

Sudden Death Due to Mitral Valve Prolapse

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ABSTRACT

Sudden unexpected deaths arouse many questions in the minds of the deceased's relatives, investigating officer and also the general public. This is a fact more so when a person dies and in the process sustains some accidental injuries giving a false picture of foul play. So the onus lies on the forensic expert to explore all the findings at autopsy and come to a conclusion as to the cause of death, to aid the investigative process. We came across one such case where an apparently healthy middle aged individual was found dead in his room. Few fresh injuries were present thus creating an air of suspicion. Detailed post mortem and histopathological examination proved it to be a case of death due to Mitral Valve Prolapse.

Key Words: Sudden Death; Natural Death; Cardiac anomaly; Mitral Valve Prolapse.

INTRODUCTION

Mitral valve prolapse syndrome (MVPS) is a common disorder in the general population.¹ Mitral valve prolapse is a condition that is being recognized with increased frequency. It is not known whether its incidence is increasing, or whether we are better able to diagnose it today.² It is said to have good prognosis but is also reported as an uncommon cause of sudden death which is a cause of concern^{3,4}. The incidence of MVPS in autopsy series has been reported to be

about 4-5%, while clinical data hint at an incidence of about 2.5%.⁵

It appears to occur more frequently in females and occasionally it is familial. In most instances, the syndrome is idiopathic, although it occurs in association with many other conditions, particularly Marfan's syndrome, rheumatic heart disease, coronary heart disease, congestive cardiomyopathy, ostium secundum atrial septal defect, Ehlers-Danlos syndrome or abnormalities of the thoracic cage.⁶ The majority of patients with the syndrome have minimal, if any, symptoms and follow a benign course. We are presenting a case of sudden unexpected death as a result of myxoid degeneration of mitral valve without any previous or family history of heart ailments.

CASE REPORT

An elderly male, aged 55 years, moderately built and nourished was found dead in his apartment. According to the history the deceased was staying

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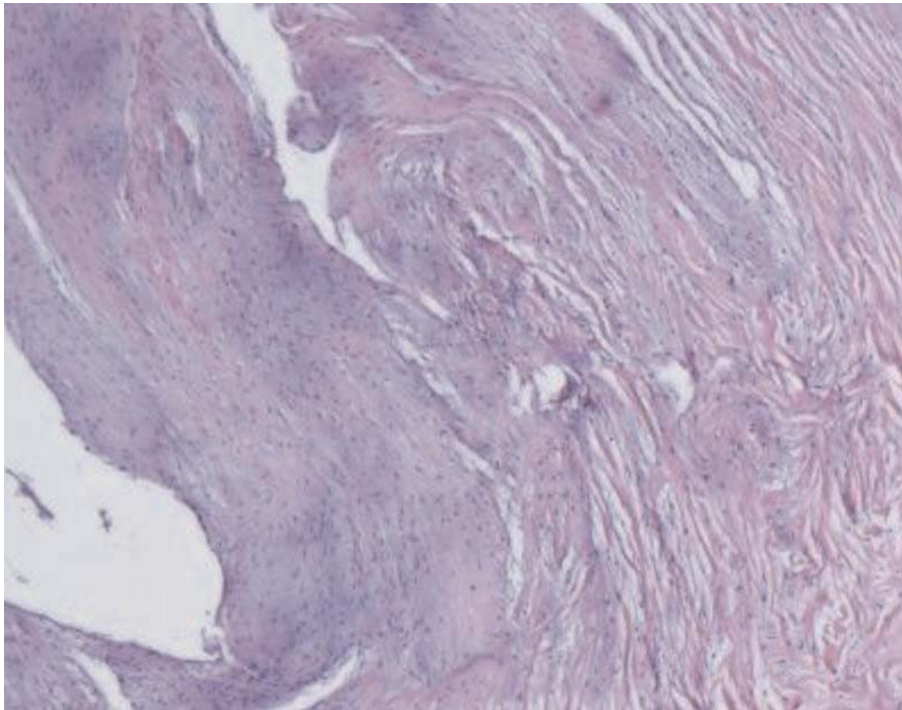
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in an apartment with his friend. On the fateful night both had dinner together after which the friend left the apartment for a walk and returned after around one hour only to find the deceased lying on the floor next to his cot. He was unconscious and was immediately rushed to the hospital, where he was declared brought dead. The scene of crime did not show any sign of probable use of assault on the deceased. At autopsy, there was a split laceration on the left eyebrow (1.5 x 0.3 cm x muscle deep) and a pressure abrasion on the left cheek (3 x 1.5 cms). The undersurface of the scalp was contused over the right temporal region. No other external injuries were present on the body. The dead body

measured 163 cm in length and 46 kg in weight. Examination of the heart revealed a pale area on the anterior surface of right ventricle and the left atrioventricular valves were enlarged and thickened. The heart weighed 285 gm; a white patch was present on the posterior wall of the left ventricle. The right and left ventricular thickness was 0.7cm and 1.3 cm respectively and the coronaries were patent. All other internal organs were unremarkable. The heart was subjected for histopathological examination, which revealed scar tissue in the ventricular valves with myxoid degeneration of the left atrioventricular valve (mitral valve) (Fig 1). Chemical analysis report of viscera was negative for the presence of any

Fig. 1: Mitral Valve Showing Myxoid Degeneration. (H&E X 200)



poison. The cause of death was opined as mitral valve myxoid degeneration.

DISCUSSION

Mitral valve prolapse syndrome (MVPS) is a relatively common disorder of the mitral valve and most often take a benign clinical course. Only a subset of patients develops severe clinical

symptoms such as arrhythmia, insufficiency of the mitral valve or infective endocarditis. As a consequence, sudden death might occur in these patients, thought to be caused by an arrhythmogenic event.⁵ As the cause of death seems to be cardiac arrhythmia, so postmortem diagnosis is difficult and depends on severe changes of the mitral leaflets.⁷

The gross criteria for diagnosing prolapsing mitral valve are: (1). interchordal hooding of the

involved leaflets, (2). hooding or doming of leaflets towards the left atrium, (3). elongation of the involved leaflets resulting in an increase in valve area, (4). dilatation of the valve annulus in patients with severe mitral regurgitation. The posterior leaflet is most frequently affected. The involved leaflets, in general, are thickened, soft, greyish white and have a smooth atrial surface. Chordae tendinae are described as elongated, tortuous and attenuated or thinned. Microscopic findings include significant thickening of the spongiosa and the fibrosa, changes in dense collagen fibers in the atrialis layer, occasionally, with fibrin platelet deposits.⁸ Complications related to abnormal mitral valve include infective endocarditis, thromboembolic events, cardiac arrhythmias, progressive mitral regurgitation, rupture of chordae tendinae and congestive heart failure. Individuals with thick mitral leaflets and mitral systolic murmur are at higher risk of developing complications.⁹

In our case the deceased was found dead lying on the floor with a head injury in the form of a split laceration which aroused suspicion of foul play. But the examination of scene of incidence, gross findings (mitral valve leaflets were thickened, pale and were softened) and histopathological findings of the heart, which satisfied the criteria for diagnosing that the deceased, was suffering from mitral valve myxoid degeneration. In view of the above findings along with the chemical analysis report which was negative for any toxic material we came to the diagnosis of the deceased dying as a result of Mitral valve prolapsed syndrome.

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