumors in the human pathology due to these recent advances, with influx of new World Health Organization (WHO) blue book series of monograms. This has also changed role of pathologists who contribute for assessment of prognostic indicators, guidance of precision medicine with targeted therapy and evidence-based treatment.

Having said that, still there is role of morphological diagnosis, despite all the present and future molecular advances. There is no replacement for the experience and skills of Pathologists in the morphologic evaluation of disease processes which still remain as "the gold standard" in diagnostic field. Molecular studies will serve as an addition to routine histopathological evaluation of cancers, but not as a total replacement.

Both pathologists and radiologists look at same anatomies through different imaging devices – although one of them at the cellular level, the other one at the organ level. Perhaps the most important technological changes are seen in the last 2 to 3 decades. Due to the rapid changes in digital imaging methods in the last few years, both fields are transforming faster than any other medical specialties.

The importance of laboratory investigations in the management of patients is obvious to all in the health care profession. Yet the role of pathology in health care is apparently not clear to the general public and to many leaders in different administrative capacities, to the extent that it has been termed the Cinderella of health systems by The Lancet.1

No longer is traditional pathologist are confined to live out their professional life in the monastic isolation in their laboratories. There is increasing demands for diagnostic accuracy and for reports that contain full information on the type, grade, and stage of tumours, as well information on details of hormone receptor status, immunophenotype, and molecular data. As quoted by Dr. Fuch: in the future "when you have a three-cent H&E slide, an AI algorithm could tell you there is an indication caused by a specific mutation. That could lead to sequence precisely and finally we will come up with a targeted treatment for the patient". Molecular analysis has enabled more precise diagnosis, and revolutionized how we define several diseases. It will also give precious information on how patients respond to treatment and what the prognosis is.

The rapid increase in number and complexity of molecular tests and their interpretation is going to pose new major challenges for the current and especially for future pathologists. Days have come, where integrating flow cytometry, cytogenetics, and molecular diagnostic data has become necessary in order to formulate final therapeutic oriented diagnosis.

Just like pursuing a career as a flight pilot needs extensive training, a pathologist also needs personal qualities of ability, memory, pattern recognition, meticulousness, commitment, dedication and judgement. Clearly, field of Pathology diagnostics is challenging and it is changing rapidly, where we aren't just peeping into microscope to issue morphological diagnosis, but instead, generate molecular data that are useful for better patient care and management. A variety of digital products are already available on the market for migrating the entire workflow of pathologists from the manual to the digital. Whole-slide imaging solutions, scanners, software, storage systems, clouds and communication systems work together to ease the work in the smart labs. The digitization of pathology resources opened the door for the utilization of the massive potential of artificial intelligence in the field.

Pathologists have traditionally played a "behind-the-scenes" role in medical diagnosis. As 21st century medicine continues along its trajectory of rapid change, pathologists are becoming more-visible members of the healthcare team. Pathology is increasingly recognized as the core of precision medicine research. They are active members of Multidisciplinary Tumor Board (MTB) which serves to assure that all relevant disciplines are involved in the evaluation and treatment planning process, serve to coordinate complicated multidisciplinary care, tend to decrease variation in practice patterns, help to assure the judicious use of health care resources, provide substantial educational opportunity for medical professionals and may improve the outcomes of cancer care. The MTB works with objective of providing better patient quality care, state-of-the-art patient management with team approach and usually consists of medical oncologists, surgical oncologists, general surgeons, radiation therapists, histopathologists, hematologists, radiologists, and other specialists, including statistician, dieticians, occupational therapists, social workers etc.

No surprise that pathologists are "limited assets" everywhere, and their number is predicted to decrease worldwide as projected by the College of American Pathologists, due to increasing complexities of diagnostics and ever increasing number of molecular marker studies.2 After all, everything is based on pathological final diagnosis. Thus, the pathologist will always be there, looking at the light microscope, no matter whether there is an AI or any other technology collaborating with it. Pathologist always believes that, there is one patient behind every slide he looks into.

With all of this in mind, encouraging medical graduates with a passion for diagnostic challenges to consider pathology as a career choice. Let us hope that young pathologist will learn and incorporate all these new technologies to have a bright future in molecular competitive world!

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Case report: The Joy of Saving A Thumb!

Dr Sumanjit S Boro[1]*, Dr SumanKumari[2],Dr Moumita De[3] Miss Neelam[4], Pramod[4], Dr K Newme[5]
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INTRODUCTION:

Diabetic ulcers at the extremities can be devastating at times leading to infection, ulceration and even amputation in severe cases. International Working Group on the Diabetic Foot (IWGDF) guidelines recommend pressure relief and protection of the ulcer, restoration of skin perfusion, management of infection, metabolic control, local wound care including frequent inspection, sharp debridement, and holistic dressing maintaining a moist environment. (1)

OUR CASE:

We present a case of 49 years old type 2 diabetic man, (FBS-166, PPBS-244, HBA1c-10.5, Creatinine 1.4) painter by profession referred to us with a deep raw area of 2 cm X 2cm at distal phalanx of right thumb, exposed muscle, oedematous surrounding, very tender and redness spreading to the proximal phalange area along with foul smelling discharge.

We did multiple radical debridements under local anaesthesia and but each time on follow up the infection spread further proximally and finally the pus discharge and redness reached up-to the base of the right thumb. We were in fear that he might lose the thumb, everything was explained to him properly. Wound C/S showed growth of CitrobacterKoseri. Gradually his blood sugar levels became normal after shifting to injection insulin, ciprofloxacin started according to the culture and sensitivity and after a series of radical debridements

(15 times) spanning a tiresome period of 4 months, his wound finally healed and we were able to save his right thumb.

We are ecstatic to see him getting back to the normal life after this tiring 4 months, (August-December) journey of 15 surgeries, dressing and overall, a journey of despair and hope with positivity persisting at the end.

Pic 1: Ulcer at the tip of the right thumb with inflammation spreading to the proximal phalanx area.
Pic 2: Full blown ulcer with necrotic base with foul smell.
Pic 3: Even after multiple debridments, the ulcer reached the base of the thumb.
Pic 4: Wound was healing gradually with appearance of granulation tissue.
Pic 5: Finally, the wound healed completely.

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1. IWGDF(The International Working Group on the Diabetic Foot) Guidelines-2019 (iwgdfguidelines.org)

Extracurricular Events/Activities:

- The student magazine "Broca's Broadcast" was released on September 5, 2023, by Dr. Babul Bezbaruah, President of AIIMS Guwahati, and Dr. Ashok Puranik, Executive Director.
- The first edition of Eternia, the College Fest of AIIMS Guwahati took place from November 29 to December 2 on the premises of AIIMS Guwahati. A wide array of intra- and inter-college cultural, sports, environmental, and literary events were organized over these four days.
- At "Pulse" in AIIMS Delhi, students of AIIMS Guwahati won various awards in competitions. Adwitiya Khound secured the 1st prize in Western Instrumental, Nilabh Nilim Das won the 2nd prize in Western Instrumental, and Sandeep Sahoo earned the 3rd prize in the poster-making competition.
- A creative advertisement-making competition, "Mad Ads," was organized for the students on September 30, 2023.
- Chandrayaan Mahotsav, celebrating the success of Chandrayaan, was observed at the Institute on September 4.

Epistêmê

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