

## Discussion

DR J. DAVIES: I would like to say that the echocardiographic findings in our experience of EMF in temperate and tropical regions are similar to yours in Venezuela. One point of difference that we found, in almost every case, was tethering of the posterior mitral valve in the muscles of the thickened left ventricular wall. Atrial wall involvement and many other findings were just like yours. Tethering down of the posterior mitral valve leaflet is absolutely typical; I do not think it happens in any other condition.

DR E. G. J. OLSEN: In EMF, it often occurs but it need not be present.

DR ACQUATELLA: In pathological material, what lesions or combination of lesions are most frequent? Are apical lesions combined with valve involvement typical?

DR OLSEN: Involvement of the posterior mitral valve leaflets and inflow tract and apex are the most typical sites as far as the left ventricle is concerned. In the right ventricle, it is the apex and the region of the tricuspid valve. The longer the history, the more severely the apex is pulled towards the base of the heart.

DR C. J. F. SPRY: Acute necrotic changes in the heart are very difficult to detect with the naked eye at post-mortem. For this reason, I think it is most unlikely that two-dimensional echocardiography has any chance of diagnosing disease at this early stage. An endocardial biopsy would appear to be essential for diagnosing early disease.

PROF. J. F. GOODWIN: How specific is the endomyocardial biopsy? Can you say, if the morphological examination does not show EMF, that it isn't there.

DR OLSEN: No, because as you know even in the most advanced stages of myocarditis, quite apart from the necrotic stage of endomyocardial disease, the lesion can be focal, but Baandrup and I (Baandrup, Florio and Olsen, 1982) have shown that if one takes 5 biopsies or more, one is likely to obtain a positive result.

In the majority of cases we do see eosinophils in the biopsy tissue, in addition to which we also find evidence of degranulation in the tissue eosinophils.

PROF. GOODWIN: A combination of two-dimensional echocardiography and biopsy might provide an earlier diagnosis.

DR P. J. RICHARDSON: Is there a specific means of identifying the eosinophil in the myocardium when there is an inflammatory infiltration at a very early stage?

DR OLSEN: If you have the normal complement of granules or if the cells are slightly degranulated, special staining discolours the granules bright red. If the cells are severely degranulated then of course we resort to the electron microscope.

CHAIRMAN: In some cases that we have seen from Dr Acquatella it has been possible to demonstrate eosinophils as well. This has been at the beginning of the trouble with retraction of the right ventricle. It has also been demonstrated with dilatation of infundibulum and complete obliteration of the right ventricle. May I ask you if you have any experience with isolated posterior lesions in EMF?

DR DAVIES: No, not isolated, only in combination with other lesions, and then in almost all cases. M-mode echocardiography in our experience has been very disappointing; the posterior wall of the left ventricle did not correlate at all with the extent of the disease.

DR ACQUATELLA: M-mode has been used for more than 15 years and it has been useful for endomyocardial disease. Of course, two-dimensional echocardiography with the ability to study the apex helps tremendously in achieving a correct diagnosis.

DR SPRY: Two-dimensional echocardiography could have two other roles besides diagnosis of endomyocardial disease. One is to follow the evolution and development of heart damage, and the second is to determine whether patients have lesions suitable for surgical treatment.

DR ACQUATELLA: Unfortunately, we have very little experience with surgery. We only sent one patient for operation and he died.

## Reference

- BAANDRUP, O., FLORIO, R.A. & OLSEN, E.G.J. (1982) Do endomyocardial biopsies represent the morphology of the rest of the myocardium? A quantitative light microscopic study of single v. multiple biopsies with the King's bioprobe. *European Heart Journal*, 3, 171.