

EDITORIAL

## Indian Contribution in Medical Science – Modern Medicine (Part 2)

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Continued from previous issue. Chronology has been maintained according to the birth year of the legends.

**Hattangadi Shashidhar Bhat (1921-2010)** is considered as doyen of Urology in India.<sup>41</sup> He was a visionary, teacher and surgeon extraordinary. In India he was first surgeon to exploit bladder flaps, intestine, Teflon and penile prosthesis in reconstructive urology.<sup>42</sup> He took on the mantle of starting urology department at CMC, Vellore, nurturing it and made it grow. HOD of Surgery from other institutions came to CMC to get trained under him in Urology so as to set up their urology department in their institutes.<sup>41</sup>

**Har Gobind Khorana (1922-2011) won the Nobel Prize in Physiology or Medicine (1968) alongwith** Robert W. Holley and Marshall W. Nirenberg for their work on the order of nucleotides in nucleic acids, carrying the genetic code.<sup>43</sup> In 1972, at the Massachusetts Institute of Technology, Har Govind's team had described the total chemical synthesis of a functional tRNA gene of yeast. Khorana's methods of extension of DNA polymers into synthetic gene, using polymerase and ligase enzymes that link pieces of DNA together propagated the invention of PCR technology.<sup>44</sup>

**Arthur Saravanamuthu Thambiah (1924-2011)** is fondly called as Father of Dermatology practice in India.<sup>45</sup> His renowned papers included the first Asian case of Lipoid Proteinosis (1963) and the first world report of Cystic changes in the bones of Darier's disease (1969). He was recipient of Dr. B.C. Roy National Award under the category of Eminent Medical Teacher in 1978.<sup>46</sup>

**Darab Kersasp Dastur (1924-2000) and Autar Singh Paintal (1925-2004)** are named as Founder of Indian neuroscience. **Darab Kersasp Dastur**, had pivotal work on brain tumours and muscle disease. His research work had contributed to the development of neuro-tuberculosis, neuro-oncology, developmental disorders of the nervous system and pathology of protein calorie malnutrition. He was appointed as Professor of Neuropathology of Bombay University, the first chair of its kind in the country. Professor HM Zimmermann described Dr Dastur as one of the "39<sup>th</sup> Neuropathologists of the 20<sup>th</sup> Century".<sup>47</sup>

**Autar Singh Paintal** had discovered the J-receptors (juxtapulmonary capillary receptors), invented the Paintal index (Electric resistance of the skin in normal and in psychotics), and described the

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*Received:* 15 December 2020

*Accepted:* 15 December 2020

*Published online:* 01 January 2021

*Citation:* Pal M. Indian contribution in medical science  
– Modern medicine (Part 2). J West Bengal Univ Health  
Sci. 2021; 1(3):1-4

pulmonary vascular nerve fibres. He was the first Principal of the University College of Medical Sciences, Delhi and was appointed as the Director-General of Indian Council of Medical Research (1986-91). He was recipient of Padma Vibhushan.<sup>47</sup>

**Jai Gopal Jolly** (1926-2013) is regarded as Father of Transfusion Medicine in India. He was the key person in framing the standards for blood banks and blood transfusion services in India and also founded transfusion medicine department in many reputed colleges. His birthday (1<sup>st</sup> October) is celebrated as National Voluntary Blood Donation Day in India.<sup>48</sup>

**Subhash Mukherjee** (1931-1981) was the first physician in India and second in the world to bring out test tube baby using in-vitro fertilization (IVF). The baby "Durga" alias Kanupriya Agarwal was born on 3<sup>rd</sup> October 1978. Durga was born just 67 days after the birth of Marie Louise Brown in England (1<sup>st</sup> test tube baby of the world)! But due to tremendous ill behaviour of that time medical fraternity Subhash Mukherjee committed suicide.<sup>49</sup>

**Kirpal Singh Chugh** (1932-2017) is considered as Father of Nephrology in India. He did the first percutaneous kidney biopsy and the first peritoneal dialysis in India. First nephrology department in South Asia was founded by him at PGIMER, Chandigarh in 1965.<sup>50</sup>

**Tehemton Erach Udawadia** (1934-) is considered by many as Father of laparoscopic surgery in India. In 1990 he has performed the first laparoscopic cholecystectomy in India.<sup>51</sup> He is the founder president of the Indian Association of Gastrointestinal Endo-Surgeons. He has been awarded Padma Bhushan in 2017.

