A MORPHOLOGIC STUDY ON MITRAL ANNULUS FIBROSUS

Chizuko Watanabe,* ** Masaya Sugiura,** # Shinichiro Ohkawa,* ** Ayako Toku,** Tamotsu Imai,* ** Kenji Kuboki,* ** and Hiroyuki Shimada*

*Dept. of Cardiol. & Pathol., Tokyo Metropol. Geriat. Center
#Dept. of Cardiol., Tokyo Metropol. Hiroo General Hospital

Pathologic aspects of mitral valve prolapse (MVP) were shown to be dissolution of the fibrous layer and an increase in the spongiosa layer with an accumulation of acid mucopolysaccharides (AMPS). Hutchins et al. showed a high incidence of disjunction of the annulus fibrosus of the mitral valve in cases of MVP. We aided its confirmation.

MATERIALS AND METHODS

Autopsied hearts from people over 60 years of age were studied. They consisted of 16 cases of MVP with mitral regurgitation (MR), and 100 control cases. To study the mitral annulus, a longitudinal cut was obtained from the posterolateral wall of the left ventricle, corresponding to the middle scallop of the posterior mitral leaflet.

The structure of the mitral annulus was classified into 4 types. In type A the atrium-valve junction was attached to the left ventricle. In type B the junction was separated from the left ventricle, which corresponded to the disjunction defined by Hutchins. In type C the left atrium continued to the atrialis layer and the left ventricle continued to the ventricularis layer of the mitral valve, without forming an annulus. In type D there was massive mitral ring calcification, which could hardly be classified into type A or B.

RESULTS AND DISCUSSION

The number for each type is the number of cases found among the 100 control cases and the percentage (Fig.1). A total of 43 type A, 43 type B (the same incidence as type A), 11 type C and 3 type D were found. The relationship between the mitral ring circumference and the type of mitral annulus showed that greater circumference was found in types A1, B1 and B2.
Watanabe Ch et al: Structure of Mitral Annulus

In 16 cases of MVP with MR, there were 11 cases of type A, 5 of type B and no type C or D. The circumference of the mitral ring in 11 cases was beyond the normal range.

Fig.1.
Four types of mitral annulus fibrosus. A1 to A3, and B1 to B3 were subtypes. The number for each type is the number of cases found. Arrows indicate the sites of the annulus as the junctions of atrium, ventricle and mitral valve. MRC: mitral ring calcification.

REFERENCES