

# The Anesthesia & Anesthetists of the First Open Heart Surgery of Bangladesh

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## Abstract:

Although a few closed heart operations were performed in the late 1960s, well organized approach to open heart surgery began in Bangladesh only after establishment of Institute of Cardiovascular Diseases (ICVD) in 1978. A Japanese team of surgeons, anesthetists, nurses and technicians provided extensive support in capacity building of the local human resources. Ultimately the first open heart surgery of Bangladesh, the direct closure of Atrial Septal Defect of an 18 year old college student, was performed on 18<sup>th</sup> September 1981. It was great news of that time. People came to know about the success story of the ICVD director then Colonel M Abdul

Malik, a renowned cardiologist cum team leader and the Bangladeshi surgeon duo Dr M Nabi Alam Khan and Dr S R Khan. But somehow the anesthetists, an important part of the team were out of focus and have been forgotten over time. Led by Prof Khalilur Rahman, the anesthetist team of the day included Dr Nurul Islam, Dr Abdul Hadi, Dr Delowar Hossain, Dr A Y F Ellahi Chowdhury and Dr Monir Hossain. This article is an attempt to remind their contribution and expressing respect and gratitude to the anesthetists of that pioneering team.

**Key Words:** Anesthesia, Anesthetist, Bangladesh, first open heart surgery, Pioneer.

(Bangladesh Heart Journal 2021; 36(1): 55-60)

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## Introduction:

Although a few cases of finger fracture closed mitral commissurotomy were performed in the Dhaka Medical College Hospital and in the then TB hospital at Mahakhali during late 1960s and early 1970s, full-fledged cardiac surgical services began in Bangladesh only after the establishment of Institute of Cardiovascular Diseases (ICVD) at Dhaka in 1978. First ever open heart surgery of the world using heart lung machine and utilizing cardiopulmonary bypass was performed by Dr John Gibbon in USA on the 6th May 1953<sup>1</sup>. Twenty-eight years later the first open heart surgery in Bangladesh was performed on the 18th September 1981. There were no experienced or trained

Bangladeshi cardiac surgeons or anesthetists in those days. A Japanese team of cardiologists, surgeons, anesthetists, nurses and technicians was deployed at ICVD to help capacity building of the local human resources. But for some obscure reason, the events of those early days of cardiac surgery in Bangladesh have never been properly published. The objective of this study is to draw a pen-picture of that important cardiac anesthetic episode of medical history of Bangladesh mainly based on the reminiscence of the pioneering team members. The surgical aspect of the event would be covered in a follow up article of this series.

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DOI: <https://doi.org/10.3329/bhj.v36i1.55518>

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**Materials and Methods:**

It is difficult to figure out the exact details of such an extraordinary event almost four decades later. The memory of the persons concerned has been the primary source. Most of the pioneer surgeons, physicians and anesthetists are still alive and present in Bangladesh. The persons listed in table 1 were interviewed for obtaining information related to that operation. They were either part of the pioneering team or working at ICVD during that period. A standard set of questionnaires was prepared for the interview. Average interview time was 53 minutes.

In addition, some other persons who were not at ICVD that time but might possess some important clues have also been contacted. The ICVD records and documents have been checked. The books and memoirs written by some of the above have also been good source of information. Pub med and internet search engines were also utilized in search of information related to the operation. Finally, the principal author had an opportunity to have an over the telephone discussion with the first

patient himself. The issues of that discussion have been reflected in the article. However, the contact with the first patient was later lost and his latest whereabouts couldn't be reestablished at the time of finalizing this paper.

**The Historic Episode**

Colonel M Abdul Malik was the founder Director of ICVD. The Government of Bangladesh took initiative to start specialized medical services of various sub-specialty in the late 1970s & early 1980s. Indoor services of ICVD began on August 1978. Initially it was cardiology services only. Prof M Nabi Alam Khan was the first surgeon to join ICVD. Prof S R Khan had literally driven his own car back home from UK and joined chest Hospital. He also had an attachment 3 days a week to ICVD. Prof Khalilur Rahman was the chief anesthetist of the hospital during that period.

