



Anesthesia in Nepal: From history to current scenario

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ABSTRACT

Anesthesia in Nepal is rapidly growing with the availability of modern equipment and newer drugs, subspecialties training programs and formation of professional associations. This article briefly describes how Nepal has travelled all the way from no anesthesia to the current scenario of advanced facilities.

Key words: Anesthesia; Ether; History; Nepal

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Bir Hospital was the first hospital in Nepal, established in 1890 at Kathmandu. It remained the only hospital for the next 60 years. In those days, either MBBS doctor or paramedical staff acted as anesthetists and were used to pour drop after drop of chloroform or ether on Schimmelbusch mask.¹ There were no qualified anesthesiologists at that time, as no training facilities existed. In 1933, Dr Bhawani Bhakta Singh Pradhan was appointed as a medical officer with the responsibility of administering anesthetic agents.² Till 1985, all the training courses had to be done either in UK or in India. So, in 1955, he went for training for Diploma in Anesthesia to Bombay. After completion, he rejoined Bir Hospital and started giving spinal anesthesia as well as general anesthesia using Schimmelbusch mask and open drop ether. In 1962, he gave general anesthesia with endotracheal intubation for removal of pituitary tumor. He used "the Horlick's bottle vaporizer", self-made from Horlick's bottle with inlet and outlet ports.³ He became the first neuroanesthesiologist of Nepal. In 1963, Sir Robert Reynolds Macintosh from Oxford, UK visited Kathmandu and provided information about calibrated ether vaporizer called Epstein Macintosh Oxford Vaporizer (EMO).

In 1965, Boyle's machine with two oxygen and one nitrous oxide cylinders was brought from India. Then, using this machine and ether bottle vaporizer, Dr GP Rajlawot gave anesthesia for the first cardiac surgery (closed mitral valvotomy) with support of

The Adventist Development and Relief Agency International (ADRA) from Australia. Dr NB Rana was the first anesthesiologist to use muscle relaxant and to deliver balanced anesthesia with draw over ether technique. In late 1960, two new Boyle's anesthesia machines with East Radcliffe and Howells ventilators, ECG monitor and defibrillator were made available in Bir Hospital. For better infrastructure, a new operation room was constructed with the first oxygen plant in 1972.⁴ Inadequate supply of gas cylinders in remote places due to difficult transportation helped to introduce oxygen concentrators in 1985.⁵ Halothane was made available only in 1970. It was used through Oxford Miniature Vaporizer (OMV) to supplement ether and EMO system till late 1980's.

Few Mission Hospitals and British Military Hospital 'Ghopa Camp' were established at far Eastern region around 1950. Maternity Hospital and Kanti Children Hospital were established at Kathmandu in 1959 and 1962 respectively. Only few doctors did anesthesia training abroad even though it was sponsored by British Government. In 1980s, lack of trained manpower forced Dr. Tom Fell of Olympia, Washington to train nurses in Mission Hospital, Patan. By 1984, there were eighty surgeons but only seven qualified anesthesiologists in Nepal. In the same year, Tribhuvan University (TU) Teaching Hospital was established in Kathmandu with the support of Japanese International Cooperation Agency (JICA). Then in 1985, one year diploma

in anesthesia program was started by Institute of Medicine (IOM), TU in collaboration with Calgary University, and with the support of Canadian faculty members and Canadian Anesthesiologists Society International Education Fund.⁶ In 1985, Dr. Roshana Amatya was appointed as associate professor to start the course. Till 1994, in 9 years, this program produced 46 anesthesiologists.⁷ Later on, in 1989, to expand the services, three anesthesiologists were sent for sub-specialties training in neuroanesthesia, intensive care and cardiac anesthesia to UK and Australia. Pediatric anesthesia was established in Kanti Children Hospital around 42 years back by the national society and anesthesiologists from UK.

The first ad hoc committee of Anesthesiologists Society was formed with the aim to form a professional academic organization. Annual anesthesia symposia began in 1986 with initiation of Canadian faculties. Then, on 14th November 1987, Society of Anesthesiologists of Nepal (SAN) was established under chairmanship of Dr. Puspa Das Shrestha. In May 1988, SAN was recognized as a member of World Federation of Societies of Anesthesiologists (WFSA) at 9th World Congress of Anaesthesiologists (WCA) in Washington, DC. SAN was then officially registered by Nepal government on 2nd April 1991. In the same year, SACA- South Asian Confederation of Anesthesiologists was formed at New Delhi. Dr. Gautam Ratna Bajracharya, MD, a very renowned anesthesiologist from Nepal, was one of the founder members. It was renamed as SAARC-AA in 2007. In 2011, it was again recognized by WFSA in WCA, Argentina.⁸

In addition, Nepalese Society of Critical Care Medicine (NSCCM) was established in 1994 to develop Critical Care Medicine as a specialty and to improve ICU care. Nepal Association for Study of Pain (NASP) was formed in 2017 with the aim of pain free society. Recently, NASP has been recognized internationally as a Nepalese chapter of International Study of Association of Pain (IASP).

