

## ABOUT THE TREATMENT OF CARDIOPATHIES

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The introduction of more and more complicated and sophisticated techniques has led to profound changes in surgical concepts, particularly in cardiovascular surgery. It is common place to say that this type of surgery can only be carried out correctly by groups, and that individualism, whichever its expression, can only go against the goals we strive for. One of these goals is the constant pursuit of results as good as possible, during the so-called «surgical period» as well as long-range.

The core of cardiosurgical teams is the operational group formed by all the specialists who make possible the correct progression of a bloody intervention intended to modify certain mechanical or hemodynamic factors in order to bring about the recovery, or an improvement of the clinical status. Surgical goals are thus limited but reasonable, and well in accordance with medical ethics since high antiquity.

These considerations may seem logical, but far-reaching changes have occurred in the very conceptions of so-called «medical» and «surgical» therapies, and, consequently, in the relations between physicians and surgeons. This phenomenon, of course, is not new: differences have always existed between resolutely preservative therapies and more aggressive treatments. One does not have to go back very far in time to remember the struggles between physicians and surgeons in the treatment of gastro-duodenal ulcers. At the Faculty I was associated with, it was enough to change buildings to be confronted with truths as absolute as they were conflicting. At least, this is how facts appeared; but, eventually, we all understood that surgery could only be considered once one or several attempts at medical treatment had failed. However, already then, some people systematically refused surgery because of its risks, forgetting that, with a medical treatment, certain risks persisted — such as perforation, hemorrhage or carcinomatous degeneration. But the very analysis of these various risks led every honest surgeon to give up even the thought of a gastric resection or of any other surgical treatment as a first therapeutic act.

This example recurred in a number of situations, encroaching more or less acutely on medicine and surgery. One must however admit that the development of cardiovascular surgery which, actually, dates only about thirty years back, has exacerbated the crystallisation of well defined ideas, increasingly matching surgical treatment and medical treatment against each other.

For about 20 years, we have witnessed an increase in the pro and contra arguments, whereas the main goal of all doctors, whichever their speciality, should be therapeutics in their broadest meaning, whether purely medical, purely surgical, or a mixture of both, with the patient's interest as only objective.

Thus, for instance, in the surgical treatment of *acyanotic cardiopathies*, the discussions have essentially turned on the usefulness of a misconceived surgical act in children or adults with practically no symptoms. Serious studies have been needed to prove that, even if some patients reach an advanced age without difficulties, other develop pulmonary vascular diseases. And today, even though surgical repair of acyanotic cardiopathies ends, in most cases, with a recovery one might assess as definite, some people, even well-informed, still think that this surgery is superfluous. They even go as far as disputing the usefulness of a diagnosis, considering that cardiac catheterization

and concomitant angiocardiology must be reserved for patients showing symptoms. Unfortunately — and we still experience such cases — when the symptoms appear, especially if it is cyanosis, the period of operability is passed. Precise criteria have been defined — still with regard to acyanotic cardiopathies — to give a sense to surgical indications, to protect the patients against an evolution which might be dangerous and irremediable, but, also, to avoid an intervention where none is needed because of the extreme benignity of the hemodynamic repercussions of the congenital anomalies, even — And this is often the case — when these anomalies are *louder* (intensity of the murmurs, for instance) than others with a more severe evolution. Thus, in acyanotic cardiopathies, there are some which do not need surgery, which may even never need medical treatment except at an advanced age; and there are others which necessitate surgical treatment because we know, statistically, that without mechanical repair their evolution will definitely affect the patient's quality of life and their longevity. Finally, we know that there is an intermediate group for which an intervention is not formally indicated but might be indicated at some point in the patient's life. In these cases, it is important not to miss the right moment for an intervention, the *right moment* being the moment when the operational risk is near zero and the chances of recovery as high as possible. Faced with acyanotic cardiopathies, one cannot be *for* or *against* surgery: one must choose the therapeutical attitude which will best protect the patient for his whole life.

In *cyanotic cardiopathies*, the problem is obviously easier to solve since the main symptom — cyanosis — is well visible and an intervention which will make it disappear will take on a spectacular, even a miraculous aspect. The astounding successes of Blalock's operation are still in the memory of all surgeons. Though certain people have been ready to dispute the usefulness of surgery in cyanotic cardiopathies, most physicians quickly realized the enormous benefit which could be obtained from surgical correction of these lesions since, of course, medical treatment was not able to improve anatomic lesions and could only fight the complications resulting from them, i.e. cardiac insufficiency, arrhythmia, etc.

