Ascites (Water belly)

Have you been finding an increasing number of chickens in the flock found dead with darkened or purplish discolored heads? Have you noticed a number of smaller birds waddling around with what appear to be large fluid filled abdomens or ‘water bellies’? If this is something you have been seeing there may be an increased incidence of a condition referred to as ascites syndrome in your barn. In this article we hope to explain what this condition is and to describe some of the factors that may contribute to the occurrence of ascites.

What is Ascites?
Ascites is a term that describes abnormal fluid accumulation in the belly, hence the term ‘water belly’ (figure 1). When this term is used in poultry medicine it is usually used to describe pulmonary hypertension syndrome in broiler chickens; a combination of clinical signs and changes within the bird including increased fluid in the abdomen. Ascites syndrome is a non-infectious condition which cannot spread from bird to bird. While this is a good characteristic of this condition there is, unfortunately, no treatment for birds that are affected. At the end of a production cycle in Alberta it is not uncommon to find a low incidence of birds affected with this condition likely related in part to our location at a high altitude.

Figure 1:

![Ascites Image](image.png)

Picture courtesy of PHS

High Altitude? What else can trigger ascites and why?
Ascites can be triggered by many different factors
- chilling
- rapid growth
- rearing at high altitudes
- lung disease
- and/or by an excess of salt in the feed and/or water.

It is often a combination of these factors that contributes to an increased incidence of this condition in a flock.
So how do these factors cause ascites exactly? Well it is all about the plumbing. Ultimately the factors listed above all play a role in increasing blood flow through the lungs and/or increasing the resistance to blood flow through the lungs. This results in increased work for the heart (the ‘pump’) responsible for blood flow. Increased work can essentially burn the pump out and as a result there is heart failure. In cases of ascites the excess stress placed on the heart results in dilation and the pump actually becomes less efficient at moving blood. The result is that blood coming to the heart to be re-circulated actually backs up in the system. This back up initially impacts the liver, a blood filter. When the filter is overloaded fluid leaks from it and starts to fill the abdominal cavity. With time the liver tries to repair these leaks. While early in the stages of ascites syndrome the liver is enlarged, slowly begins to take on a more firm characteristic, and shrinks down in size as it tries to repair and accommodate the backup. Thus the findings in a bird that has died due to ascites syndrome are generally

- enlarged and dilated heart
- various degrees of liver change
- increased fluid in the abdominal cavity
- overall congestion due to the back up of blood in the system and failure of the heart (figure 2). This congestion is what is responsible for the purplish discoloration of the head of a chicken found dead with ascites.

Figure 2:

![Figure 2: Dilated Heart, Liver Changes, Fluid in Belly](image)

What can I do?

Unfortunately, as previously mentioned, there is no treatment for ascites once it has developed. If you suspect a higher incidence of ascites in a flock it is important to investigate potential contributing or underlying factors so that they can be prevented in future flocks or, if still currently impacting this flock, changed to prevent additional birds from becoming affected. A good first step in trouble shooting this, or any problem, is to submit a sample of affected birds to your veterinarian or a diagnostic laboratory. Some findings on post mortem examination of affected birds can act as clues for the underlying cause(s) of ascites. It is also important to provide information about the current and historical events in this flock as this information can also provide clues as to the underlying cause(s)

- treatments administered
- temperature extremes
- changes in water consumption
- new feed deliveries or changes in ration type
- how are the birds growing (fast, slow, normal) Etc.

It is always a good idea to have recent water testing results (chemical analysis – including sodium) on hand and to always save feed samples from loads delivered in the event that feed testing to rule out
potential causal factors is required. If you have further questions about ascites syndrome or think this condition is affecting your flock contact your veterinarian.

This article was written by the veterinarians of Poultry Health Services Ltd. Poultry Health Services is a private veterinary practice providing diagnostics for Alberta poultry producers as members of the Poultry Health Centre of Excellence (PHCE). Bird submissions can be submitted to the PHCE via Government offices in Edmonton, Airdrie and Lethbridge. Please call 403-948-8577 if you have a mortality problem or want help making a submission.

References/Further reading


