

## Special Article

# The Hero the First Human Heart Transplantation

Nazmul Hosain

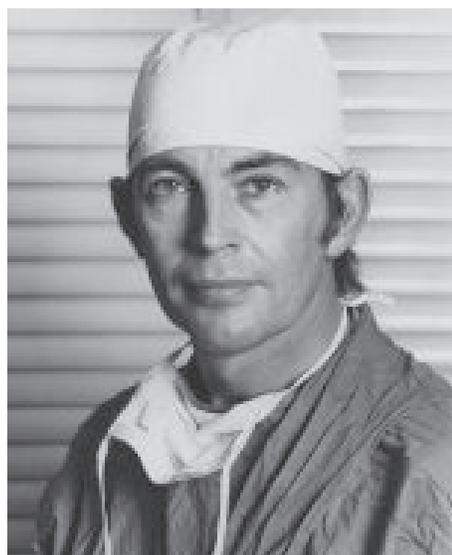
Department of Cardiac Surgery, Chittagong Medical College, Chattogram

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52 years ago the whole World was astonished with the great news that a human heart had finally been successfully transplanted at Cape Town on the 3<sup>rd</sup> of December 1967<sup>1</sup>. The hero of this accomplishment was Dr Christiaan Barnard, virtually an unknown surgeon from the then apartheid country South Africa. The identity of this surgeon and his geographical coordinates were matter of little unease for the medical elites of the World. Thanks to his previous surgical training in USA, Barnard however was not unknown at least to the leading cardiac surgeons of that era. In 1967 Cardiac surgery was literally at its infancy. The first open heart surgery using the heart lung machine was performed just 14 years ago by John Gibbon on 6<sup>th</sup> May 1953. During these 14 years cardiac surgery only meant correction of some congenital and valvular heart defects, even CABG was not an established procedure at that time. A handful number of surgeons in a few centers with unfair geographical distribution had the access and

expertise of this state of the art technology. At such a phase Christian Barnard's operation was a real triumph<sup>2</sup>.

Christiaan Neethling Barnard was born in a small town of Beaufort West, South Africa on 8<sup>th</sup> November 1922<sup>3</sup>. His father was pastor at a mixed race church. He completed graduation from University of Cape Town Medical School in 1946. After the initial phase as a primary care physician Barnard joined the surgical residency program of Groote Schuur Hospital at Cape Town. In 1956 he was awarded a scholarship that took him to Minnesota. There he had the opportunity to work with cardiac surgery pioneer Walton Lillehei at the University of Minnesota. Under the auspicious leadership of Dr Owen Wangesteen, surgeons like Walton Lillehei, John Lewis and Richard Varco were paving the pathway of open heart surgery at this alma mater<sup>4,5</sup>. For Barnard the two years at Minnesota was a unique exposure to cardiac



**Fig.-1:** Christiaan Neethling Barnard. and newspaper coverage of his legendary operation.

**Address of Correspondence:** Dr. Nazmul Hosain, Department of Cardiac Surgery, Chittagong Medical College, Chattogram, Bangladesh. E-mail: heartsurgeon007@gmail.com

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surgery. As his mentor Lillehei recalled later that despite his innovations, courage, seriousness and charming personality Barnard could often provoke intense dislike among the colleagues mainly for his outspoken attitude and unconventional ideas. This was particularly true for one of his resident colleagues Norman Shumway with whom Barnard would carry a legacy of variance all along their professional career. Shumway, a hard working dedicated and talented American surgeon was actually the best bet of his country for the ultimate prize of performing the first transplantation. Shumway spent days in the research lab of Stanford California along with his partner Richard Lower. They developed the most part of the standard protocol ultimately used in cardiac transplantation.

