THE STUDY OF CORONARY ARTERIES BY MEANS OF CORONARY ARTERIOGRAPHY IN PATIENTS WITH VALVULAR AORTIC STENOSIS ABOVE THE AGE OF 40 YEARS

THESIS

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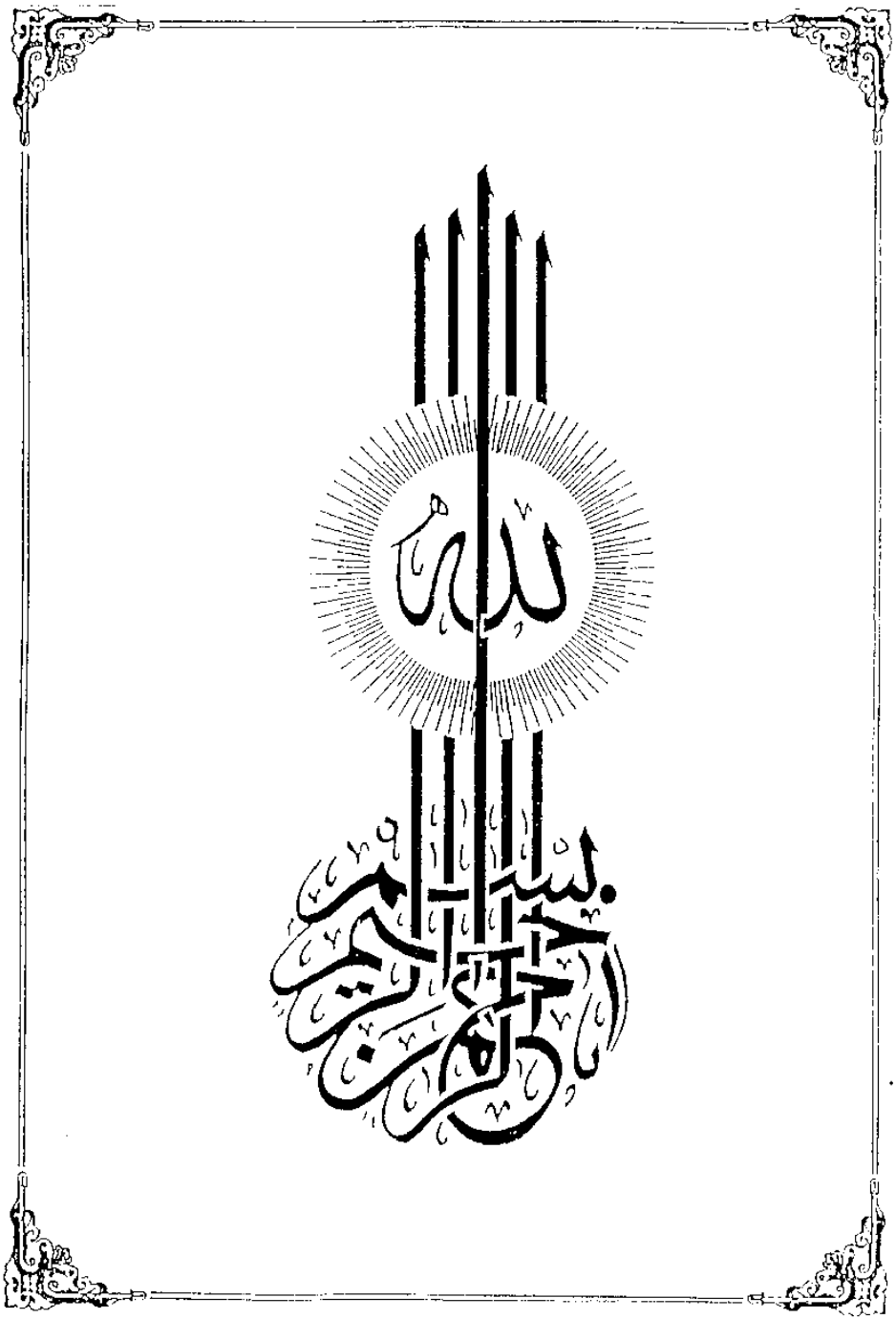

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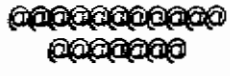

INTRODUCTION AND AIM OF WORK

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The study of coronary arteries by means of coronary arteriography in patient with valvular aortic stenosis, has been a subject of great interest to many workers, and various reports dealed with the subject in detail, as regards the incidence and degree of coronary artery disease in those patients complaining of chest pain.

The aim of this work is to compare the results obtained here in our departement of cardiology with those reported abroad,we also tried to study the relation between the degree of left ventricular wall thickness and the severity of aortic stenosis . The estimation of left ventricular wall thickness was done in a single plane ventriclography in the right anterior oblique projection (Kennedy et al., 1970).

REVIEW OF LITERATURE

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AORTIC STENOSIS

The earliest description of aortic valvular stenosis is probably that of Carolus Rayger (1672) as recorded by Bonetus (1679) in his Sepulchretum. Rayger noted on post mortem examination of a middle aged parisian tailor who dropped dead in the street that the aortic valve had the consistancy of a bone. (Hurst 1978).

Many of the early physicians, beginning with Corvisart des Marets, recorded their impressions of the clinical manifestations of this disease. These recordings led to various misconceptions about the physical sings of aortic stenosis which were, to a large extent corrected by Hope in his A Trestise on the Diseases of the Heart & Great Vessels (Hurst 1978).

With the advance of non invasive and invasive techniques, the exact haemodynamic alterations occuring in aortic stenosis were adequately analysed.

