

Fatal Myocardial Infarction in Bus Driver: A Case Report

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Abstract

An increased incidence of myocardial infarction is seen among the professional drivers. Sedentary life style, high psychological demands and job strain can be attributed to higher risk of coronary artery disease in these professionals. Herein, we report a case where a male bus driver died due to myocardial ischemia. This case is of importance because if myocardial infarction occurs in a driver while on duty it can pose a great danger to the lives of the passengers travelling in the vehicle.

Keywords: Professional driver, Job strain, Sudden death, Autopsy, Myocardial ischemia.

Introduction

Coronary artery diseases (CAD) are the leading cause of morbidity and mortality worldwide [1]. Increase of approximately 82 % mortality and 89 % morbidity due to coronary artery disease is anticipated in developing countries between 1990 and 2020 [2]. An increased risk of myocardial infarction among professional drivers was first reported about 50 years ago [3] and has been reported repeatedly since then, especially among bus drivers [4]. Traditional risk factors for myocardial infarction include tobacco smoking, increased blood lipids and hypertension. Hereditary factors and overweight also play a part in assessing the risk of developing myocardial infarction. Further, low physical activities at work or during leisure time, cold, and heat have been proposed as risk factors for myocardial infarction. A few chemical

occupational exposures have been associated with an increased risk of myocardial infarction, among them are combustion products [5]. Herein, we report a case of sudden death of a professional bus driver due to myocardial infarction secondary to coronary atherosclerosis.

Case report

An apparently healthy 44 year old male bus driver developed sudden severe chest pain while driving. He anticipated some problem and immediately stopped the bus. Arrangements were made without delay to shift him to the hospital where he was declared *brought dead*. The relatives revealed that the deceased was healthy before this incident. Medicolegal requisition was made for autopsy.

On postmortem examination length of the body measured 167 cms and weighed 61 kgs. There were no external injuries on the body. Heart weighed 230 gms. Left and right ventricular wall measured 1.5 cms and 0.5 cms respectively. Coronaries were thick and gritty on cut section. Right coronary artery showed fatty streaks. Proximal 1 cm of left coronary artery was normal. Rest of the lumen of left coronary artery showed block throughout its length due to the atheromatous plaque

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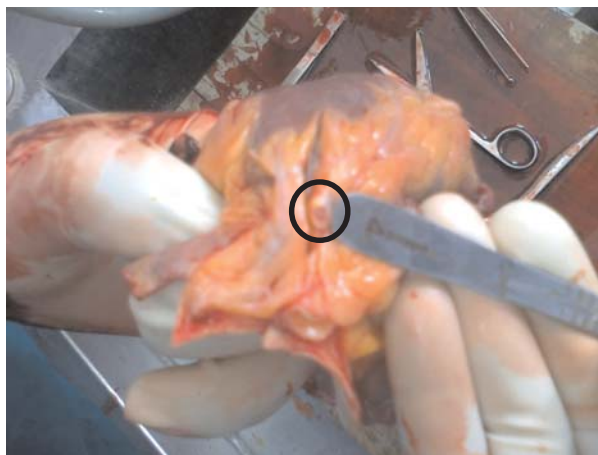
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deposition within the intima of the arterial wall with a thrombus in situ (Fig 1). Aorta showed intimal deposition of atheromatous plaques at places. Both the lungs were oedematous exuding frothy fluid. Stomach contained 200 ml of white coloured fluid without any abnormal odour. Small and large intestines were intact and healthy. The brain, spleen, liver and kidneys did not reveal any significant morphological changes. Toxicological analysis was unremarkable.