After 2 years of surgical training and laboratory research work in Minnesota a confident Barnard returned to Groote Schuur with more energy and vigor. The medical care facilities of South Africa in 1960s were quite advanced particularly for the favored supreme white section of the population. Besides surgery Barnard had the opportunity to continue the research work in the animal lab at Cape Town. Earlier Christiaan developed an operative technique for correction of intestinal atresia in the newborn. He also developed some surgical techniques for correction of Ebstein's anomaly<sup>6</sup>. On returning from USA, he then had more experience and better expertise to continue his clinical and research works. He visited Soviet Union in 1960 and met the legendary Soviet

surgeon Vladimir Demikhov. Slowly and steadily the Groote Schuur team was marching towards success at a remote corner of the so called Dark Continent far away from the visibility of the surgical elites.

Norman Shumway and Richard Lower by now have made significant advancement in the experimental work towards heart transplantation. They earned the focus of attention through publications<sup>7</sup> and presentations in various scientific conferences. Lower later moved to Baltimore and started his own cardiac surgery set up. In addition a few more American surgeons were preparing for the surgery. On 23<sup>rd</sup> January 1964 Dr Thomas Hardy at Mississippi transplanted the failing heart of a terminally ill patient with that of a donor chimpanzee<sup>8</sup>. His attempt failed and turned into a medical and media disaster with harsh criticism from various corners. This incidence might have intimidated the American surgeons for a while.

Barnard and his team in South Africa continued their effort. Christiaan visited Richard Lower in the summer of 1967 and learnt the details of protocol developed by the Stanford duo. His younger brother and close associate Dr Marius Barnard went to Texas heart center. Famous Texan cardiac surgeon Denton Cooley later wrote that just weeks before that legendary surgery Marius expressed some very arrogant and confident words while working in the OT<sup>9</sup>. These were the final touch of



Fig.-2: Newspaper coverage of the legendary operation.

the Cape Town team. Finally on 3<sup>rd</sup> December they reached the destination. The heart of Denise Darval, a 25 year old pretty young lady victim of a road traffic accident became available for transplantation on the waiting patient Louis Washkansky. Convincing the aggrieved father, Barnard and his team (Fig 1) harvested the heart and transplanted it inside Washkansky's emptied pericardial cavity. The heart started beating normally and Barnard uttered in his mother tongue Afrikaans "Jesus, dit gaan werk!". In English it means "Jesus, it's going to work." And it worked, worked at least for the next 18 days until Washkansky died of pneumonia related to immunosuppressive drugs. Barnard's second transplant recipient patient Philip Blaiberg operated on 2<sup>nd</sup> January 1968 had a much better survival of 18 months.

This single operation made Barnard an international celebrity. Transplantation of heart, the mystic organ and symbol of love had given him a charming grandeur probably no surgeon has ever enjoyed. He travelled all over the World invited by the heads of states and other dignitaries and represented his country. He was seen meeting and having dinner with celebrities (Fig 3). Barnard personally was a strong opponent of the racial discrimination prevailed in his country, Nelson Mandela himself certified after Barnard's death, "He was very vocal against the apartheid<sup>10</sup>." But the South African Government tried to exploit the

international fame of Christiaan Barnard to diffuse the black shadow hanging over their national policy. They projected him abroad and encouraged his international tours. Barnard developed friendship with movie stars like Sophia Lauren or Grace Kelly and courtship with 1960s sex symbol actress Gina Lollobrigida. His two decade long marriage with Aletta Gertruida Louw, a South African nurse couldn't cope with this new celebrity status, they had divorce in 1969. Barnard's later marriages with two other women Barbara Zoellner and Karin Setzkorn, who were even younger than his own first daughter Dierdre, had also ended in divorce. These were probably reflection of his troubled family life after gaining the celebrity status.

