LIFE EXPECTATION OF PATIENTS WITH MITRAL STENOSIS WITH AND WITHOUT OPERATION*

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Received April 6, 1957

Many recent publications have dealt with the physiopathology and hæmodynamics of mitral stenosis, the diagnosis of mitral regurgitation, and the surgical treatment of the mitral stenosis. Only a few workers—Vedoya *et al.* (1954), Ellis and Harken (1955), and Olessen (1955)—have studied what happened later on to patients with mitral stenosis who did not undergo valvotomy for one reason or another. This problem is, however, of interest especially if it is possible to compare the life expectation of these patients with that of the patients who have had operations.

Material. Our first mitral valvotomies go back to February, 1951. Since then we discussed systematically the opportunity of an operation for each patient with mitral stenosis. Up to September 1954, 165 patients have been operated on and most of them regularly followed up since. During the same period, 200 other patients have been examined: 43 have not been re-examined and 157 have been up to May, 1956. Our material includes therefore 322 patients who have been followed up over a period of 20 months to 5 years (Table I).

TABLE I
PROGRESS OF PATIENTS AFTER VALVOTOMY AND OF PATIENTS WHO HAVE NOT HAD VALVOTOMY

Group	Number of patients examined	Condition of the patients followed-up over a period of 20 months to 5 years			
		Dead	Worse	No change	Improved
<i>Group 1—Non-operable</i> (major and final contra-indication)	120	59	39	22	0
<i>Group 2—No operation</i> (temporary contra-indication) ..	7	0	1	3	3 (operated)
<i>Group 3—No operation</i> (mitral stenosis only slight)	11	1	1	9	0
<i>Group 4—Operable but no operation</i> ..	19	11 (58%)	4 (21%)	4 (21%)	0
	157				
<i>Operated</i>	165	16 (9.7%)	2 (1.2%)	14 (8.5%)	133 (80.6%)

RESULTS

We classified the 157 patients who did not have operations in the following groups.

Group 1: Major and final contra-indications to operation

This group includes 120 patients with a severe valve lesion or pulmonary hypertension accompanying their mitral stenosis or with irreversible heart failure and a very large heart—all conditions that constitute a major and final contra-indication to valvotomy.

* Communication given to the 18th Congress of the Italian Society of Cardiology at Trieste, May, 1956.

At the time of their examination, 29 patients were in sinus rhythm while 91 others were in auricular fibrillation. A loud rough apical systolic murmur propagated towards the axilla and imputed to mitral incompetence was noted in 113 patients. An important lesion of the aortic orifice (incompetence or stenosis or both together) was reported in 65 cases and a tricuspid lesion was diagnosed in 15 when there was expansile pulsation in the liver. Pulmonary incompetence, probably functional from dilatation of the pulmonary ring and pulmonary hypertension, was suspected once only. Pulmonary arteritis was suspected in one other. Two patients showed noticeable arterial hypertension. Ninety-four patients had heart failure, left, right, or general, more or less evident or absolutely irreversible with an enlarged heart.

This group is obviously heterogeneous because it includes aged adults with advanced myocardial degeneration and young patients with several valvular lesions but with a cardiac compensation that allows them to live normally or nearly so. Furthermore, the distribution of the various orificial or myocardial lesions we took account of is not the same, two or more of them often being present in the same patient. For example, mitral incompetence was recorded in 113 of the 120 with mitral stenosis and in 94 of those with cardiac failure. The common point of all these patients is having mitral stenosis associated with another severe lesion that constitutes a straightforward and final contra-indication to a mitral valvotomy.

Of these, 59 (49%) died: 45 of cardiac failure, 3 of pulmonary thrombosis, 2 of verified cardiac thrombosis, 3 of hemiplegia, and 6 of pulmonary embolism. Sixty-one (51%) are still alive: 39 (33%) have a severe cardiac failure that prevents them from working or even from doing anything, and 22 (18%) have been either well compensated or only slightly decompensated and able to carry on some slight activity.

These various figures are in substantial agreement—the 26 patients with cardiac failure corresponding to the 22 who are alive with but slight disability and the 94 with cardiac failure corresponding to the 59 dead and to the 39 still alive but in a precarious condition.

The very high death rate (49%) in this group of patients followed for from 2 to 5 years and the unsatisfactory condition of survivors (33%) emphasize both the gravity of the mitral failure and the cogency of our operatory contra-indications for these categories of patients with severe lesions. Our figures are in agreement with Vedoya *et al.* (1954) who in similar conditions (one to three years) record a mortality of 27 to 66 per cent and with Olessen (1955) who reports a death rate of 70 per cent in twelve years, among the patients with mitral stenosis followed up by him.