OT-1 of ICVD was commissioned on the 14<sup>th</sup> June 1980. Interestingly the first few cases of ICVD OT were not cardiac, rather included a wide variety including incision

**Table-1**

*List and designation of the persons interviewed.*

Name	Designation at that time	Role
Brig. (Rtd) Prof M Abdul Malik	Director cum Professor, ICVD	Team Leader
Prof S R Khan	Professor of Surgery, ICVD	Surgeon
Prof Khalilur Rahman	Professor of Anesthetist, ICVD	Chief Anesthetist
Prof M Nazrul Islam	Assistant Professor of Cardiology, ICVD	Observer
Prof AKM Mahibullah	Assistant Registrar, Cardiology, ICVD	Observer
Prof A Y F Elahi Chowdhury	DA student, IPG MR	Visiting anesthetist
Prof Nasiruddin Ahmed	Assistant Registrar, Cardiac Surgery, ICVD	Observer
Mrs Anima Boiragi	Senior Staff Nurse, ICVD	OT Nurse



**Fig.-1:** The Daily Observer reporting the event. (spelling of “Dhaka” was “Dacca” on those days)

and drainage of abscess, cholecystectomy, vagotomy & gastro-jejunoscopy, pyelolithotomy, appendicectomy, excisional biopsy and what not! The first true cardiac case was a closed mitral valvotomy performed by Prof M Nabi Alam Khan on the 9th July 1980. The anesthetist was Prof Khalilur Rahman. He was assisted by Dr Zaheda. This may be described as the first cardiac operation at ICVD or in other words the first well organized, definite and documented cardiac surgical procedure of Bangladesh. Dr Khalilur Rahman and Dr Zaheda hence are the anesthetists of the first reported cardiac operation in Bangladesh as per the NICVD records.

A few other anesthetists also took part in the ICVD cardiac operations in those days. They include Dr Hadi, Dr Hafiz and Dr AYF Ellahi Chowdhury. Some of these anesthetists were not NICVD staff, rather they were students Diploma in Anesthesiology (DA) course at IPGMR. They used to attend the ICVD operations at the invitation of their teacher and mentor Prof Khalilur Rahman.

### The Final Preparation

The first open heart operation of any country is a matter of great celebration. In the summer of 1981, all were set for the beginning. The Japanese team was ready to provide logistics support and capacity building for this noble move. Finally, a suitable patient was found for the first open heart surgery. Mr Md Mustafizur Rahman, an 18-year-old college student from Sitakunda, Chittagong diagnosed with ASD secundum patient was the first candidate of the journey through cardiopulmonary bypass

in Bangladesh. There were some preparatory meetings and mock trials before the D-day. The Japanese anesthetist attending was Dr Yishibashi Kishi. To ensure adequate support in the OT and ICU Prof Khalilur Rahman invited 2 Diploma in Anesthesiology students from IPGMR to join the ICVD anesthetist team. They were Dr A Y F Ellahi Chowdhury and Dr Monir Hossain. These two young anesthetists had no previous idea about open heart surgery. But being part of this history making event was quite an experience for them.

### The D day

On 18th September 1981 history was made when the first ever open heart operation of Bangladesh was performed at ICVD. The 18-year-old college student was taken to the OT. The first obstacle came when inexperienced anesthetists were having difficulty in putting the arterial line. Late Prof M Nabi Alam Khan then came with help and performed the radial artery cannulation using his vascular surgery experience. Rest of the anesthetic procedure ran smoothly. The surgical team comprised of Dr Kome Saji of Japan, Prof M Nabi Alam Khan, Prof S R Khan and Dr Minhaz. The role of perfusionist was performed by another Japanese surgeon Dr Tomino and Dr Fazlur Rahman, the then resident surgeon of ICVD. Led by Prof Khalilur Rahman, the anesthetist team (Table 2) included Dr Nurul Islam, Dr Abdul Hadi, Dr Delowar Hossain, Dr A Y F Ellahi Chowdhury and Dr Monir Hossain. The actual operation turned out to be an easy one. It was a small atrial septal defect, managed by direct closure. Cross clamp time was 27 minutes. Rest of the operation went smoothly