One must admit that the problems facing the surgeons have been infinitely more complex and more serious in the surgical treatment of cyanotic cardiopathies than of acyanotic cardiopathies. In the beginning of all series, even in the palliative treatments of the first few years following the appearance of Blalock's operation, the operational risk was not to be disregarded, connected as it is with certain anatomical characteristics of the anomalies as well as with important modifications of the blood crisis. However, we have gradually learned to overcome the complicated aspects of this kind of surgery, and to improve the results first of the palliative interventions, and then of the total corrections: tetralogies of Fallot or transpositions of the great vessels. The progress has not been very rapid, but it is unquestionable and proves that most surgeons are capable of analysing their failures and, therefrom, learning the necessary lessons to reduce their number, or at least to limit to the utmost the frequency and seriousness of postoperative complications.

If we wished to define in a few words the contribution of cyanotic cardiopathies to the development of cardiac surgery, we could state that this is the most typical example of what a team can do (by «team» we mean *all* specialists taking a part as much in the investigations, the diagnoses and the surgical indications as in the operations and the postoperative care) to continuously improve the results of a common therapeutic action planned in such a way as to provide the best possible conditions for the patient's operation and maintain them afterwards. With increasing experience, we get a more precise idea of the optimum age for a complete correction of a tetralogy of Fallot (even if such an intervention is possible at birth or soon after, it generally cannot be justified before a few months of age), or for a transposition of the great vessels (we know that the best results are obtained if, after an initial Rashkind, carried out as soon as possible after birth, we can switch the venous return using Mustard's or Senning's methods

before the age of 9 months in simple cases). As a result of this, and of a number of other notions affecting the precision of the diagnosis, the evaluation of the anatomical lesions and of the ensuing physiopathological state, the application of various techniques adapted to each case, the meticulousity and continuity of the postoperative care which will bring success or failure, — as a result of all this, surgical treatment of cyanotic cardiopathies has become a kind of monument to the glory of scientific objectivity and of the unceasing efforts of all those who helped build it.

If cyanotic cardiopathies have not given rise to that many discussions pro and contra surgical treatment, the same cannot be said of valvulopathies and of the surgery of coronary obstructions.

In the case of *valvulopathies*, it is, of course, valve replacement which roused the passions: first, valve replacement itself, and then the proposed type of valve replacement. The object of this article is not to enter into the detail of the various valvular lesions — congenital or acquired — all of which can be evaluated by precise criteria, and for which surgical indications has been clearly defined in our minds for a long time. Although some differences exist in the surgical philosophy regarding the preservation of valves or their replacement, one must admit that, at the present time and from a strictly surgical point of view, divergences are not very great. But we are still feeling the effects of a systematic opposition of principle which appeared the moment we started to replace valves by protheses, in this particular case by Starr-Edwards protheses. How should we forget the high-soaring lyrics against this horrible material which only irresponsible people — the surgeons!! — would put into the heart of patients! How could one so impudently act against nature and all its basic physiological principles? As if the valves we had to operate had been normal; as if they had had no influence on the patient's quality of life or on his life expectancy; as if they had been only a pretext for abusive surgical indications! Years have passed. A large number of valve models have appeared — and disappeared. Currently, only 2 or 3 types of mechanical valves are left, and a few biological valves whose limitations start to come to light. If the surgery of valve replacement had to be assessed today, one could say without exaggerating that hundreds of thousands of people owe their life to mechanical protheses: Starr valves, Björk valves — since these are the two most commonly used models — or biological valves. The tragedy is that so many patients have not been able to benefit from these corrective methods because operative indications were made much too late by people who did not understand that a patient with intractable cardiac insufficiency cannot be expected to have the same surgical risk as a patient whose heart is still in good condition, and that the risk doesn't have much to do with the surgical team but is much more the result of a correct indication. To exhaust all resources of medical therapy, and to commit a patient to a surgeon's care after all therapeutical control has been lost is one of the most unconscionable acts there is. One constantly speaks of surgical mortality, there isn't a meeting where figures regarding the surgical act aren't manipulated back and forth, but nobody cares to know what the medical mortality actually is, especially in cases where, for reasons very removed from scientific objectivity, one deliberately refuses to the patients the benefit of surgery, with the only justification that «one is against it».

The limits of surgery have been broadened by improvements in all sectors concerned: in anesthesia as well as in the technique of extracorporeal circulation (pulsatile flow, membrane oxygenator). We remain convinced that the best results are obtained in cases where myocardial protection is assured by the swiftness of surgical gestures, by a homogeneous myocardial cooling and, sometimes if wished, by chemical cardioplegia. Pro, contra surgical treatment of valve diseases? That is not the question. The question is to set up for each given patient a program combining medical and surgical treatment, keeping in mind that surgical treatment is palliative and should therefore be proposed at a time when, for the least risk, the best possible palliation will result.

