

# An autopsy case of severe nonimmune hydrops fetalis secondary to premature closure of the foramen ovale

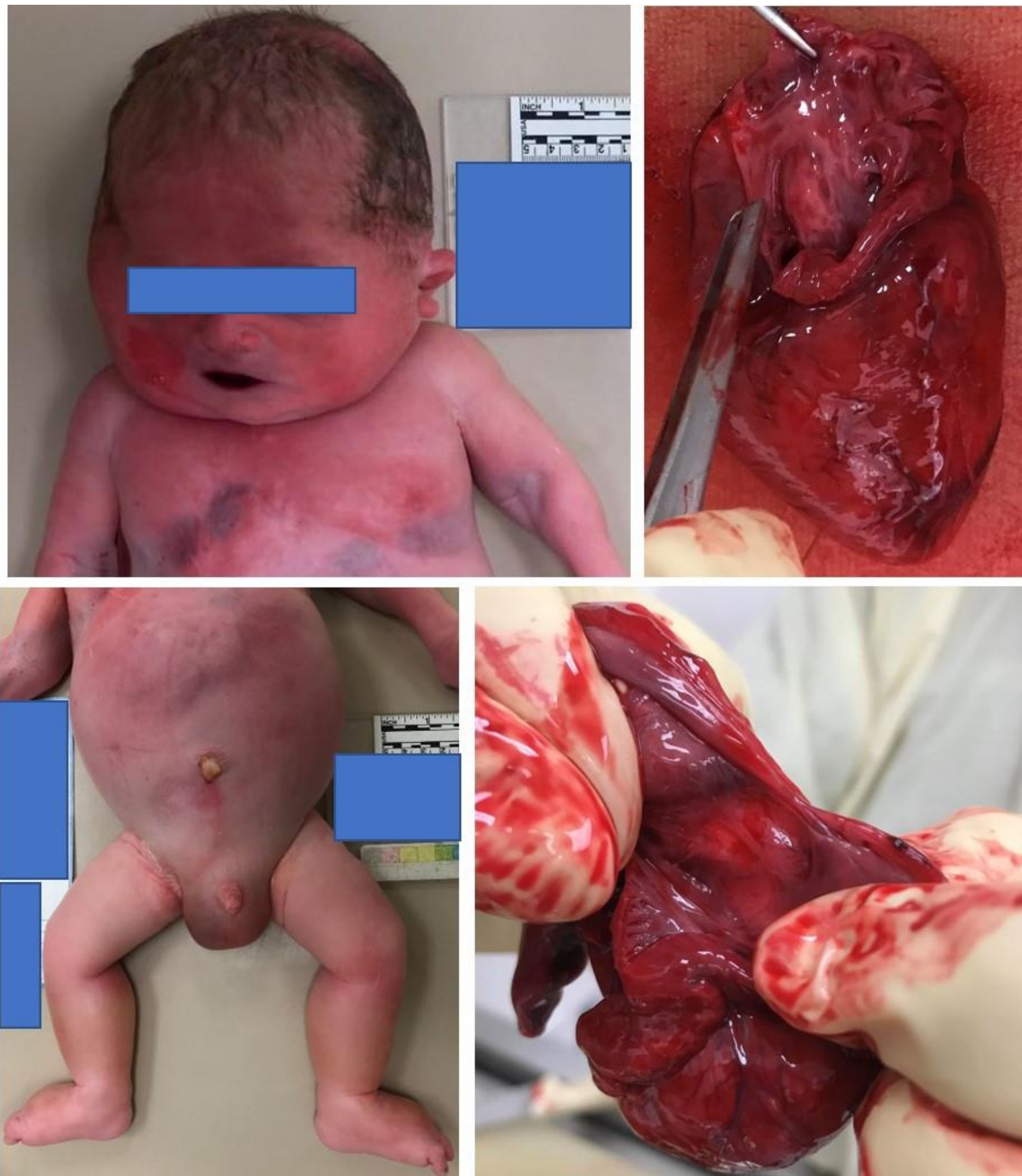
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## INTRODUCTION

Hydrops fetalis is a condition in the fetus characterized by excessive fluid accumulation within the fetal extra vascular compartments and body cavities occurring prenatally. Non-immune hydrops fetalis is the predominant (>85%) cause of all affected individuals (cardiovascular is the leading etiological category). Premature closure of the foramen ovale may occur at any stage of pregnancy and may be due to multiple causes and has been reported as hydrops fetalis cause.

## CASE REPORT

Herein we present an autopsy case of severe nonimmune hydrops fetalis. The decedent was delivered from Rh positive mother. The overall autopsy findings are premature closure of the foramen ovale of the heart, diffuse subcutaneous edema, significant ascites, pleural and pericardial effusion, and enlarged heart/liver. The foramen ovale is the shortcut through which fetal heart provides oxygenated blood to preferential organs, mainly the brain and heart



itself, and normally closes at birth. The timing of the premature closure of the foramen ovale in fetus is critical: its closure late during pregnancy has been associated with right heart failure, while its closure very early during pregnancy frequently results in a hypoplastic left heart due to decreased blood flow, with an aneurysm consistently bulging into the left atrium, which ultimately leads to right heart failure. Both, if uncorrected in time, can ultimately lead to hydrops fetalis and fetal death. Other abnormalities, like pulmonary vascular disease, pulmonary hypertension and enlarged edematous placenta, may aggravate venous return to fetal heart, setting up a vicious cycle. In summary, the newborn baby died of complications of non-immune hydrops fetalis due to the premature closure of the foramen ovale of the heart.

## KEY REFERENCES:

1. Bellini C, Hennekam RC, Fulcheri E, et al. Etiology of nonimmune hydrops fetalis: a systematic review. *Am J Med Genet A.* 2009;149A:844-51.
2. Coulson CC, Kuller JA. Nonimmune hydrops fetalis secondary to premature closure of the foramen ovale. *Am J Perinatol.* 1994 Nov;11(6):439-40.