**Table-II**  
*The Anesthesia Team*

Name	Position in 1978-81	Current Whereabouts (2018)
Dr. Khalilur Rahman	Associate Consultant Anesthetist (Associate Professor), ICVD)	Legendary Professor of Anesthesia, retired from professional activities, but engaged in academic sessions
Dr Nurul Islam	Anesthetist, ICVD	Deceased
Dr Abdul Hadi	Anesthetist, ICVD	Working in Medina Saudi Arabia for the 35 years
Dr Delawar Hossain	Junior Anesthetist, ICVD	Deceased
Dr A Y F Elahi Chowdhury	DA student, IPGMR	Legendary Professor of Anesthesia & Former Director of NICVD. Now Professor & in charge of ICU, National Heart Foundation Hospital Dhaka
Dr Monir Hossain	DA student, IPGMR	Working in Riyadh, Saudi Arabia

and the patient was transferred to ICU by 2.30 PM. The patient was put on an IKA R120 ventilator for mechanical ventilation support. The ICVD ICU was equipped and Nehon Coden invasive cardiac monitors at that time. These were huge bulky monitors requiring a number of dry cell batteries for power support.

### The Anesthetic Course of Action

The cardiac anesthesia available at NICVD in 1981 was almost completely different from what we see today. The induction in those days used to be done by a combination of morphine, diazepam and thiopental sodium. For maintenance of anesthesia, a mixture of halothane-nitrous oxide-oxygen, together with incremental doses of morphine and diazepam were used. There was no fentanyl. Pancuronium bromide (Pavulon) and gallamine triethiodide (Flaxedil) were the only two neuromuscular blocking agents available. Pancuronium was used for muscle relaxation in open heart surgery and gallamine for closed heart cases. In those days, closed mitral commissurotomy (CMC), ligation and division of patent ductus arteriosus (PDA), Blalock-Taussig shunt for

palliation of tetralogy of Fallot's (TOF) and repair of coarctation of aorta used to be branded as closed heart surgery. No proper intravenous vasodilator, not even glyceryl trinitrate was available. Interestingly, chlorpromazine hydrochloride (Largactil) prepared as a 1mg/ml solution was used incrementally to achieve vasodilatation.

### The Near Disaster

There is an old proverb in cardiac surgery. "Mistakes are waiting to happen, keep them waiting". This pristine operation could have turned into a disaster despite the highest level of precautions. As one of the team members recalled that soon after the patient was shifted to the ICU, a nurse had rushed to the doctors and informed that probably half a bag of mismatched blood had been transfused to the patient. This was a real emergency nobody was prepared for. In those days even Mannitol was a rare item in Bangladesh. Prof A Y F Ellahi Chowdhury clearly recalled the events even after 37 years. Prof Khalilur Rahman had sent him to Chankherpul



Fig.-3: Report on the Daily Sangbad, 25<sup>th</sup> September 1981

medical market, where only a handful of stores kept Mannitol solution. It was a memorable ambulance ride for the young anesthetist with siren playing from ICVD to Chankerpul and back. With this invaluable Mannitol and other available medications, the aftermath of mismatch transfusion was managed successfully. The remainder of ICU stay of the patient was smooth and uneventful.

However, the incident of mismatched transfusion was taken seriously. An enquiry committee was formed headed by Prof Mujibur Rahman, head of the ICVD Blood bank. After thorough investigation the committee didn't find any malafide intention or sabotage. The committee concluded that human error was responsible for this mistake.

### **The Legacy and Aftermath**

The World's era of open heart surgery began in 1953 with the invention of heart lung machine by Dr John Heysham Gibbon<sup>3</sup>. Before that only a few cases of open heart operations were performed in 1952 using deep hypothermic arrest technique by John Lewis at the University of Minnesota. Dr Gibbon closed the atrial septal defect of an 18-year-old girl using his heart lung machine on 6<sup>th</sup> May 1953. This operation was reported a year later. But due to death of the next patients, Dr Gibbon gave up using his heart lung machine except for contributing in its research and further development<sup>4</sup>. John Kirklin and his coworkers at Mayo clinic actually developed the first truly commercialized heart lung machine, known as the Mayo-Gibbon device based on the original design of Dr Gibbon<sup>5</sup>.

