anterior leaflet disease, does actually show significant involvement of the anterior leaflet. The authors state that the anterior leaflet did not prolapse on angiography, and they ascribe an antero-superior bulge to the antero-lateral scallop of the posterior leaflet. This is a presumptive conclusion because the antero-superior bulge may well be due to anterior leaflet prolapse. Furthermore, they do not indicate how prolapse of the anterior leaflet is diagnosed in their laboratory.

Despite the superimposition of the anterior and posterior leaflets in the RAO position, we feel that the anterior leaflet tends to prolapse antero-superiorly and the posterior leaflet postero-inferiorly. This conclusion is based on angio-morphologic correlations in four of our patients with prolapse of both leaflets in one, of the anterior leaflet with a calcified retracted posterior leaflet in one, and of both leaflets in two. It is probable that prolapse of the antero-lateral scallop may be seen as a small bulge along the usually smooth and uninterrupted antero-superior wall of the left ventricle, (their figure 2 and in our figure 11; however, a large "anterior hump" (their diagram in figure 1 and our figures 4, 12, 16, 18) would warrant the diagnosis of anterior leaflet prolapse.

Robert M. Jeresaty, M.D.
Director, Section of Cardiology
Saint Francis Hospital
Hartford, Connecticut

References

The authors reply:
We have read with interest the letter from Dr. Jeresaty and appreciate the opportunity to reply.

As pointed out by Dr. Jeresaty, the concept that the posterior mitral valve leaflet is a triscalloped structure arose from detailed morphologic studies carried out in our laboratory.\(^1\)\(^2\) In these studies, indicating the triscalloped nature of the posterior leaflet, the scallop adjacent to the posteromedial commissure was named the posteromedial commissural scallop, while the scallop adjacent to the anterolateral commissure was named the anterolateral commissural scallop. In between these two scallops was the usually larger middle scallop.\(^3\)\(^4\)

Although not evident in Dr. Jeresaty's letter, the first report on the angiographic recognition of prolapse of a middle scallop of the posterior leaflet of the mitral valve originated from this center.\(^5\)\(^6\) Furthermore, we clearly suggested that prolapse of the commissural scallops should produce bulges at either extremity of the posterior mitral leaflet in the right anterior oblique left ventricular cineangiogram, and referred to previously reported angiograms which showed such bulges.\(^7\)\(^8\)

Subsequently, Dr. Jeresaty, quoting extensively from our previous work, has presented his observations.\(^9\)\(^10\) In fact he has agreed with our concept that a prolapsed posterior leaflet produced a triple scalloped bulge in the right anterior oblique left ventricular cineangiogram. The difference between our viewpoint and his on the angiographic interpretation was quite obvious at the 45th Scientific Sessions of the American Heart Association Meeting held in Dallas in November, 1972, where both of our papers were presented at the same session.\(^6\)\(^7\) The main point of difference is whether in the right anterior oblique left ventricular cineangiogram, the anterosuperior bulge just below or behind the aortic root (depending on the degree of obliquity) represents the anterolateral commissural scallop of the posterior leaflet, which is our opinion, or the anterior leaflet, which is Dr. Jeresaty's. Dr. Jeresaty admits that a prolapsed anterolateral commissural scallop may be seen in this position, as we have reported.\(^7\)\(^8\) However, he believes that if the bulge is large, it represents the anterior leaflet of the mitral valve. This seems to be an illogical conclusion. We would believe that if the bulge is small that the prolapse of the anterolateral commissural scallop is mild, whereas, if the bulge is large, that the prolapse of this scallop is more severe.

