MEDDOCS Open Access Publisher

ISSN: 2637-9627

Annals of Pediatrics

Open Access | Case Report

An Unfortunate Case of Hydrops Fetalis in Fourteen Pregnancies; a Case Report

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Received: Aug 11, 2023

Accepted: Sep 13, 2023

Published Online: Sep 20, 2023

Journal: Annals of Pediatrics

Publisher: MedDocs Publishers LLC

Online edition: http://meddocsonline.org/

Abstract

Introduction: Hydrops fetalis refers to fetal edema and is divided into Immune and Non-immune hydrops fetalis. There is fluid collection in different cavities of the body. IHF, which has decreased with the use of anti-D immune globulin, accounts for 12.7% of cases and is associated with antigen-antibody mediated red cell hemolysis. Recent advancements in prenatal diagnostic and therapeutic interventions, as well as neonatal intensive care, have improved the diagnosis and management of HF.

Case report: This case discusses a rare case of IHF in an Rh-negative mother in her 14th pregnancy with a history of eight Neonatal Death (NND), three Intrauterine Fetal Death (IUFD), and two pregnancies requiring abortion for fetal defect (undocumented). The fetal ultrasonography on her current pregnancy revealed features suggesting hydrops fetalis. The baby was born prematurely at 30 weeks gestation with edema and perinatal distress. Despite resuscitation efforts, the neonate did not survive.

Conclusion: This case demonstrates the difficulties of managing IHF in a noncompliant patient with a history of fetal loss, highlighting the need for greater health education and promotion in rural locations to support safe motherhood initiatives.

Introduction

Hydrops fetalis (HF) refers to fetal edema, initially described by Ballantyne in 1892. It is characterized by abnormal fluid accumulation in body cavities such as pleural, pericardial, and peritoneal spaces and in soft tissues [1]. Typically, ultrasound examination during the first or second trimester of gestation allows for early detection of HF. While significant fluid collections are easily identifiable, some cases with limited fluid accumulation may evade routine ultrasound detection [2].

HF arises from an imbalance in fluid homeostasis, leading to excessive fluid accumulation that cannot be resorbed. The condition can be broadly classified into Immune Hydrops Fetalis (IHF) and Non-Immune Hydrops Fetalis (NIHF) [1]. IHF, which has decreased with the use of anti-D immune globulin, accounts for 12.7% of cases and is associated with antigen-antibody mediated red cell hemolysis. On the other hand, NIH constitutes 87.3% of cases and is linked to various etiological factors, including viral infections, heart diseases, chromosomal abnormalities, hematological issues, and autoimmune causes [3,4].

Recent advancements in prenatal diagnostic and therapeutic interventions, as well as neonatal intensive care, have improved the diagnosis and management of HF. However, HF remains associated with a high mortality rate. Despite this, there is limited available data on prognostic factors in newborns with HF, including perinatal interventions and certain demographic and clinical features [5].

Cite this article: Gurung G, Shrestha K, Shrestha N, Basnet R, Yadav A. An Unfortunate Case of Hydrops Fetalis in Fourteen Pregnancies; a Case Report. Ann Pediatr. 2023; 6(2): 1125.

Here, we present a rare case of Immune Hydrops Fetalis in an Rh-negative female with a history of Gravida 14 Parity 11 Abortion 2. This case sheds light on the uniqueness and challenges of this condition in the present context.

Case Presentation

A non-compliant 32-year-old female in her 14th pregnancy was referred to our facility at 28 weeks of gestation from a remote municipality hospital for pregnancy with many risk factors. She was an Rh-negative female with a poor obstetric history (Table 1) who had not routinely used anti-D immune globulin in her prior pregnancies. She was also diagnosed with gestational diabetes mellitus, which she could control with diet and gestational thrombocytopenia. There had been no previous reports of pain in the abdomen, fever, burning micturition, vaginal bleeding, leakage, or discharge.

She had only had one antenatal scan in her hometown, indicating a single live intrauterine fetus at 22 weeks' gestation, with no significant congenital defects. Following her hospitalization, an Ultrasonography (USG) scan revealed a single living fetus at 32 weeks of gestational age with significant fetal pericardial and pleural effusion, generalized body edema, enlarged subcutaneous tissue (>1cm), a big placenta, and polyhydramnios. Because the female was a non-compliant Rh-negative mother with a history of eight Neonatal Death (NND), three Intrauterine Fetal Deaths (IUFD), and two pregnancies needing abortion for fetal defect (undocumented), an Indirect Coombs Test (ICT) titer was done, which showed 1:69. She was counseled about the fetus's poor outcome but chose to continue the pregnancy. A male infant weighing 2960 grams was born via spontaneous vaginal delivery at 30 weeks and three days with generalized edema. (Figure 1). Because the baby had minimal breathing effort, he was intubated and transferred to the Neonatal Intensive Care Unit (NICU) for ventilator support. Refractory hypotension was treated with inotropes. A bedside portable USG indicated around 4 mL of cardiac fluid and 15 mL of ascitic fluid, for which fluid aspiration was performed. The baby's heart rate began to drop, and chest compression was begun. Adrenaline was given according to the hospital's guidelines, and cardiopulmonary resuscitation (CPR) was performed for six cycles. Despite all efforts, there was no spontaneous breathing or heartbeat, and the infant was pronounced dead.