Christiaan Barnard had to take an early retirement from surgical activities in 1983 due to incapacitating rheumatoid arthritis. He was a good orator and writer. Barnard wrote several books including two autobiographies. His first book, *One Life*, was published in 1969 and sold many copies around the World. Some of the proceeds were used to set up the Chris Barnard Fund for research into heart disease and heart transplants. His second autobiography, *The Second Life*, was published in 1993. His other books are *The Donor, Your Healthy Heart, In The Night Season, The Best Medicine, Arthritis Handbook: How to Live With Arthritis, Good Life Good Death: A Doctor's Case for Euthanasia and Suicide, South Africa: Sharp*



**Fig.-3:** Christiaan Neethling Barnard with Lady Diana Spencer.

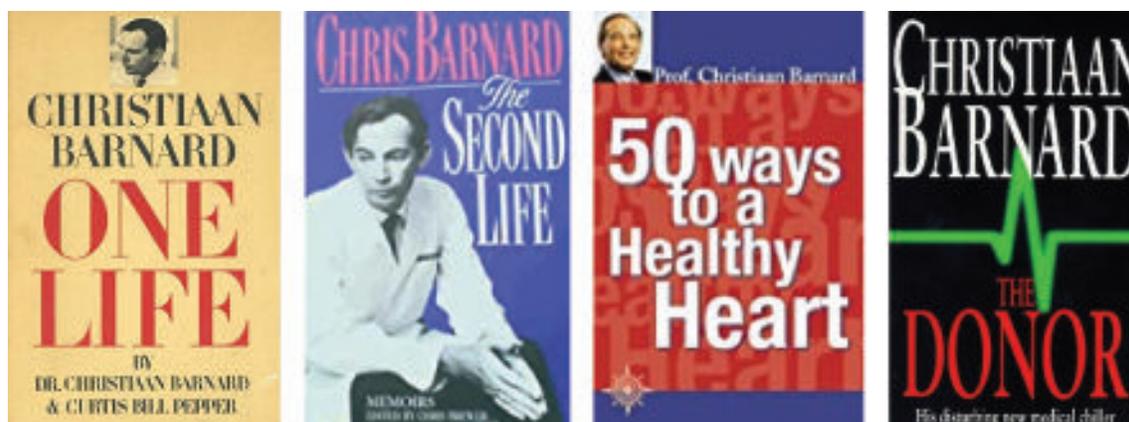


Fig.-4: Some of the books written by Dr Christiaan Barnard.

*Dissection*, *50 Ways to a Healthy Heart* and *Body Machine*. Some of his comments became very famous. Once he said, “*I have saved 150 lives through heart transplants, if I could concentrate in preventive medicine I could have saved 150 million lives*”. Regarding his legendary operation he described, “*On Saturday, I was a surgeon in South Africa, very little known. On Monday, I am World renowned*”.

Barnard continued research, business and social activities. Despite name and fame, controversies never left him for various reasons. Lonely Barnard ultimately breathed his last alone in 2001 at a Cyprus resort far from away home<sup>10</sup>. Ironically the heart transplant hero succumbed to simple bronchial asthma.

A great accomplishment like heart transplantation can never be a single man’s job. It was achieved through contribution from many. But the final race was won by Christiaan Barnard. He alone had enjoyed the opulence of this triumph. What gave Barnard the leverage over his rivals? Surgeons like Norman Shumway and Adrian Kantrowitz performed many more experimental transplants in animal than Barnard did. The outcome of their animal experiments was far better. Despite that Barnard became the ultimate winner. Regulations in USA were stricter than South Africa. But Barnard’s determination and courage were the important factors for his success. Bernard Mandel<sup>10</sup>, former President of South African Medical Association figured out the most appropriate reason for his success: “Although others had the technology, they lacked the courage and held back”.

Christiaan Barnard was a brave surgeon. Fortune favors the brave, and so did it for Barnard. This

lucky South African surgeon had the opportunity to perform the most celebrated surgical procedure ever and became immortal in medical history. Let’s pay tribute to pioneering cardiac transplant surgeon Dr Christiaan Barnard for his innovation, determination and courage. He brought the long cherished dream of performing human heart transplantation to a reality.

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