**Khursheed N. Jeejeebhoy** (1935-) is a gastrointestinal physician who is popularly known as Dr. Parenteral Nutrition. He is one of the first to discover lactose intolerance.

His pioneering work is on total parenteral nutrition. Any physician dealing with TPN has definitely heard of his name.<sup>52</sup>

**Natesan Rangabashyam** (1936-2013) is considered as Father of Surgical Gastroenterology in India.<sup>53</sup> He was a pioneer in the field of surgical gastroenterology and proctology. He had established the India's first surgical gastroenterology department as well as MCh Gastroenterology course in India. He had done outstanding work on rectal carcinoma.<sup>54</sup>

**Anand N. Malaviya** (1939-) is popularly known as Father of Rheumatology in India.<sup>55</sup> He published the first use of methotrexate in a rheumatic disease (dermatomyositis).<sup>56</sup> Because of his immense effort rheumatology and clinical immunology emerged as a separate clinical subject by Medical Council of India and National Board of Examinations of India.<sup>57</sup>

**Ivatury Mrityunjaya Rao** (1941-2018) is described as *Father of Paediatric Cardiac Surgery in India* by Indian Association for Thoracic and Cardio-Vascular Surgery (IATCVS).<sup>58</sup> IM Rao and his team established protocols of infant perfusion, introduced transatrial correction of Tetralogy of Fallot (TOF), popularized the policy of verifying the success of operation with immediate postoperative on-table transesophageal ECHO - a dictum in congenital cardiac surgery, ASO in TGA IVS (arterial switch operation in Transposition of Great Arteries intact ventricular septum), single-patch technique of A\_V canal septal defect etc.<sup>58,59</sup>

**Mukund Sadashiv Joshi** (1942-2020) is refereed as **Father of ultrasound imaging in India**.<sup>60,61</sup> He has many contribution in radiology particularly in ultrasound imaging. In 2012 he received the honorary membership of the Radiological Society of North America, the second Indian in 100 years to receive such and in 2013, he became the first Indian to

be awarded fellowship of American College of Radiology.<sup>62</sup> He had received the Lifetime Achievement Award at IRIA (Indian Radiological and Imaging Association) 2019. On his journey to heavenly abode European Society of Radiology also paid their tribute.<sup>63</sup>

**Sujay Bijay Roy** (?-1976) name is synonymous with hemodynamic-based concept of cardiology in India. The term 'Gospels of S B Roy' is in vogue amongst the teachers and students pursuing Cardiology. His teaching on evaluation of cardiac patient haemodynamically at bed-side went like 'Sruti' or information passing from ear-to-ear.<sup>64</sup> He was the recipient of Padma Bhushan in 1972.

**Narsing A Rao** is a living legend and referred as Father of Uveitis in India by the Uveitis Society of India.<sup>65</sup> His journey of ophthalmology focused on various factors involved in the underlying mechanism for ophthalmic inflammation, ocular autoimmunity and how to protect oxidative stress-mediated retinal photoreceptors damage.<sup>66</sup>

Urogynecology is a new branch of medical science which deals with the female pelvic medicine and reconstructive pelvic surgery. **N Rajamaheswari**, MD (O&G), DGO, MCh (Urology), Emeritus Professor of Urogynecology, Dr MGR University of Health Sciences, Tamilnadu, has dedicated her whole life and still working for development of this sub-speciality in India. She may be called as "Mother of Urogynecology in India".

At present many Indian contributions in medical field are coming from group of dedicated personnel. Centchroman – a non steroidal oral contraceptive pill was discovered by CSIR-Central Drug Research Institute, Lucknow. Risorine – a new combination drug for tuberculosis was discovered by CSIR-IIM, Jammu in collaboration with Cadila Pharmaceuticals. Prostalyn – a herbal formulation for

treatment of benign prostatic hyperplasia was discovered by CSIR – Indian Institute of Chemical Biology, Kolkata. Recombinant Streptokinase – a smart clot buster was discovered by CSIR-Institute of Microbial Technology, Chandigarh.<sup>67</sup>

A humble attempt has been made to mention the significant Indian modern medicos' contribution but due to the paucity of evidenced based literature many contributors' names remain unsung.

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