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GAINT CELL MYOCARDITIS-A CASE REPORT

Case Report

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Abstract:

Giant cell myocarditis (GCM) is a rare, rapidly progressive and highly lethal disease in young and Middle -aged adults. It is attributed to an inflammation of the heart muscle, and mediated by T lymphocytes and anti-myosin autoantibodies. GCM often escapes diagnosis until autopsy or transplantation and has defied proper treatment trials for its rarity and deadly behavior. The rapidity and lethality of GCM and the Sudden onset of Death in Seemingly Healthy individual always leads to undue suspicion in the minds of Person concerned with the Victim. Here is one such case wherein an young adult female was brought dead to casualty. The doctors unable to arrive at the exact cause of death informed the police. The victim's parents were suspicious about the death, the numerous past Domestic violence with the couple only added Speculations to the Sudden Death. However Autopsy Confirmed Giant Cell Myocarditis, putting an end to all the speculations surrounding the death.

Keywords: Dowry, Casualty, Sudden Death, Giant Cell Myocarditis, Heart Failure, Autopsy.

Introduction:

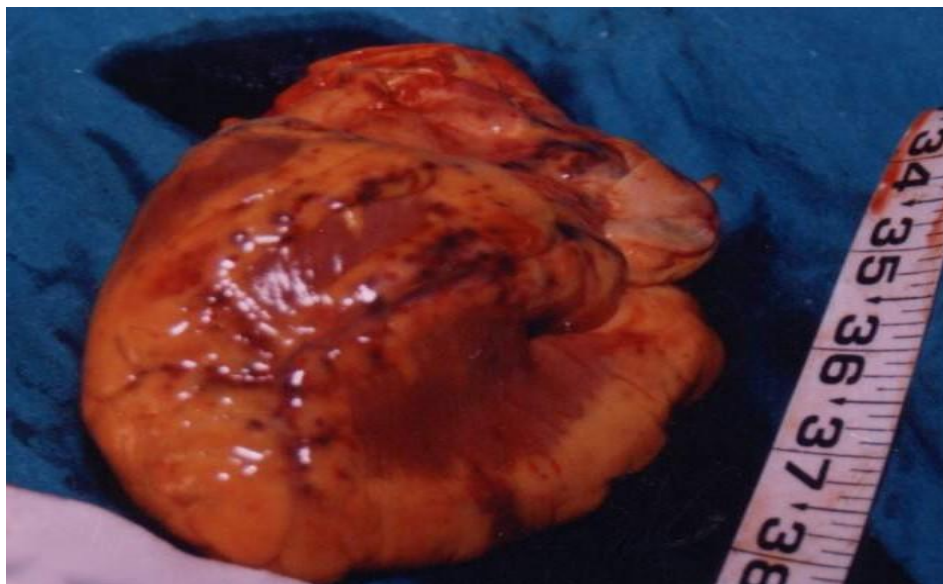
Giant cell myocarditis (GCM) is a rare cardiac inflammatory disorder that is characterized by diffuse ventricular myocardium infiltration, by lymphocytes, abundant multinucleated giant cells, mainly eosinophilic, necrosis and fibrosis. Functional consequences of myocardial injury are similar to those seen in other kind of myocarditis, including ventricular dysfunction and ventricular arrhythmias, although usually much more are severe in GCM. Myocarditis is a non-familial form of heart muscle disease¹, defined as an inflammation of the heart muscle and identified by clinical or histopathologic criteria². Viral etiology and immune mediation is suspected³, However it is idiopathic in nature¹. Myocarditis constitutes 1-4% of routine autopsies. In many of these cases however, it is an incidental and chance finding, imparting in all likelihood an overestimate of the frequency of the clinically significant disease^{4,5}. In India death of a newly married women within 07 years after marriage is always investigated by a magistrate [Sec 304(B) IPC]⁶ to rule out Dowry related deaths. The punishments could be a life imprisonment. Hence all Sudden and Unnatural Deaths involving Females are all Investigated in terms of Dowry death in this period, until proved other wise. Hence it is not uncommon to Misuse this provision of Law to Maim the Husband and In-laws.

Case Report:

