

Can We Observe Livor Mortis in Space (Microgravity)

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Introduction

Forensic medicine describes all aspects of forensic studies as clinical forensic medicine practices that include forensic pathology examining the dead and the interaction that keeps people under control with the law and judiciary. For this reason, we think that it is time to discuss forensic medicine applications in new settings in the space age we live in. When the heart stops, the red blood cells move downwards under gravity. This results in blood pooling in the blood vessels on the lower lying areas of the body, causing the colour change. Clearly, gravity is not the only factor that causes livor mortis. What happens under microgravity conditions?

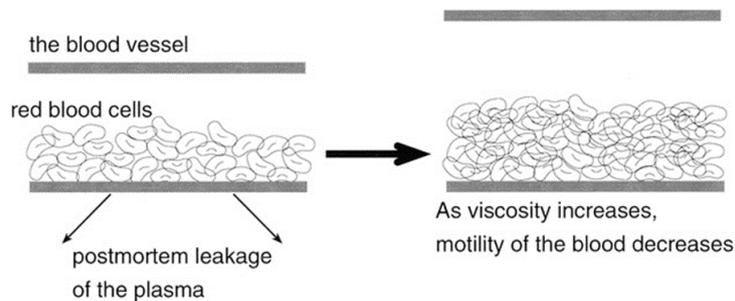
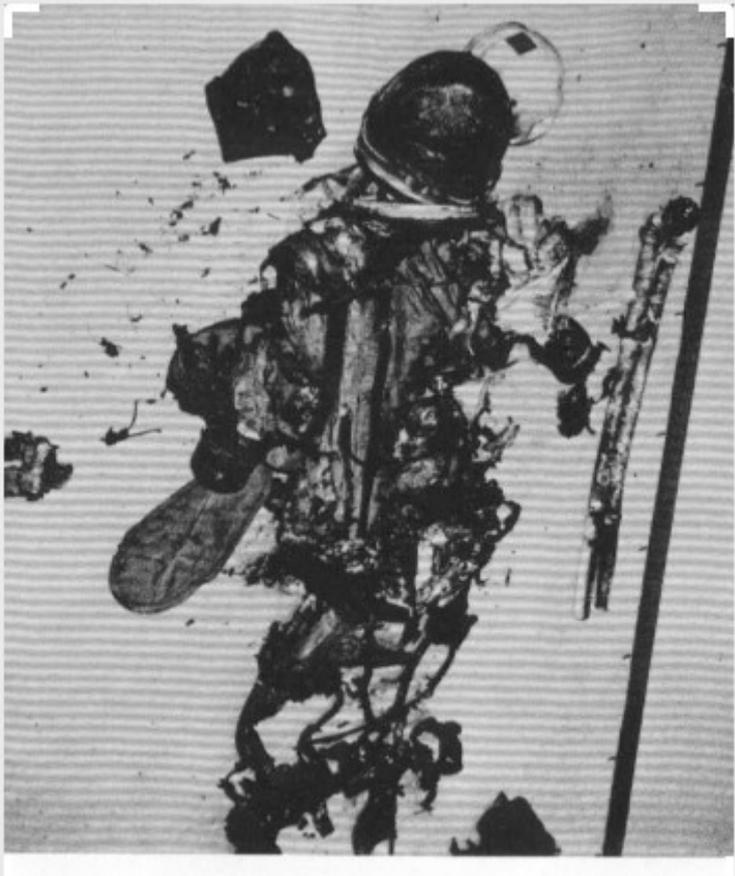


Fig 1: A schematic illustration of how gravitational dilatation of a vessel can cause precipitation of red blood cells and exudation of plasma.

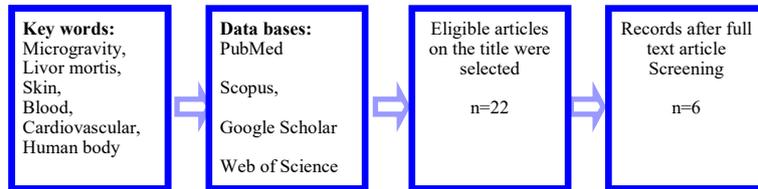


Astronaut Gus Grissom's flight suit following the Apollo 1 fire in 1967, which killed Grissom, Ed White, and Roger Chaffee.

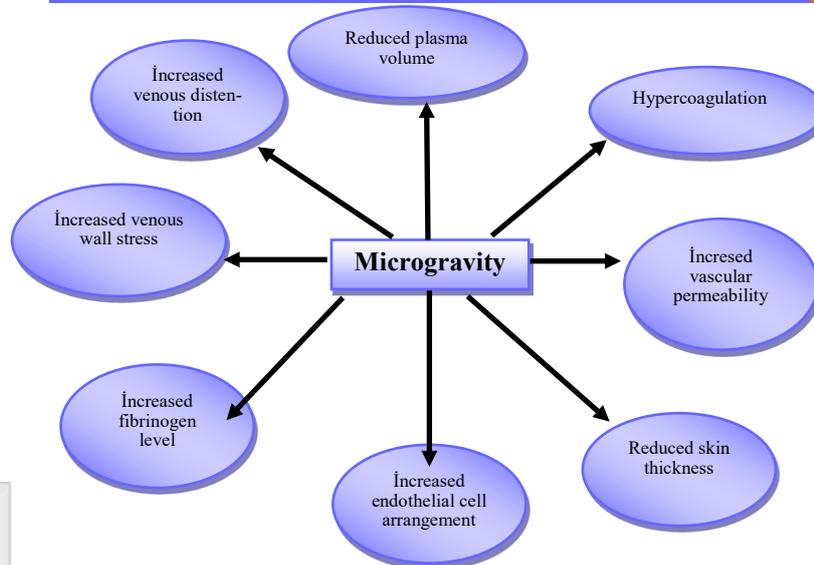
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Method and Material

We reviewed the changes in the microgravity conditions of the factors that may affect the formation of livor mortis with the literature.



Results



Discussion and Conclusion

Increased fibrinogen level, venous distention, vascular permeability, and decreased skin thickness are among the causes that may contribute to the observation of livor mortis. On the other side, increased plasma volume, hypercoagulation, increased venous wall stress and endothelial cell arrangement are among the factors that may affect the fixation of the livor mortis or the rate of livor mortis formation. Some of the studies carried out were obtained from simulated studies, using experimental animals and short-term exposure to microgravity. And these factors are among the factors that make it difficult to reach the result. Is there any possibility livor mortis can occur all over a body released in microgravity?

As a result, in terms of the effects of microgravity on livor mortis, many parts cannot reach a consistent conclusion, but these can provide ideas for the following research.

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