

# HYDROPS FETALIS • 1/2

## DEFINITION

- Abnormal accumulation of fluid in  $\geq 2$  compartments of the fetus (a compartment can be skin, pleura, pericardium, placenta, peritoneum or amniotic fluid)
- 2 recognised types – immune and non-immune
- immune hydrops fetalis occurs when maternal allo-immune antibodies are produced against fetal red cells causing haemolysis
- non-immune hydrops fetalis occurs in the absence of maternal antibodies
- Mortality is high, 56–78.2% in developed countries

## SYMPTOMS AND SIGNS

- Hydrops fetalis is diagnosed antenatally

***Refer all antenatally diagnosed hydrops fetalis to a regional fetal medicine centre for further assessment and management***

## INVESTIGATIONS

- Refer to fetal medicine team to investigate both mother and baby to determine the cause. (Investigations carried out by the fetal medicine team are beyond the scope of this guideline)
- Due to the extensive list of causes of hydrops fetalis, investigations directed according to clinical history and presentation. Initial investigations to consider include:

Cause	Initial investigations	Further investigations to be considered if underlying cause is not ascertained
Anaemia	<ul style="list-style-type: none"> <li>• FBC (including blood film)</li> <li>• Group and direct Coombs' test</li> <li>• Maternal Kleihauer test</li> </ul>	<ul style="list-style-type: none"> <li>• Red cell enzyme deficiency (e.g. G6PD deficiency)</li> <li>• Red cell membrane defects (e.g. hereditary spherocytosis)</li> <li>• Haemoglobinopathies (e.g. thalassaemia)</li> </ul>
Biochemistry	<ul style="list-style-type: none"> <li>• Liver function tests including albumin</li> <li>• Urea, creatinine and electrolytes</li> </ul>	<ul style="list-style-type: none"> <li>• If pleural/ascitic tap done – send for fluid MC+S and biochemistry</li> </ul>
Cardiac	<ul style="list-style-type: none"> <li>• ECG to exclude cardiac dysrhythmias</li> <li>• Echocardiography to exclude structural heart defects</li> </ul>	
Placenta	<ul style="list-style-type: none"> <li>• Send to pathologist</li> </ul>	
Genetic testing	<ul style="list-style-type: none"> <li>• Chromosomes</li> <li>• Microarray</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate for congenital metabolic conditions</li> </ul>
Infection	<ul style="list-style-type: none"> <li>• Toxoplasma, rubella, CMV, parvovirus, herpes simplex virus</li> </ul>	
Radiology	<ul style="list-style-type: none"> <li>• Chest X-ray</li> <li>• Abdominal X-ray</li> <li>• Cranial ultrasound scan</li> </ul>	<ul style="list-style-type: none"> <li>• Further investigations to be guided by clinical picture</li> </ul>
<b>15–25% of babies diagnosed have no clearly discernible cause</b>		

## TREATMENT

### Antenatal treatment

- For immune hydrops the fetal medicine team may carry out intrauterine blood transfusions
- Further intensive monitoring is also provided (discussion of this is beyond the scope of this guideline)

### Immediate neonatal management

- An expert team, including a neonatal consultant must attend delivery of a baby diagnosed with having hydrops fetalis as resuscitation and stabilisation can be difficult
- Manage according to Neonatal Life Support (NLS)

***Consider concurrent pleural/ascitic drains to facilitate resuscitation***

## HYDROPS FETALIS • 2/2

- In cases of severe anaemia, give urgent O negative blood transfusions. Baby may need further grouped and crossmatched blood transfusions in the neonatal unit

***Give only CMV negative and irradiated blood***

### SUBSEQUENT MANAGEMENT

#### Ventilation

- Ensure adequate oxygenation and ventilation
- May require high frequency oscillatory ventilation [see **Ventilation: high frequency oscillatory ventilation (HFOV)** guideline] and muscle relaxation
- If pulmonary hypertension present may require nitric oxide (see **Nitric oxide** guideline)

#### Cardiovascular system

- Use inotropes to support heart and blood pressure
- If intravascular fluid depletion give colloid
- Strict fluid balance
- If severe compromise may require further pleural and ascitic taps
- Immune hydrops may require exchange transfusion. See **Jaundice** and **Exchange transfusion** guidelines

***Even with optimal management, the mortality rate is high. Consider a post-mortem in the event of a death***