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THE DEVELOPMENT OF HEART SURGERY IN HUNGARY

A Magyar Tudomány Tíz Éve
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Imre Littmann

Heart surgery began toward the end of the past century with the surgical treatment of heart damage. The first published account of successful suturing of the heart was that of the operation performed by Rehn in 1896 on a patient with a heart injury. Following this first account, the number of similar surgical operations increased rapidly, and surgeons throughout the world became bolder and more active in the surgical treatment of various types of heart injuries. In addition to suturing up acute heart injuries the final removal of foreign objects from the heart also was undertaken. Hungarian doctors, such as Genersich, Adam, Paulikovics, Muller, Fronius, Jakob, Bakay, Kiszty, Racz, Bezsenyi, Schmidt, etc also had achieved notable success in this field.

The successful treatment of heart injuries has saved the lives of innumerable patients but perhaps what is more important, this branch of surgery finally overcame the superstitious attitude which had reigned among even the most outstanding surgeons that the heart must not be tampered with, and that the heart was noli me tangere. In 1907 Kocher wrote: "Even the heart, that restless and stubborn organ, could not halt the advance of medical surgery, and thus the last organ of the human body was conquered by the surgeon's knife."

However, there was no great progress in heart surgery during the first decades of the century. Some attempts were made at the surgical treatment of heart diseases, but were not very successful. During the 1920's several attempts were made at surgical treatment of certain diseases affecting the heart valves, principally the Mitralis stenosis. The unfavorable outcome of these operations and the 80% mortality rate in such cases frightened the surgeons away from this type operation and for a long time similar operations were not attempted.

Modern heart surgery, surgery of the large blood vessels and surgical treatment of heart diseases began during the World War II period. The first successful surgical closure of ductus Botalli persistens was accomplished by Gross in 1939. This marked the beginning of a great increase in research on the surgical treatment, extremely varied types of congenital and acquired heart trouble, and now many thousands of patients owe their lives and health to successful heart surgery.

Because of the disastrous effects of World War II, the field of heart surgery got a late start in Hungary. First, the basic necessities for the execution of heart surgery had to be acquired, such as equipment for blood perfusion, the necessary machinery for intratracheal anesthetization, etc. The first successful operation, the closure of a ductus Botalli persistens, was performed on 15 June 1949. Thus, Hungary lagged 10 years behind the leading foreign surgeons in this field. A vigorous attempt has been made during the past 5 years to make up this lag.

The surgical treatment of congenital and acquired heart trouble required first of all the introduction of several special diagnostic procedures. The method of angiocardiography, which entails a series of

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successive x-ray photographs of the path of intravenously injected contrast material, requires complicated and expensive machinery. Unfortunately, this machinery still is not available in Hungary. Nevertheless, due primarily to the basic work of Fono, angiocardiology has become routine diagnostic method. Although the primitive equipment which must be used in this procedure does not equal the performance of the latest automatic instruments it does enable the taking of photographs which are very helpful in diagnosis.

Another diagnostic method is the heart catheter method, which was introduced in Hungary by Halmagyi and Robicsek. Although this method was first thought to be too dangerous and was the subject of much debate it has now become a routine procedure. This method has enabled deep insight into the haemodynamics of both congenital and acquired vitia, into the problem of the blood pressure in the individual chambers of the heart and in the shunts between various parts of the heart, etc.

Intratracheal anesthetization, which has been completely modernized in all respects and which, when supplemented with curare is the only method which can be used for the performance of certain heart operations, has been perfected to its present level chiefly through the work of Keszler and Palos. Several hundred heart operations have been performed in Hungary without a single death due to anesthetization.

Hypothermic surgery is coming into increased use in heart operations in Hungary, especially in cases involving congenital heart trouble. The task and the responsibility of the anesthesiologist is much greater in such cases because he controls the entire complex operation and employs many instruments for the maintenance of the basic life processes of the organism during the surgery. After a long struggle anesthesiology finally is developing into an independent science and is beginning to occupy a suitable place in the field of science.

The increase in experimental work in the field of heart surgery has paralleled, and in many instances has preceded the development of clinical work. Robicsek, Temesvari, Kudas, Ludvan, Petri, et al. have attained numerous achievements in the field of pathology of the heart, some of which have been acknowledged abroad. Hungarian internal medicine specialists such as Kunos, Halmagyi, Hamori et al. also participated in this excellent work.

In addition to research on problems of circulation hundreds of experiments in heart surgery on animals have resulted in the amassing of experience on the technique by which the walls of the heart, that eternally moving organ, can be opened and sutured up and surgeons have become accustomed and, so to speak, have made friends with the heart. Even though these experiments have not eliminated the anxiety accompanying the first human heart operation of a surgeon (which still is felt on the occasion of each and every operation) they have greatly contributed to confidence in the surgical treatment of the human heart.

