A Record Book of Open Heart Surgical Cases between 1959 and 1982, Hand-Written by a Cardiac Surgeon

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A book of brief records of open heart surgery underwent between 1959 and 1982 at Seoul National University Hospital was recently found. The book was hand-written by the late professor and cardiac surgeon YK Lee (1921–1994). This book contains valuable information about cardiac patients and surgery at the early stages of the establishment of open heart surgery in Korea, and at Seoul National University Hospital. This report is intended to analyze the content of the book.

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            3. Open heart surgery

A book of brief records of open heart surgery underwent between 1959 and 1982 at Seoul National University Hospital, Seoul, Korea, was recently found. The book was hand-written by the late professor and cardiac surgeon Yung Kyoon Lee (1921–1994). This book contains valuable information about cardiac patients and surgery at the early stages of the establishment of open heart surgery in Korea. In addition, in this book, information was also found about turning points in the development of cardiopulmonary bypass procedures and the points of time at which important pieces of surgical equipment were purchased.

The book, with a black front and back cover, is 26 cm in width, 36 cm in length, in the form of a large account book (Fig. 1). The title on the cover of the book is “OPEN HEART SURGERY ROSTER 1959.8.6” in thin plastic. There are typed letters that say "DR. LEE YUNG KYOON, SEOUL NATIONAL UNIVERSITY, THORACIC SURGERY" inside the front cover of the book (Fig. 2).

In general, the book contains basic information about the personal data of the patients, the names of diseases diagnosed, dates of operations, times of operations, pump and oxygenators used in the operations, operation procedures, and surgical outcomes. Particularly, the first page of the book has significant meaning, because it contains valuable information showing vivid traces of the early history of cardiac surgery in Korea and at Seoul National University Hospital (Fig. 3).

The very first patient was a then 8-year-old patient with a ventricular septal defect (VSD). Dr. George Schimert, who joined Seoul National University Hospital as an overall medical adviser and an adviser in surgery in partnership with the University of Minnesota Medical School, USA, performed open heart surgery using cardiopulmonary bypass for this patient on August 6, 1958. A sigma motor pump and a DeWall helix bubble oxygenator were used for extracorporeal circulation [1].

Since then, beginning with the second patient who underwent an operation in March, 1961, open heart
surgery was performed by the late Prof. YK Lee, who returned from one year of training at the University of Minnesota Medical Center. It is presumed that he began to write this book at that time.

From among the patients whose information was recorded, detailed stories of surgical success for patients Nos. 8 and 9 were already reported in the form of letters exchanged between Dr. YK Lee and Dr. Lillehei of the University of Minnesota Medical School at that time [2]. In particular, of the two, a then 28-year-old patient with an atrial septal defect survived into the long-term [3]. A blank space in the records between June 15, 1965 and January 30, 1968 reflects the period of Dr. YK Lee's second overseas training in Sweden [2].

Hand-written operation records in the book continued until 1982, when the late Prof. YK Lee took office as the director of Seoul National University Hospital. Thereafter, the records continued to be entered by his secretary until 1987.

Another important matter is that this book contains valuable information about historical turning points for the development of cardiopulmonary bypass procedures and points of time at which important pieces of surgical equipment were introduced.

Some representative examples are as follows: (1) Heparinized whole blood was used as a priming solution for cardiopulmonary bypass in the early set of open heart surgeries, including the first open heart surgery case performed in 1959. And then, with the 15th patient of July 26, 1968, hemodilution was first introduced (Fig. 4A). (2) For oxygenation, a DeWall helix bubble oxygenator was used in the early stage of open heart surgery. After that, a Polystan oxygenator was used starting on July 26, 1968, a Bentley oxygenator starting on August 6, 1974, a Harvey oxygenator starting on December 17, 1974, and a Shiley oxygenator starting on November 2, 1979 (Fig. 4B). (3) As the insertion site for an arterial cannula, the ascending aorta was selected starting on February 7, 1974, in preference to the previous practice of femo-
Fig. 4. (A–F) Sample pages of the operation record.

Fig. 5. The sigma motor pump used in the early days of open heart surgery at Seoul National University Hospital.

rational artery cannulation. (4) As an arterial pump, the sigma motor pump was replaced by a modern-style roller pump on Aug 6, 1974 (Fig. 4C, Fig. 5). (5) A Stryker saw was first introduced on February 12, 1976 as a tool for median sternotomy (Fig. 4D). (6) A gas filter was first added to the cardiopulmonary apparatus on May 4, 1976 (Fig. 4E). (7) A redo operation was first recorded for a disrupted VSD patch on March 24, 1978. (8) Bretschneider solution was used as a cardioplegic solution beginning on April 26, 1978 (Fig. 4F).

In conclusion, it seems that these hand-written operation records contain valuable historical information, showing the process of the establishment of open heart surgery in Korea and at Seoul National
Fig. 6. (A, B) Other sample pages from the operation record, showing personal events for the surgical residents and the names of the nurses in charge of cardiac surgery.

University Hospital.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

References

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