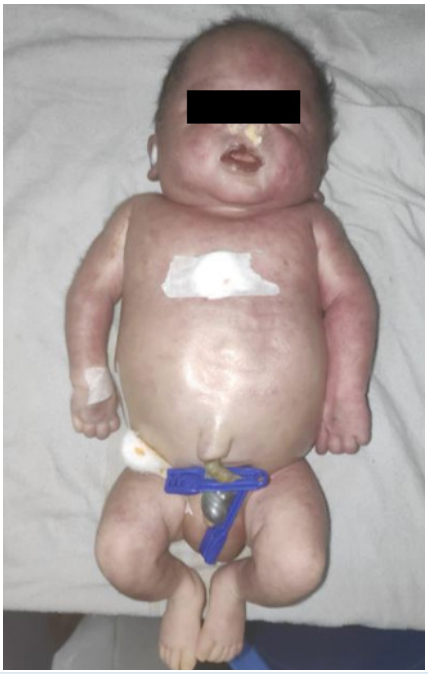

Figure 1: Baby boy with generalized swelling of the body.

Table 1: Table describing the past 13 pregnancies of the mother.

Parity(P)/ Abortion(A)	Antenatal checkup	Place of Delivery	Outcome	Anti-D immune globulin
P1	Not done	Home	NND	Not received
P2	Not done	Home	NND	Not received
P3	Not done	Home	NND	Not received
P4	Not done	Home	NND	Not received
P5	Not done	Home	NND	Not received
P6	Not done	Hospital	IUFD	Received
P7	Not done	Home	NND	Not received
A1	Not done	Hospital	Induced	Not received
P8	Not done	Home	NND	Not received
A2	Not done	Hospital	Induced	Not received
P9	Not done	Hospital	IUFD	Received
P10	Not done	Home	NND	Not received
P11	Not done	Hospital	IUFD	Received

Discussion

There are various causes of Hydrops fetalis, such as cardiac, pulmonary, metabolic, hematologic, and infectious [6,7]. It leads to an overall of 50% to 98% of perinatal mortality, and among the ones that live have a mortality rate of 43% by one year of age [8].

Despite the growing advancement in medicine, diagnosis and therapy have not changed the outcome substantially.

Among the poor prognostic factors, the most dreadful ones are the early onset pleural effusion and polyhydramnios before 20 weeks, which causes the increased risk of pulmonary hypoplasia and preterm delivery. However, the absence of major structural abnormality and aneuploidy is a better prognosis [9,10].

The management could be antenatal and postnatal. In antenatal cases, we check for anemia, which was not possible in our part of the world, for which the treatment would be in-utero blood transfusion in the presence of a neonatologist and obstetrician. Post-natal management includes stabilizing the newborn, finding the root cause, and starting the treatment. Usually, due to pulmonary hypoplasia, invasive ventilator support, and endotracheal intubation is required, but widespread edema makes it difficult to intubate. This is similar to our case, where there was difficult intubation due to laryngeal edema [11]. To maintain hemodynamic stability, alongside intravenous fluids, inotropes are also given to improve cardiac output.

The case report represents an example of Rh-negative HF with multiple fetal losses. The diagnosis was made by frequent fetal loss and clinical symptoms of the fetus. Women with titers higher than 1:4 are considered Rh alloimmunized [12]. The ICT titer in our case was 1:69. A similar alloimmunized case report was published in the journal of Dove in 2019, which was managed effectively by Therapeutic plasma exchange starting at 17 WOG at the weekly interval, which was not possible in this case she had infrequent visits during her pregnancy. It would have been a completely different treatment protocol if she had come

earlier. Management of such alloimmunized cases requires facilities of cell-free DNA analysis for determining fetal RH status and cordocentesis for analyzing fetal anemia [13]. Intrauterine transfusion is an effective treatment modality. Therapeutic plasma exchange therapy is being practiced nowadays.

Conclusion

This case report is of an Rh-negative mother who lost all 14 of her fetuses. Because of the worldwide rise in Anti-D immune globulin use, the incidence of IHF has dramatically decreased. Although prophylaxis is a highly prevalent therapy for Rh-negative women in our country, due to a lack of health education and promotion in remote areas, many mothers are not educated. Perhaps the Rh-negative component should be included as a fundamental component of the safe motherhood program.

Conflict of interest: There is no conflict of interest.

Consent: The infant's mother gave her approval for its publication and the provided photos.

Source of funding: This research has not received any funds or grants for publication and there is no financial benefit from this article.

Acknowledgment: We want to thank the infant's parents for the approval for submitting this paper.

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