NATURAL HISTORY OF VALVULAR AORTIC STENOSIS

The development of effective prosthetic devices for replacement of the aortic value has underscored the need for greater understanding of the natural history of patients with valvular aortic stenosis. Though clinical features of this disease and retrospective analysis of necropsy data have been usefull, little is known of the natural history of patients in whom the haemodynamic severity of abstruction has been documented.

Thus in clinical studies in which left heart Catheterizations were perfermed, the natural history frequently was interrupted by operation. Other studies have included patients with associated mitral valve disease, other forms of left ventricular out flow tract obstruction or they have included patients in whom aortic stenosis was not clearly differentiated from Coexisting predominant aortic regurgitation.

(Wood, 1958), (Mitchell et al., 1954), (Baker et al., 1959). The most reliable study on the natural history of valvular aortic stenosis, was probably that

done by (Frank et al., 1973) in which, fifteenadult patients (age 32 to 59ys) with significant valvular aortic stenosis in whom the severity of obstruction was documented by haemodynamic measurement and in whom the natural history was not interrupted by operation were followed for up to 11.7 years, or until death.

The overall prognosis was poor, two thirds of the group being dead at last followup. The percentage mortality, corrected for the number of patients followed, was 36 per cent at 3 years, and 52 percent at 5 years; of those who were followed for 10 years 90 percent had died.

The age of the onset of symptoms was not related to duration of survival, there was no clear relation between the type of symptom and survival.

The three cardinal symptoms of aortic stenosis-angina pectoris, syncope, and congestive heart failure have been considered indicative of the presence of severe abstruction.

When angina pectoris was evaluated alone it proved to be the least reliable predictor of iminent death in the series.

As prooved from literatures, anginapectoris might occur in patients having various levels of left ventricular systolic pressure and aortic valve areas and aortic valve gradients. However the fact that the duration of survival usually was short after the onset of symptoms, and did not appear to be influenced by the age at onset of symptoms tends to support the veiw that aortic stenosis rather than possible associated coronary artery disease, was the predominant factor responsible for the high mortality rate.

The onset of left ventricular failure generally has been considered to be a grave prognostic sign in patients with aortic stenosis. Furthermore, when angina pectoris was associated with left ventricular failure the prognosis was extremely poor.

When discussing the influence of syncope on the natural history of aortic stenosis, various studies have suggested that the onset of syncope carries a poor prognosis (Wood 1958).

In this study done by Frank et al., 1973, all patients with syncope died, but 2 had associated angina pectoris.

It now seems apparent that surgical intervention improves the immediate prognosis of symptomatic adult

patients with significant aortic stenosis documented at cardiac catheterization.

However, the role of operation in the management of patients with moderate to severe aortic stenosis who are without symptoms will require further objective prospective studies. (Frank et al., 1973).

THE CLINICALFEATURES OF AORTIC STENOSIS

The history in aortic stenosis cannot be relied upon to be the harbinger of significant disease.

Symptoms appear later in the course of the disease ; consequently, patients may have significant stenosis that remains unrecognised for years. During this asymptomatic period a small percentage (3 to 5 percent) of the patients are subject to sudden death. While physicians cannot rely upon symptoms to hearald the onset of significant aortic stenosis they can and must use the appearance of a triad of symptoms.

(Angina pectoris, syncope, or symptoms of left ventricular failure)as indicators of critical (in both a haemodynamic and a prognostic sense) obstruction.

Mild aortic stenosis may be associated with quite severe symptoms in the presence of coronary artery disease, other cardiac lesions, or psychoneurosis ; but in the abscence of these conditions symptoms indicate haemo-dynamically significant stenosis.

Furthermore, the appearance of any one of this triad of symptoms fore casts a life expectancy of less than 5 years and a 15 to 20 percent incidence of sudden death. (Hurst 1978).

(1) Angina Pectoris :

- Angina pectoris is usually the initial and most common of the three symptoms.
- In a etudy made by AVARDM. Mitchell & Associates in 1954 the reported incidence was 48 patients out of 131 with an incidence of 36.7 percent.
- In other studies the reported incidence ranged from 50 to 70 percent (Fallen, 1967), (Baker.1959) (Wood, 1958) While it has been suggested that the characterestics of the chest pain associated with aortic stenosis are not typical of angina pectoris (Hancock, 1960), this has not been the case in most studies.
  (Wood 1958), (Fallen 1967) yet there are few cases in which atypical chest pain was recorded.

The angina pectoris, in these few cases, developed immediatly upon cessation of physical activity rather than during the activity (Hurst 1978).

It was suspected that the degree of constriction of of the valve would be greater in those suffering from angina than in those without an anginal component.

This did not prove to be true.

The differance in the degree of stenosis did not appear to be very impressive between those with angina

as compared to those without angina yet in analysing the relation between weight of the heart and angina, it seemed that considerable left ventricular hypertrophy may have been conductive to the development of anginal pain (Mitchell et al., 1954).

The average life expectancy upon the appearance of angina is 5 years with a longer survival (10 to 20 years) noted in only 5 percent of the patients (Fallen 1967), In other studies the total length of life after the onset of angina was 5.6 years under the age of 50 years and only 3.8 years over the age of 50 years (Mitchell et al., 1954). These previous figures signifies the opinion which urge surgical intervention, the minute the patient with aortic stenosis start to complain of angina pectoris.

SYNCOPE IN AORTIC STENOSIS

The loss of conscious ness characteristic of aortic stenosis either immediatly follows exertion or interrupts it.

This manifestation of aortic stenosis occurs much less often than angina pectoris, with a reported incidence of 15 to 30 percent of symptomatic Patients (Wood 1958), (Ross et al., 1968), (Baker et al., 1959).