Group 2: Temporary contra-indications to operation (7 cases)

Seven only of our patients showed a temporary contra-indication, that is their cardiac condition demanded valvotomy but another cause demanded that this should be deferred. Renal tuberculosis, pulmonary tuberculosis, subacute bacterial endocarditis, and in four cases a bout of acute rheumatism were the various causes in our cases.

Three of these patients have had successful valvotomy since and three others will soon undergo the operation. The seventh, a 12-years-old child, is still afflicted by a rheumatic process which is making his lesion worse and will probably leave him in the first non-operable group.

Group 3: No indication for operation as the mitral stenosis is not severe (11 cases)

Mitral stenosis that is not severe (mitral area estimated at more than 2 cm.) does not need operation because of the small disability resulting and the limited correction that can be brought by surgery with small profit for the patient.

Eleven of our patients were included in this group. All are women; seven under 35 years, one 40, and three about 60. Almost all have a pure mitral stenosis that is relatively well tolerated with little repercussion on the pulmonary circulation and the right side of the heart.

When followed up, five still live normally and four have as yet only minor disability. But one has had acute pulmonary oedema and is in heart failure, and another has died probably from pulmonary embolism.

Patients of this group must therefore be observed regularly every six months. Their condition may change and a complication may occur. A real danger threatens them and an operation may be able to save most of them. Consequently a time will come when valvotomy cannot be delayed any longer. We do not want to say that an operation will be needed by every patient with mitral stenosis. Indeed, three of the eleven patients in this category (3 of 322 of our material) reached sixty years of age with a recognized mitral stenosis that had existed probably for many years. They represent the small group of non-evolutive mitral stenosis where up to an advanced age the valvular lesion is tolerated without progressive development and without creating hæmodynamic trouble. The percentage among our material (1%) is lower than the reality because many patients without symptoms do not ask for a periodical examination.

Group 4: Positive indication for operation which was delayed or refused (19 cases)

This is the most instructive group for it includes all the 19 patients with a mitral stenosis who have not had valvotomy although there were positive indications for it. 12 refused the operation which was proposed to them; 6 accepted it but preferred to defer it to a time more convenient for them. The last with mitral stenosis severe enough to produce pulmonary œdema died before his operation was arranged.

Of these 19 patients, 11 (58%) died in less than 5 years—5 of acute pulmonary œdema, 2 of pulmonary embolism, 1 of hemiplegia, and 3 of heart failure. 4 (21%) are in a bad condition too advanced for operation, and 4 only (21%) are in a condition comparable with that at the time of their first examination. These figures are very close to those obtained by Ellis and Harken (1955): they recorded the following year 17 deaths among the 19 patients with mitral stenosis who refused the operation.

DISCUSSION

The above facts emphasize the gravity of mitral stenosis. They reflect a general opinion that can be checked by all heart specialists when recollecting how many patients with mitral stenosis they have kept under observation for the past ten years.

However, they lead to another remark: the patients of this category have been deemed operable as well as the 165 who had operations. The same criteria were used, and age, sex, and clinical conditions were the same. We are thus entitled to compare the life expectation of the patients in Group 4 with those who had operations.

Among these (165 cases) we record 10 (6%) deaths at or soon after operation and 6 (3.6%) deaths later—a total of 16 (9.7%) of the 165 operated and followed up from 2 to 5 years. 16 others (9.7%) did not get any benefit from the operation, 13 of them having been probed only. 133 (80%) were improved so much that more than 100 work again and have a normal and comfortable life.

The results are compared in Table I and this comparison hardly needs any comment. It is striking to oppose the two categories of those who had and those who had not an operation. We must add this material includes the first cases operated by the surgical team of Broussais Hospital, i.e. at a time when we had had little experience, and the recent results are better. Since September, 1954, one of us with Dubost carried out valvotomy for a hundred patients with mitral stenosis without any recorded death, either at or just after operation.

Our figures show clearly the extreme gravity of the evolution of mitral stenosis when the stage of severe symptoms has been reached, for half of them die within 5 years and the majority within 10 years after this stage has been reached. Further, the improvement of these conditions after valvotomy must be noted. After some years of experience, the operation appears to be of great value.

CONCLUSION

From our statistical study which covers 322 patients with mitral stenosis (165 with and 157 without operations) followed up from 2 to 5 years, these features should be emphasized.

- (1) The gravity of the evolution of mitral stenosis, whether this is pure or associated with congestive failure or with another lesion.
- (2) The satisfactory results from mitral valvotomy: 133 of 165 operated, (80%) were improved so much that they were able to work again or enjoy a reasonable life.
- (3) The decisive comparison of life expectation for two similar series, one with and one without operations, emphasizes the great value of valvotomy.

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