

MYXOMATOUS DEGENERATION OF MITRAL VALVE PROLAPSE WAS RELATED TO CO-INFECTION BY BORRELIA BURGDOFERI AND MYCOPLASMA

Author Block : Palomino, S. A.P., Tiveron, M. G., Pomerantzeff P.M.A ,IKEGAMI R.N., Reis, M. M, Garavelo, S., Higuchi, M. L - Heart Inst (InCor) São Paulo, São Paulo, Brazil

Abstract:

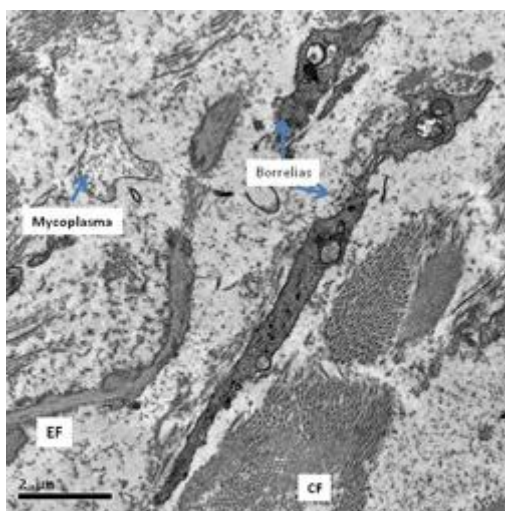
Introduction: Mitral valve prolapse (MVP) is the most prevalent of all mitral valve diseases, with still unknown etiology and the leading cause for mitral valve repair operations. It is usually associated with myxoid degeneration (MD). In previous electron microscopy (EM) studies we observed that MD areas presented bacterial co-infections at atheroma plaques and MVP. In the last disease, we found rounded or waved bodies compatible with borrelia and mycoplasma .

Hypothesis: Demonstrate that MVP is associated with co-infection by *Borrelia burgdorferi* (Bb) and *Mycoplasma pneumonia* (Mp)

Methods: We studied mitral valve fragments from: G1 - Normal (n=10 derived of heart transplantation receptors, 5 females, mean age $38y\pm 17$) and G2 - MVP (n=20 collected during valvar surgery, 6 females, mean age $64y\pm 15$), which were submitted to EM, histology (Movat stain) and immunohistochemistry against Bb and Mp antigens (Ags). The % area of MD and total amount of bacterial Ags/mm², in 1 mm of extension of valve were measured at ImageScope (Aperio).

Results discussion: G1 did not exhibit MD areas, presented scarce amount of Bb (0.0004 ± 0.0005) and of Mp (0.007 ± 0.013) Ags. G2, had $55\pm 24\%$ of MD areas (detected by Movat stain), and significantly higher amount of Bb Ags (0.009 ± 0.007) $P<0.001$, and of Mp Ags (0.234 ± 0.250), $P=0.008$, which were present in 100% of the cases. EM confirmed morphology of borrelia bodies in the middle of mixoid areas and of mycoplasmas in degraded collagen. There was positive correlation between MD % area and total amount of Bb Ags ($r= 0.45$, $P=0.05$), and negative correlation with Mp Ags ($r= -0.53$, $P=0.01$) suggesting that Bb is related with myxomatous degeneration inhibiting Mp proliferation.

Conclusion - Bb and Mp are frequent commensal microorganisms of normal mitral valves, which are significantly increased in MVP, possibly having a role in the development of DM, but in a competitive symbiotic relationship.



The electron micrography shows an example of Myxoid Degeneration valve exhibiting bodies of mycoplasma and borrelia among myxoid tissue, collagen fibers (CF) and elastic fibers (EF).