The first open heart surgery of the subcontinent was performed by Dr K N Dastur at Bombay on 16<sup>th</sup> February 1961<sup>6,7</sup>. Even 20 years later, the first open heart operation in 1981 was considered a real heroic act in Bangladesh. The news was not disclosed to public for a couple of days. The ICVD authority had held a press conference on 24<sup>th</sup> September, six days after the operation. The newspapers flashed the news of this great achievement the next day<sup>8</sup>. The people of Bangladesh welcomed this news with euphoria. There was discussion everywhere regarding this huge achievement. The only TV channel in those days Bangladesh Television also gave huge coverage. There was a special episode in a popular TV variety show “যদি কিছু মনে করেন” covering this unique achievement.

The team leader Colonel Abdul Malik drew the highest media attention. Some media described that he himself had performed the operation. The two Bangladeshi surgeons Prof M Nabi Alam Khan and Prof S R Khan also had fair share of the glory, if not right at that moment, but later over the years. But the anesthetists are mostly

forgotten, so are the Japanese volunteers. Hardly anybody today knows the names of the anesthetist members of the team, or those of the Japanese volunteers. Bangladesh postal department published a commemorative stamp and a first day cover in 2011 on the 30<sup>th</sup> anniversary of the operation<sup>9</sup>.

### **Conclusion:**

The first open heart surgery was quite like the feelings of Neil Armstrong, the first man on moon: ‘a small step for a team, but a big leap for a nation’. It was a big boost in the cardiac care of Bangladesh. ICVD became the national institute and continued as a production unit of cardiac surgeons, cardiac anesthetists, cardiologists, cardiac nurses and technicians. It became the symbol of cardiac care and remained as the main cardiac care center for the nation for more than next two decades until the big private hospitals showed up after the beginning of the new century. The first operation of 18<sup>th</sup> September 1981 remains a day of celebration for the nation.

The Bangladeshi surgeons of the team Late Prof M Nabi Alam Khan and Prof S R Khan later on became heroes for their role in establishing cardiac and vascular surgery in the country. The timely introduction of postgraduate academic course helped creating legacy for the Khan duo. They have become the part of the history of medical science in Bangladesh. The anesthetists played a very important role in that pioneering operation. But unfortunately, their role didn't yield the glory they deserved. People have largely forgotten the names of the anesthetists. This article is an attempt to remind and highlight the glorious role of the anesthetists who were integral part of the pioneering cardiac surgical team on the 18<sup>th</sup> September 1981.

### **Acknowledgement:**

Collecting and compiling information on an event that had happened 37 years ago was not easy. I had been working on the history of development of cardiac surgery in South Asia for quite some time. Many information of this article was collected as part of that effort. But the idea of recording the history of Bangladesh actually came while having a chat with promising young cardiologist Dr A K M Monwarul Islam, Prof Abdullah Al Shafi Majumder and Prof A K M Mohibullah, the two top office bearers of Bangladesh Cardiac Society. I'm grateful to them for their enthusiastic approach to encourage me for starting this difficult task. I pay tribute to former ICVD Professor of Anesthesia Dr Khalilur Rahman and 3 former NICVD Directors namely National Professor Brig (Rtd) Abdul Malik, Prof M Nazrul Islam and Prof A Y F Elahi Chowdhury as most of the information of this article came from them.

However some aspects of the early ICVD days I came to know while working there as an Assistant Registrar during 1996-97. I had the opportunity to listen to the cardiac surgery grand masters Prof S R Khan, Late Prof M Nabi Alam Khan, Prof M Alimuzzaman, Prof Nasiruddin Ahmed, Prof N A Kamrul Ahsan, Prof Asit baran Adhikary, Prof Faruque Ahmed, Dr Jahangir Kabir, Prof M Aftabuddin, Prof Abul Kashem, Dr SAM Abdus Sabur, Dr AA Solaiman, Dr Lutfor Rahman, Prof M Sharifuzzaman along with anesthetists Prof A T M Khalilur Rahman, Dr Ahsan Habib and many others. I thank them all.

1981 news clips from Daily Observer and Dainik Sangbad “দৈনিক সংবাদ” have been used in the article. We express our gratitude to those dailies along with Mr Syed Badrul Ahsan, the Associate Editor of Daily Observer and Mr Khandaker Muniruzzaman, the Editor in charge of Dainik Sangbad. I also thank my friends Dr Bilquis Ferdous Ara and Ms Nihad Kabir in this regard.

Finally may I offer special thanks to all the pioneers of the early days for their invaluable contribution to development of cardiac surgery in Bangladesh.

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