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**Observations
on coronary
artery adventitial
inflammation in
patients who died of
acute coronary disease
(ACD)**

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Background: Atherosclerosis is a chronic inflammatory disease, but the significance of adventitial inflammation is not completely understood.

Methods: The coronary arteries of 83 patients who died of acute coronary disease and 22 control patients were injected with a colored barium gelatin mass and the heart fixed in formalin. After fixation, the coronary arteries were dissected intact, decalcified, cut a 2-3 mm intervals and all segments mounted for microscopic study. 7,056 segments were examined, including 3-5 sub-serial sections from each segment. The frequency of adventitial inflammation, and the number of segments with >50% luminal stenosis was determined to estimate the overall plaque burden (PB). All plaque disruptions (PD'S), including erosions, fissures and plaque ruptures, with and without associated luminal thrombosis, were noted.

Results: Adventitial inflammatory infiltrates were present in over 50% of 7,056 segments, were always located over plaques and never over normal wall, showing adventitial inflammation is a diffuse process. The extent of adventitial inflammation increased with plaque enlargement, suggesting a direct relationship exists between PB and adventitial inflammation. 211 PD's were found in these 83 patients, with 27 (13%) in segments with <50% luminal stenosis. Luminal thrombosis was relatively infrequent and associated with a PD in approximately 50% of cases.

Conclusions: Adventitial inflammation appears to be a reliable histologic marker of active, progressive, atherosclerotic disease, and may be helpful in identifying the insignificant appearing vulnerable plaque that has the potential to progress rapidly and cause acute events. Many PD's are not associated with luminal thrombosis.

Biography

Dr. Frink is the Principal Investigator of the Heart Research Foundation of Sacramento. He received his training at Iowa, Mayo Clinic and Alabama. He practiced invasive cardiology in Sacramento for 35 years and at the same time established a histology photographic laboratory to study the post-mortem heart. He performed extensive post-mortem examinations of the hearts of over 150 of patients who died of acute coronary disease, as well as hearts of pigs and sheep. He has published approximately 25 research papers and a book detailing the pathologic findings in patients who died of acute coronary disease.