The need of MD Anesthesiology program in Nepal was emphasized after Dr. BD Jha, Dr. CB Karki and Dr. GR Bajracharya returned home on completion of their MD courses from India. As a consequence, in 1996, the first MD anesthesiology program was started through Postgraduate Medical Education Coordination Committee (PGMECC), a joint program of Institute of Medicine (IOM) and Ministry of Health, Nepal.⁹ In another development, MD Anesthesiology programs was started in BP Koirala Institute of Health Sciences, Dharan in 1999, and later on also in National Academy of Medical Sciences, Kathmandu in 2003. Soon, many postgraduate private medical colleges with various MD programs were established.

Until 1990's, the commonly used inhalational agents were ether, chloroform and halothane. Intravenous

induction agents were thiopentone sodium and ketamine; meperidine and morphine as opioid analgesics; and muscle relaxants like succinylcholine, gallamine and d-tubocurarine were available. Commonly used local anesthetic agents were procaine and lignocaine. Procaine was used even for spinal anesthesia which was later on replaced by lignocaine. Later on, glass syringe was replaced by disposable syringe. Sophisticated bigger size reusable spinal needles were replaced by thinner spinal needles. Red rubber endotracheal tube was replaced by disposable and transparent endotracheal tube.⁹

With wide geographical variations, in remote and far remote areas, still only primary level healthcare posts are available, which are looked after either by health assistant or certified medical assistant and rarely by MBBS doctors. Shortage of emergency drugs, oxygen supply, and instruments etc. is frequent in these places as transportation is very difficult. Even ambulances cannot reach in many such centers in emergency. Patients need to travel via helicopter if referred and only few can afford. Nowadays, Nepal Government is focusing on these areas for better healthcare services. One example is the establishment of Karnali Academy of Health Sciences at mountain area, Jumla in 2011.

Sub-specialties units are being developed with advance science and technology, infrastructures and better drugs in few hospital by now. Many scholarship programs by WFSA for pain medicine, critical care medicine, pediatric anesthesia, cardiac anesthesia etc. are being announced since long. Many anesthesiologists have already completed such fellowship programs. Few institutions like IOM and NAMS are running DM in critical care medicine to produce intensivists.

Society of Anesthesiologists of Nepal is regularly conducting national and international conferences, hands on workshops on topic like acute care ultrasounds, USG guided regional anesthesia, airway management etc. Monthly CME is conducted with change in venue on rotation for equal participations from peripheral areas. It publishes newsletter, souvenirs and Journal of Society of Anesthesiologists of Nepal. It has distributed equipment like nerve stimulator, USG machines, warming devices to a number of hospitals. MD anesthesiologist obtaining highest score on subject is honored by SAN with a gold medal. On 16th October, SAN organizes a program to celebrate World Anesthesia Day every year. SAN has organized and conducted SAARC-AA and SAARC Critical Care congresses too.¹⁰

Till date, there are 349 registered life members of SAN and 93 associate members. Recently, SAN has decentralized itself and formed four branches to spread knowledge at various regions of the country. They are SAN Bharatpur, SAN Pokhara,

SAN Biratnagar and SAN Lumbini branches. SAN Lumbini branch was recently inaugurated on 22nd December 2018 by SAN president Prof Dr. Bishwas Pradhan. These branches were formed to bring all scattered anesthesiologists under one umbrella to focus on the professional as well as academic uplifting. SAN has developed its own guidelines for anesthesia services in Nepal on the basis of level of healthcare facility which is again classified as Level 1 (primary health care centers, health posts, sub-health posts, no provision of an operating room) to Level 5 (tertiary care centers and medical institutions).

In few medical colleges even in peripheral areas, like UCMSTH at Bhairahawa, anesthesia service is extended outside the operating room for the radiological procedures like CT and MRI scan for children, uncooperative patients and those with altered sensorium. Active participation of anesthesiologists saved lives of many seriously

injured earthquake victims in April 2015 by their involvement in triage system, acute resuscitation and immediate preoperative assessment for surgery.⁹ Anesthesiologist from different parts of the country are conducting awareness programs on CPR and Basic Life Support to traffic police, students and local public too. Availability of better anesthetic agents and emergency drugs, equipment (e.g. anesthesia work station, infusion pumps), monitors (with EtCO₂, invasive BP, CVP, transesophageal echocardiography etc.), state of the art operation theatres, qualified anesthesiologists with the establishment of various sub-specialties and professional associations, anesthesia in Nepal is emerging with its great impact on healthcare services. The time has come to start subspecialties training programs for our own country as well as other developing countries of the world.

Conflict of interest: none

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