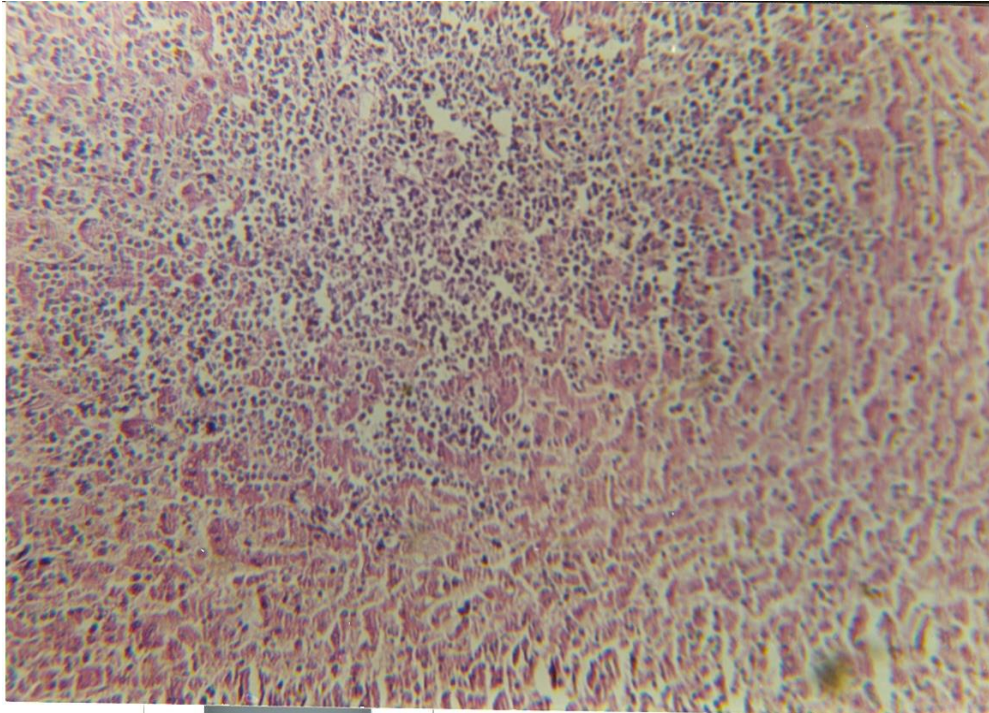
A 30yr old Female, 8th week of pregnancy was found lying unconscious on the floor by her husband. She was married since two yrs. She was immediately rushed to hospital where she was declared as "brought dead to hospital". She had past history of fever, running nose and Myalgia Three Weeks earlier for which she was treated in the same Hospital. There were also past instances of Domestic Violence involving her husband and inlaws which were negotiated. Her parents alleged the husband, and inlaws responsible for her untimely death. They even alleged harassment by them for Dowry. Hence the matter was reported to the Police and a Magistrate Inquest was ordered into her death.

AUTOPSY: External Examination revealed nothing significant and there were no demonstrable external injuries on the body.

1. Photograph showing Petechial hemorrhages over the ventricle & flabby heart.



2. Micro-Photograph showing Giant cells, macrophages, lymphocytes.



Internal Examination revealed the Edematous and congested Lungs with air passages filled with mucus and froth. Microscopy revealed Pulmonary vessels distended with RBC's. Alveolar spaces were mostly empty. In patches alveolar septa were widened and edematous. They also showed chronic Mononuclear cell infiltrate consisting of Lymphocytes, Plasma cells, a few heart failure cells were also seen.

The Heart was flabby with few petechial hemorrhages over the left ventricle. Coronaries and Valves unremarkable. The ventricular cavities contained fluid blood. Right Ventricle wall thickness 2-3mm and Left Ventricular wall thickness 14-16mm. The Heart appeared Flabby. Histological examination revealed focal areas of mononuclear cell infiltrate with patchy Myocardiolysis. There were no fibrosis, cell infiltrates consisted of Histiocytic Macrophages, Lymphocytes and Plasma cells. A fair number of Eosinophil's were also seen. Some of the areas where Myocardial Necrosis were evident there were fair number of Giant cells seen. However there were no Granuloma seen. Intermycelial edema was widespread. The Uterus contained 5cms fetus. All other organs showed generalized congestion. There were no Evidence of Soft Tissue or Skeletal Trauma. Toxicological evidence was Negative. The Cause of Death was concluded as Ventricular Fibrillation and Heart Failure consequent to Giant Cell Myocarditis and the Manner of Death was Natural.



Discussion:

Giant Cell Myocarditis is one of the Heart disease known to cause Sudden and Unexpected deaths in a seemingly Healthy young Adult individuals. The etiology of GCM is unknown, it is an idiopathic disorder, likely GCM has multiple causes. Viral infection may occasionally trigger GCM. Single case reports have suggested that infection with Human Herpes virus⁷, coxsackie B2 virus^{8,9} and parvovirus¹⁰ may each play a role. Most cases of well documented Giant Cell Myocarditis are of Viral origin or post viral immune mediated responses^{3,4,5}. Infants, immune suppressed individual and pregnant women are particularly vulnerable. It is commonly noted in young adult individuals^{11,12}. In the present case the deceased was in 2nd month of pregnancy and was doing her household work during her collapse. In case of Viral infection after viral entry there will be an acute injury of the myocytes, induced by virus replication leading to myocyte necrosis, exposure of intracellular antigens (e.g., cardiac myosin), and activation of T lymphocytes producing interferon gamma and macrophages producing tumor necrosis factor (TNF)¹³. There is an early infiltration of CD4-positive T cells with a T helper type 1 response, secreting Il-2 and interferon gamma and a later stage of lesion evolution, in which a dominant T helper 2 response leading to fibrosis^{14,15}. Heart failure is the widespread symptom in the majority of cases (approximately 75%). Unfortunately it often progresses to death or cardiac transplantation despite optimal treatment¹⁶. Other common presentation symptoms are ventricular tachycardia (14%), chest pain with ECG signs of acute myocardial infarction (6%) and complete heart block (5%)¹¹. In the present case the Individual had a past history of Viral Fever which was treated symptomatically and was 2 months Pregnant besides this she was exhausted due to her involvement in the Household work this possibly added extra burden to her deceased heart. Chest pain, cardiac arrhythmias, and acute or chronic heart failure (HF) occur during the course of the disease⁴. Histopathological examination showing Lymphocytes along with the Giant cells confirmed a viral origin^{17,18,19,20}. Viral serology has limited Value²¹ hence not done in this case however Histological examination of Heart confirmed the Pathology. The absence of Musculoskeletal Injury and Negative Toxicological Evidence ruled out Foul Play. Hence the incidental finding of GCM in this individual confirmed the Natural Cause of Death and at the same ended the Speculations surrounding the Sudden Nature of Death.

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