We agree with his comment that anterior leaflet prolapse may be associated with posterior leaflet prolapse. In our series,\(^8\) ten of 45 patients had combined leaflet prolapse. In our experience, prolapse of the anterior leaflet in the right anterior oblique left ventricular cineangiogram primarily overlaps the region of the middle scallop prolapse of the posterior leaflet,\(^9\) and not the region of the anterolateral commissural scallop prolapse as suggested by Dr. Jeresaty. Careful review of right anterior oblique left ventricular cineangiograms in ten patients with combined leaflet prolapse demonstrated subtle ways in which prolapse of the anterior leaflet could be distinguished from prolapse of the posterior leaflet of the mitral valve. These are 1) actual discontinuity in outline between the prolapsing anterior leaflet and the prolapsing scallops of the posterior leaflet, 2) a temporary dissociation between the bulging leaflets as to the time of maximal prolapse, 3) the overlapping mid-
dle scallop and anterior leaflet prolapse produce a denser central bulge compared to the less dense commissural bulges.\textsuperscript{10}

Of perhaps greater significance in the distinction between anterior and posterior leaflet prolapse is the use of the left anterior oblique left ventricular cineangiogram in these patients. In this view, the anterior leaflet is well visualized in diastole hanging down from the aortic root to which it is attached. In systole, if it should prolapse, it moves into the left atrium, the fulcrum of its movement being at the aortic root.\textsuperscript{10}

In the case of the patient reported in figure 2 of our paper,\textsuperscript{9} none of these criteria for anterior leaflet prolapse were present. Therefore we believe that the anterosuperior bulge in figure 2 was due to anterolateral commissural scallop prolapse\textsuperscript{9} and not due to anterior leaflet prolapse as has been suggested by Dr. Jeresaty. Pathological findings of the valve in this case revealed minor thickening without myxomatous degeneration in the anterior leaflet and gross myxomatous change with a thickened, hooded appearance to the scallops of the posterior leaflet, including the anterolateral commissural scallop.\textsuperscript{9}

N. Ranganathan, M.D.
M. D. Silver, M.D.
E. D. Wigle, M.D.
Departments of Medicine and Pathology
University of Toronto
St. Michael’s and Toronto General Hospitals
Toronto, Canada

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Vagal Stimulation and VF

To the Editor:

It is with great interest that we have read the paper of Kent and his colleagues (Circulation 47: 291, 1973), as well as the discussion between Wallace and Kent (Circulation 48: 669, 1973). Dr. Kent's question, whether vagal stimulation is of physiological importance for spontaneous ventricular fibrillation (VF) and ventricular ectopic beats (VES) after experimental myocardial infarction, was already examined in our laboratories and presented at the 39th Scientific Session of the German Association of Cardiovascular Research in Bad Nauheim (April 28, 1973, Verhandl. Dtsch. Ges. Kreislaufforsch. 39, 1973, in press).

The experiments were performed on nonpretreated normal anaesthetized mongrel dogs (n = 18) with a weight of 20-25 kg. The acute myocardial infarction in these animals was brought about by proximal ligation of the r. circumflexus of the left coronary artery. In ten of the 18 dogs we stimulated the intact right cervical n. vagus with rightangle-de-impulses (1-10 V, duration 2 msec., frequency 10-20 Hz) beginning 30 min before ligation. Eight dogs, without vagal stimulation, formed the control group. During these experiments we recorded the ECG, the aortic and ventricular pressure with the first derivative and controlled blood gas, electrolytes, and temperature. In all cases the signs of an extant myocardial infarction developed.

Survival rate and arrhythmias after acute proximal ligation of the r.circumflexus depend on the development of the collateral vessels. Our own previous examinations (Meesmann et al: Res Exptl Med 153: 246, 1970) showed that animals with well-marked collateral vessels have a survival rate of 97%, whereas those with poorly developed collaterals have a mortality of 100% in phase I according to Harris (Circulation 1: 1318, 1950).

Animals (n = 2) with well-marked collaterals (postmortem selective coronary angiography) were exclusively found in the group with vagal stimulation. Their survival can be explained by these well-marked collaterals and not only by vagal stimulation. These two dogs, therefore, were excluded from the interpretation of the protective effect of the vagus in regard to the survival rate. For our evaluation we took those 16 dogs, which had poorly developed collaterals.
Mitral Valve Prolapse: The authors reply:
N. RANGANATHAN, M. D. SILVER and E. D. WIGLE

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