

Pathology of Valvular Heart Disease in Adults in Nova Scotia

ANALYSIS OF SURGICALLY REMOVED VALVES

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299 surgically removed cardiac valves at the Victoria General Hospital, Halifax, Nova Scotia, were studied. All were removed from adult patients from November 1985 to November 1989. Valves were separated into four groups: Mitral alone: 139; mitral plus aortic: 56; aortic alone: 54; and prosthetic: 50. The mitral was the most frequently excised valve. Women constituted the majority of the patients in every group. The majority of the mitral valves removed had non-rheumatic process. Marked myxoid degeneration dominated the findings in 39% of the cases of non-rheumatic mitral valves; the majority of these valves of this subgroup had insufficiency as the clinical dysfunction. Most cases of the aortic alone group had stenosis as the clinical dysfunction and calcification as the dominant feature. The most interesting finding of this study was the frequency of cases of mitral valves with marked myxoid degeneration.

MATERIAL AND METHODS

Two hundred and ninety-nine surgically removed heart valves at the Victoria General Hospital, Nova Scotia, Canada, were studied. All valves were removed from adult patients during a four-year period, from November, 1985, to November, 1989. The clinical information used was that available to us on the pathology requisition form. Most specimens studied were comprised of pieces of valves; therefore, the diagnoses were not only based on gross but also on microscopic findings. Decalcification and hematoxylin and eosin stain were routinely done in all cases. Special stains such as Masson's trichrome, Alcian blue, Gram, PAS, Giemsa, etc., were done when needed.

The gross examination of the specimens included valve weight, degree of fibrous thickening, degree of calcification, status of cordae tendinae, status of portions of papillary muscles, and presence of vegetations. Other morphological findings such as commissural fusion, valve perforation, number of cusps, or measurements, as recommended by Waller were not reliable due to the fragmented condition in which most valves were received.¹ The presence of fibrosis, inflammatory infiltrate, microorganisms, granulation tissue, myxoid degeneration, hyalinization and calcification were evaluated under light microscopy. Valves were separated into four groups: 1) mitral valves, 139; mitral plus aortic

valves, 56; aortic valves, 54; and prosthetic valves, 50. Valves in each group were divided according to their functional status, either stenotic or insufficient. The etiology for each valve was divided into either rheumatic or non-rheumatic, the latter group was subdivided into myxoid and non-myxoid degenerative subgroups.

RESULTS

Data are summarized in Table I. The mitral valve was the most frequently excised valve. Women constituted the majority of patients in every group. The mean age was 70 years, and patients were in the fifth decade or older, except in the mitral valve group, where there were young adults.

TABLE I

SUMMARY OF THE 299 HEART VALVE SPECIMENS

Valve	No.	Sex		Age (average and range)
		Male	Female	
Mitral only	139	59	80	70 (30-85)
Mitral plus aortic	56	19	37	68 (57-85)
Aortic only	54	20	34	72 (57-86)
Prosthetic	50	19	31	71 (57-87)

Mitral Valve

A total of 139 were studied (Table II). Thirty-eight had a rheumatic and 101 had a non-rheumatic etiology. Degenerative valves accounted for 78% of the non-rheumatic group and for 56% of the total group. The degenerative group was divided into valves showing predominantly myxoid changes (myxoid degeneration subgroup), and valves showing predominantly other changes (calcification, fibrosis, hyalinization, etc.), rather than myxoid change ("Non-myxoid degeneration" subgroup). Calcification, fibrosis and hyalinization were frequent microscopic findings in the non-rheumatic valves (>50%). Inflammatory infiltrate was present in 35% of cases. In the vast majority of cases, the infiltrate was constituted by lymphocytes and a few plasma cells, except in the cases of endocarditis and in several cases of recent myocardial ischemia, where neutrophils were also seen. Vegetations were present in two cases of bacterial endocarditis. Myxoid changes were present in 58% of cases. 36% of the 38 cases of rheumatic valves, and 66% of the non-rheumatic group showed myxoid changes. The mean age for patients with myxoid changes in their valves was 69 years (range 57-86 years). The more frequent occurrence of myxoid changes in the non-rheumatic group was due, predominantly, to a high incidence of these changes in heart valves with

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