Multiple sections from the areas of the heart corresponding to the drainage areas of the

Fig 1. Lumen of left descending coronary artery showing thrombotic occlusion



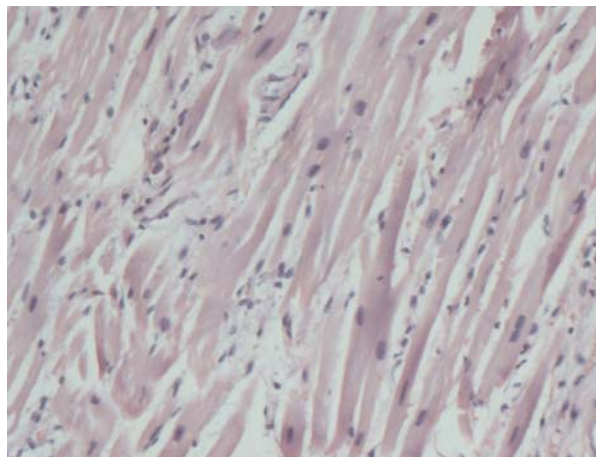
Discussion

There are several main risk factors associated with the development of coronary heart disease and some studies have indeed corroborated that bus drivers have a high risk of developing CHD as a result of such factors. A study published on the causes of death of 376 New York City bus drivers showed that proportionate mortality ratio was significantly excess due to ischemic heart disease. It was concluded that these findings were consistent with the scientific literature linking job strain with cardiovascular disease among bus drivers [6].

In a study of heart disease prevention in Sweden, coronary heart disease in 103 bus and tram drivers, using 6,596 men in other

blocked coronary arteries were subjected for histopathological examination using Eosin & Haematoxylin stain. No significant morphological changes were evident except for an area of early signs of ischemia (Fig 2). Microscopy of the left coronary artery showed obliteration of the lumen with thrombus formation associated by atherosclerosis of the vessel wall. The cause of death was opined as myocardial ischemia secondary to thrombotic occlusion of left coronary artery.

Fig 2. Microscopy showing the early signs of myocardial ischemia (H & E stain, 20X)



occupational groups as a reference group was studied. Over the 11.8 years study period, one in five (18.4%) bus and tram drivers had a coronary artery disease event, compared to only 6.4% rate in the comparison group [7].

In 1993, a study was reported on incidence of myocardial infarction among bus drivers in Sweden. It was suggested that among the factors that might contribute to observed excess risk of myocardial infarction are job strain, irregular working hours, a sedentary job, automobile exhaust fumes, and noise [8].

A study was done to determine the risk factors for coronary heart disease in 2297 bus drivers and skilled workers from the Taipei Municipal Bus Administrative Bureau, Taiwan. The prevalence of obesity was 9.6%, hypercholesterolemia; 34.0%,

hypertriglyceridemia; 69.4% and ischemic heart disease; 1.7% was observed among bus drivers. By contrast, among skilled workers, the prevalence of obesity was only 4.6%, hypercholesterolemia; 29.9%, hypertriglyceridemia; 30.6% and ischemic heart disease was 0.9%. It was inferred that exposure to the occupation of driving a bus may carry an increased risk of coronary heart disease [9]. Similar findings were reported by Hartvig and Midttun, from a controlled cohort study which compared CHD risk factors among bus drivers and industrial workers in Norway [10].

To conclude, a predisposition to myocardial ischemia as a result of the job is clear from the literature reviewed above. Growing threats to drivers' well-being such as increase in road traffic, violent passengers and increasingly tight running schedules from commercial pressure will no doubt add to their burden. Any impairment in the physical and psychological health of the bus drivers can lead to undesirable consequences for passengers as well as bus operating companies. Hence there is a necessity for bus operators to improve workplace practices in order to reduce job strain and ameliorate the working environment of bus drivers. As buses are one of the most popular modes of public transport worldwide, there is a need for actively addressing the problems in the working environment of bus drivers. Regular screening for cardiovascular diseases has to be carried out and pre-hospital resuscitation by Basic Life support has to be taught to transit workers. It is suggested that drivers with known risk factors have to be given an alternative job in the same firm which does not require him to drive so as to minimize the risk for the passengers.

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