In contrast to the very few cases of congenital heart trouble in which surgery was recommended during the early days of heart surgery, a series of surgical measures now are available for the surgical treatment of both congenital and acquired heart conditions.

The surgical closure of an unclosed ductus Botalli now is considered a minor operation the mortality of which is less than one-half of one percent. In contrast to the angiocardiology, aortography and heart catheter examinations which originally had been performed and the finger-thick duct still hardly could be found during the surgery, at

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present in most cases a definite diagnosis is possible strictly on the basis of a simple physical examination and the surgical operation takes less than one-half hour.

Following the introduction of the Blalock operation the surgical treatment of the Fallot tetralogy was solved. Many children, and even many adults owe their lives, the fact that they may go to school or may work, may move about freely, and the fact that instead of a life of misery they can join in the work of the community, to this operation. It is a joy to see the children, and especially the parents who are very enthusiastic over the results of this operation, and who can hardly believe that a burden was lifted from their shoulders, a burden which they had believed they would have to bear for a lifetime.

However, along with its outstanding benefits the Blalock operation, which represents a great advance in the field of heart surgery, also has its own peculiar disadvantages. The subclavia-pulmonalis anastomosis is a long and exhausting operation, and in addition it increases the number of defects of the post-operative heart. For this reason various attempts are being made in Hungary and throughout the world, at the development of a surgical procedure for resolution of the stricture which will replace the pulmonalis stricture anastomosis operation. Although work along this line has only begun recently significant results have been achieved with many patients with a special direct surgical operation.

The stricture of the pulmonalis valve has only recently been recognized as an independent, congenital heart defect. For the surgical treatment of this condition Robicsek has developed a valvulotome which is much better than the foreign instruments. The stricture may be resolved by a single movement of this instrument inserted through a small incision in the wall of the right ventricle. The patients endure this operation which takes less than 1/2 hour very well, and the degree of recovery has exceeded all expectations. The patients, who previously frequently had been completely restricted to bed, are up and about and quite lively within a few weeks, and their cyanotic condition is replaced with healthy, rosy cheeks. The children begin rapid development, grow up and are no longer excluded from the play and enjoyments of their companions.

Eisert performed the first coarctatio aortae in Hungary in 1951. This operation also is now performed in relatively large numbers and usually is concluded within 3 hours, compared to the first operation, which took 7-1/4 hours. Resection of the aorta and anastomosis of the 2 vessel ends, which once was considered an heroic undertaking, no longer is one of the most serious operations in the field of heart surgery.

The greatest achievement in the field of the treatment of acquired heart trouble is the surgical treatment of mitralis stenosis. The first such operation in Hungary was performed by Eisert in 1951. This surgical operation gained widespread use very slowly because most of the internal medicine specialists justly would have preferred that only approximately one out of 10 patients necessitate this type of surgical intervention. However, after the first few successful cases were known this justifiable lack of confidence disappeared and at present, when the number of operations has passed the 200 mark, the list of patients to receive this operation requires that reservations be made several months in advance. The number of such operations performed in Hungary is surpassed only by the number of operations performed in the world's largest medical centers, and the fatality rate of this operation in Hungary is better than at the latter centers. The surgical treatment of stenosis of the

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mitral valve has become an accepted, widely used operation in Hungary, even more so than in many large countries.

In the field of acquired heart trouble, only initial results have been achieved in Hungary in the surgical treatment of coronary sclerosis. Temesvari and Petri have done experimental work in the comparison of the effects of the various available surgical operations for the revascularization of heart muscle. On the basis of these experimental results Temesvari initiated the use of magnesium silicate distributed within the pericardial chamber during the cardio-pericardiopexia operation. The initial results of this method have been encouraging.

On the basis of the foregoing it is the belief of the present author that it can be confidently asserted that Hungarian heart surgery has within the past 5 years made up for the retardation of the 10 years following World War II. This viewpoint is supported by the fact that many outstanding surgeons, representing 9 countries, have visited Hungary in order to gain surgical experience. Another indication of the reputation which Hungarian heart surgery enjoys abroad is the fact that several patients have been sent to Hungary from the People's Democracies for surgical operations.

After the first steps were taken and the first achievements had become known the Hungarian Academy of Sciences and the Ministry of Health came to the aid of the field of heart surgery through providing the financial and material means necessary for this very difficult and highly responsible work. In addition to the official requirements a great deal of aid was received from extremely varied institutions, also. The Ministry of Metallurgy and Machine Industry especially considered it to be very important to supply Hungarian heart surgery with the adequate instruments, and set up an experimental shop for that purpose which has been of inestimable value. All this obligates the Hungarian surgeons engaged in heart surgery to match these efforts with similar enthusiasm, to aid in the establishment of new heart surgery centers in addition to the well-functioning Budapest and Pecs centers (the first steps for the formation of such centers in Szeged and Eger already have been taken), so that Hungary may achieve even greater glory in this, one of the most vital fields of medical science.

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