

Annotation from Valentin Fuster.

Transaortic Chordal Cutting

Mitral Valve Repair for Obstructive Hypertrophic Cardiomyopathy With Mild Septal Hypertrophy

Study was performed in Italy.

Dr. Paolo Ferrazzi was a surgeon who performed this interesting operation.

As an introduction.

In the present study were included patients with obstructive hypertrophic cardiomyopathy from Bergamo; Genova, Monza. About 15% of patients with HCM have mild septal hypertrophy with the maximal septal thickness less than 20 mm. Such patients according to the authors had abnormalities of mitral valve apparatus and after resection of the septum a significant degree of obstruction may persist and mitral valve replacement may be necessary.

In the present study authors support the results of a novel operative procedure using transaortic cutting of thickened mitral valve secondary chorda.

They performed such procedure in association with a shallow septal muscular resection both to abolish left ventricular outflow tract gradient.

About the mechanism, the mitral valve by itself can significantly contribute the obstruction.

Between the years 2000 - 2013 near 300 patients with HCM underwent a surgical myectomy performed by Dr. Paolo Ferrazzi.

The result presented in this paper related to the 39 patients whom because with a thin septum and abnormalities of mitral valve apparatus underwent cutting of the mitral valve secondary chorda combined with a shallow septal myectomy.

Over a two years follow up in terms of NYHA functional class this decreased from 2.9 to 1.1 postoperatively. The resting outflow tract gradient decreased from an average 82 mmHg to average 9 mmHg. And septal thickness decreased from an average of 17 mm to 14 mm.

Only one patient had significant mitral regurgitation at follow up.

Most importantly mitral valve geometry before and after surgery was compared with that of 25 consequently patients with similar clinical profile and septal thickness who underwent isolated myectomy.

The postoperative anterior mitral valve leaflet/annulus ratio was 17% greater and tenting area 24% smaller in patients with chordal cutting, indicating the mitral valve

apparatus had moved to a more normal posterior position within the left ventricle cavity, preventing mitral valve systolic displacement into the outflow tract and outflow obstruction.

In summary, according to this Italian experience about 15% of patients with HCM, who undergo surgery have a thin septum and an abnormal independent displacement of the mitral valve. The combination of a shallow myectomy in cutting what appears to be a thickened and retracted secondary mitral valve chordae of the anterior leaflet abolish this LVOT gradient and avoid mitral valve replacement.

I found this paper quite fascinating for two reasons.

The first, is that the best echocardiographers the deal with HCM identify thick and fibrotic chordae that suggest it participates in the LVOT obstruction.

Second, I have seen a number of patients that have been operated in a number of institutions for HCM that come back and still with significant obstruction and the chordae abnormality that I just mention.

May be for prevention of such a situation the present paper with this novel type of operation maybe have rate true.

Let's see what our colleagues at the Mayo Clinic Dr. Rick A. Nishimura and the Dr. Hartzell V. Schaff have to say in the editorial comment.

First of all, of course, they congratulate the authors on the outcome of their surgical experience in this subgroup patients with HCM.

Second, they go over the abnormality of the mitral valve apparatus that may contribute to the LVOT obstruction. Of interest this the physiology of such abnormality which is also beautifully outline in the discussion by the authors of the paper.

Basically, in normal subjects the secondary chordae which are inserted in the body of the mitral valve leaflets help to preserve ventricular shape and function during ejection. Well the primary chordae inserted on the leaflet free edge prevent valve flail.

In patients with obstructive HCM the secondary chordae of anterior mitral leaflet often appears thickened, fibrotic and retracted which may cause abnormal tethering of such leaflet and favor the displacement of portion of the leaflet into the LVOT, contributing to the obstructive phenomenon.

The authors interpretation of the excellent results obtaining their patients by cutting such thickened and fibrotic chordae together with shallow myectomy seems the septum tends to be thin, make the mitral valve coaptation point away from the LVOT to a more posterior and normal position.

We have seen the left ventricle cavity restoring, a normal function of the mitral valve in the appropriate position.

A beautiful concept.

Now comes the third comment in the editorial but the colleagues of the Mayo Clinic.

Their state, that in such patients in based in their experience myectomy in the presence of a thinner septum would be effective if it is extended distally, where the abnormal outflow patterns during systole begin.

Other words, they are not entirely sure that the operation, advocated by the Italian group, is so often necessary. In fact, mitral valve procedure after septectomy by the group of the Mayo Clinic would only necessary in 2.2% of patients, and the number of patients that had septal resection because of HCM was close to 2.000, which is a great experience.

The final point in the editorial comment is that in did operating at patients with HCM require very special skill and experience and have to be performed in centers of excellence with experience surgery on this particular cardiac pathology.

Thank you