Remains *coronary surgery*.

The oppositions we experienced with valve diseases were nothing compared with what we were going to live through with the development of the surgery of direct myocardial revascularisation by saphenous vein bypasses. With the exception of a few isolated attempts, this, surgery only started in 1967. It was only made possible by systematic analysis of the coronary lesions, by selective coronary arteriography and by the evaluation of the left ventricular function. One of the first points of controversy was — and still is — the indication to coronary arteriography. Of course, the introduction of a new method always involves a certain number of risks, and the risks decrease to the point of non-existence the more the experience increases. It is not by never risking anything that one can improve things — but it is of course easier. Objections were raised against coronary arteriography, mainly by those who did not have the necessary equipment. Furthermore, among cardiologists, those who quickly understood the enormous value of this investigative method often seemed creatures of the surgeons since the diagnosis of severe stenotic lesions on major vessels was ipso facto an indication to surgery. It became, therefore, strategically important to limit the indications to coronary arteriography.

With regard to direct myocardial revascularisation surgery itself, it lived through two great stages of controversy. The first stage consisted in asserting that coronary bypasses did not improve the symptoms, especially in cases of angina. There, the facts rapidly proved to the contrary. One then had to fall back on another argument: life expectancy. If it was true that coronary bypasses improved the quality of life, it was very doubtful they could change life expectancy. These discussions, even though they haven't reached unanimous conclusions yet, were strongly influenced by rather questionable randomized studies. Even if there still exist certain reservations with regard to the advisability of direct myocardial revascularisation surgery in cases of lesions of one, maybe two vessels, they should be carefully weighed. The larger our experience — at the present time we have operated on 3700 coronary patients —, the stronger our impression that each patient represents a special case to be treated according to a team's experience and regardless of prejudice and dogmatism. This is the best possible way to lessen the surgical risk, to accept for surgery patients whom others have judged inoperable because the risk was too high, and not to systematically refuse the use of complementary methods which may make possible the treatment of totally obliterated or almost totally obliterated vessels, even on great distances. We should not forget that we are dealing with a degeneration whose origin is unknown, and that all we do is by definition palliative. But this palliation may be of very good quality and last a long time. There is no doubt in our minds that, in the surgical treatment of arteriosclerosis and until effective prophylactic methods are found, the aorto-coronary bypass, as other vascular interventions, (carotid endarterectomy, aorto-iliac by-pass, etc.) represents an enormous therapeutical progress.

Which does not mean that medical therapeutics hasn't made any progress. On the contrary. During the past few years, the pharmaceutical industry has provided us with very effective medications. Although not without side-effects, these products help to improve the patient's quality of life by removing their symptoms and, if associated with adequate physical rehabilitation, by developing a sufficient number of collaterals to palliate the effects of average stenoses. If this hypothesis suggests a favorable evolution, nobody can predict whether a patient treated medically will recover satisfactorily, or whether he will get an infarction and, in that case, how serious an infarction it would be. In the field of coronary surgery, we are convinced that the time for pro or contra discussions is over. We now must discuss among specialists which will be the best therapeutical strategy for each patient. Once again, a team's experience in the judicious combination of medical and possible surgical treatment will be of more importance and

more interest than the data from literature. In coronary surgery as in acyanotic cardiopathies, there are cases in which surgery is probably useless; there are cases in which the lesions are too advanced to still benefit from surgery; and there is a whole intermediate group of patients who can be helped by a well thought out medical therapy or, if not enough, by an additional myocardial revascularisation.

As a general *conclusion* of this four-fold analysis, our only wish is that, in the future, the progress of surgery may no longer be considered as a failure of cardiology but as a general therapeutical enrichment with patients suffering from cardiopathies, whichever their origin.

## RESUMO

### *A PROPÓSITO DO TRATAMENTO DAS CARDIOPATIAS*

Numa apreciação crítica global sobre o tratamento das cardiopatias, equaciona-se o absurdo da disputa médica e cirúrgica nesse tratamento. Assim, baseado sempre na experiência pessoal, procura-se vincar a importância do diagnóstico funcional correcto, para estabelecer, com precocidade, a indicação de tratamento cirúrgico correctivo, sempre que ele possa ser invocado. Esta tese é defendida em quatro aspectos diferentes: as cardiopatias congénitas acianogénias, nas cianóticas, nas valvulopatias e finalmente na doença coronária.

Como conclusão desta análise deseja-se que, no futuro, o progresso da Cirurgia não seja mais considerado como uma falência da Cardiologia, antes seja aceite como enriquecimento terapêutico englobado no processo de tratamento correcto de doentes com cardiopatias.

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