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# 013 - Salmonella pullorum







## History

Pullorum disease is a disease in poultry caused by Salmonella pullorum that was first described in 1899 as a fatal septicaemia of young chicks. This disease was once known as bacillary white diarrhoea. The disease is mainly seen in chicks and turkey poults and the disease causing bacterium can be transmitted through the egg (transovarially). The disease has been eradicated from commercial poultry flocks in many countries in Europe and North America by government backed programmes such as NPIP in the USA.

## Clinical picture

Mortality in young chicks caused by pullorum disease can be as high as 100%. Infected birds show weakness, depressed appetite, poor growth and the adherence of a chalky white material to the vent. Evidence of pullorum disease acquired by the vertical (transovarial) route is usually not seen until the end of the first week with a mortality peak in the second or third week.

In young chicks or poults, huddling under the brooders occurs, birds have droopy wings and often breathing difficulties due to extensive involvement of the lungs. Survivors often become runts, are retarded in growth terms and poorly feathered.

In table egg or breeder birds, survivors can become carriers and, hence, transmitters of the S. pullorum bacterium in lay. In older birds, S. pullorum can cause blindness and leg joint infections, the latter resulting in lameness.

## Pathology

Birds dying from acute pullorum disease at a young age may show no diagnostic lesions. Otherwise, congested livers, hearts and kidneys can be seen and the livers may have small white focal lesions. Occasionally birds with respiratory signs may have white nodules in their lungs and sometimes these are also seen in the heart muscle, gizzard, caeca and rectum. Sometimes swollen joints are seen.

In adult birds the pathology is often minimal and may just be regressing ovarian follicles. Sometimes a fibrinous pericarditis and perihepatitis is seen.

Diagnosis is conclusive upon isolation of S. pullorum which is a non-motile serogroup D salmonella.

## Treatment

In countries with active eradication programmes treatment with antibiotics may not be allowed, but where such treatment is allowed antibiotics such as sulphonamides, nitrofurans, chloramphenicol, tetracyclines and amino glycosides has been beneficial. With breeders carriers often remain after medication which is why so many countries have eradication programmes. There is little demand for vaccination but, if it is allowed, it can also play a beneficial role in the control of pullorum disease. Serological screening with culling of reactors has been proven to be an effective control strategy.