

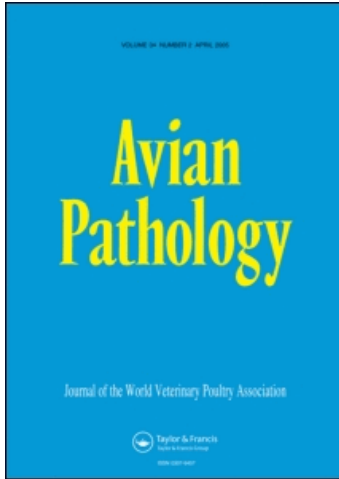
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# Oviductal volvulus in a Nera black chicken (*Gallus gallus domesticus*) in Nigeria

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A case of oviductal volvulus, a rare disorder with oviductal cyst as a possible aetiology, is described in an 11-month-old Nera black chicken (*Gallus gallus domesticus*). The condition was observed during routine postmortem examination of 550 carcasses from a flock of 16 100 birds between September 2005 and June 2006. The affected portion of the oviduct and the cyst twisted almost 360° clockwise around the dorsal ligament with severe congestion, hyperaemia, oedema, dilatation and devitalization. This is the first reported case of oviductal volvulus in a domestic chicken.

## Introduction

Nera black chickens are primarily an egg-producing breed of domestic chicken in Nigeria. Unlike the local chickens, which are on a free-range system, they are managed under an intensive system and are placed on compounded commercial layer's mash. They are one of the most popular breeds of layers in Nigeria because of their high level of production (between 80% and 85% throughout their laying period) and the high market value of the old-layers compares with the local chickens (Adene & Oguntade, 2006).

Being prolific layers, oviductal derangements such as atretic oviduct (Finne & Vike, 1951), cystic right and left oviduct (Goldhaft, 1956), oviductal prolapse (Randall, 1991), impacted oviduct and paralysis of the oviductal musculature (Riddell, 1997) are common phenomena in the Nera black. However, circulatory disturbances of the reproductive tract in domestic chicken caused by volvulus have not been described in any domestic animal or bird species. Volvulus is commonly reported along the gastrointestinal tracts of domestic animals and birds (Hutyra *et al.*, 1949; Cohrs, 1967; Katiyar *et al.*, 1988; Gelgerg, 2001).

Intestinal volvulus is a twisting across the long axis of the gut characterized by compression of the thin-walled veins and obstruction of the influx of arterial blood, which eventually progresses to dilation, devitalization and infarction of the affected segment (Barker *et al.*, 1993). In this report, a case of oviductal volvulus in the domestic Nera black chicken is described.

## Case Report

During routine necropsy on 550 carcasses from a flock of 16 100 birds conducted between September 2005 and June 2006, one case of oviductal volvulus was observed. The bird was an 11-month-old Nera black layer found dead inside the cage, without premonitory signs.

The carcass was in good condition and weighed 1.90 kg. The abdomen was markedly distended. A cyst (7.5 cm × 5.0 cm) was attached to the infundibulum of the oviduct and weighed 360 g. Moderate diffuse peritonitis with serosanguinous fluid (about 50 ml) was observed in the abdominal cavity. Well-developed ovarian follicles were present, indicating that the bird was actively laying before death. There was clockwise twisting (almost 360°) of a portion of the oviduct (about 53 cm) and the cyst around the dorsal ligament (Figure 1). The dorsal ligament was also weak, thinned and partly torn from their place of attachment due to the twisting of the oviduct and the strain exerted by the enlarged cyst. The affected oviduct and the cyst showed severe hyperaemia and oedema on both mucosal and serosal surfaces. The affected portion was severely dilated, soft and partially attached to the contiguous structures by mild fibrinous exudate. The lumen of the oviduct contained egg yolk surrounded by a mixture of albumen and bloody exudate. The cyst also contained blood-tinged fluid (about 150 ml), and the dorsal ligament contained bloody exudate and had markedly engorged blood vessels (Figure 2). There was a sharp demarcation between the affected part of the oviduct and the normal caudal part of the shell gland. The twisting involved the infundibulum, magnum, isthmus and part of the shell gland.

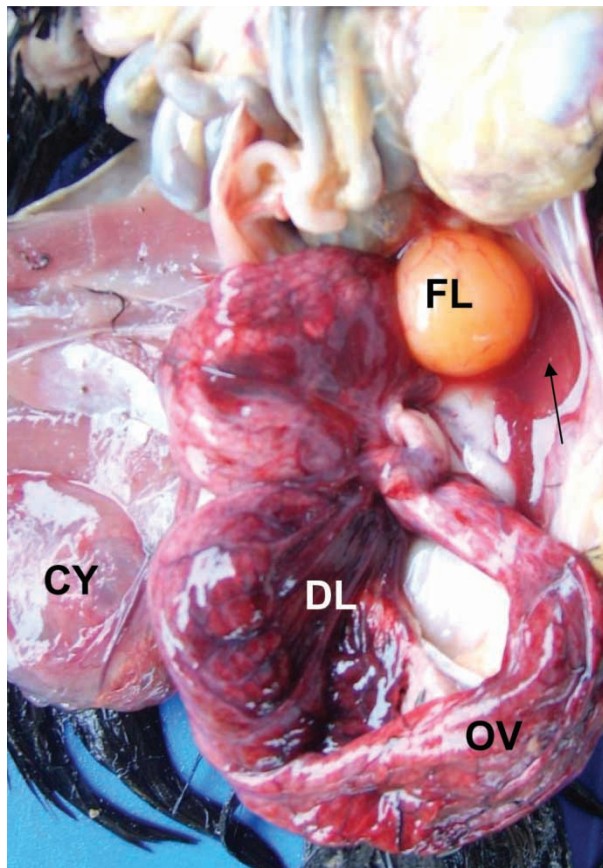
## Discussion

The macroscopic changes observed in this oviduct resemble the reports of Katiyar *et al.* (1988) and Ajayi *et al.* (2007) in which intestinal volvulus of domestic chickens was documented. However, the gangrene and severe peritonitis observed in the intestinal volvulus of domestic animals (Barker *et al.*, 1993) were not observed in this report.

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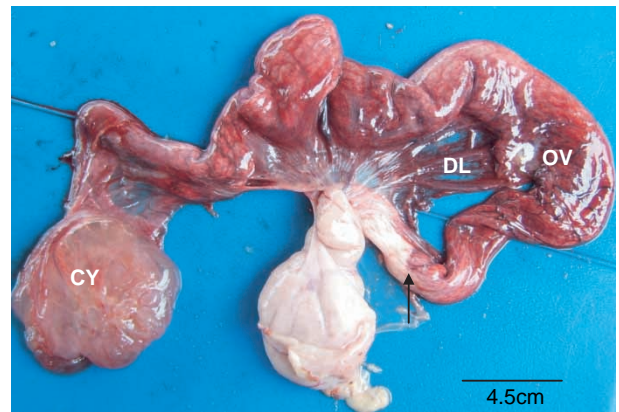


**Figure 1.** Oviductal volvulus: severely congested and oedematous oviduct (OV) and dorsal ligament (DL), cyst (CY), normal follicle (FL) and serosanguinous fluid in the abdominal cavity (arrow).

The findings with respect to the cyst resemble the report of Hutt *et al.* (1956) in which they described a case of cystic left oviduct in the cranial end of the infundibulum. Oviductal volvulus seems to be very rare. The authors found no reference to this condition in mammals and in poultry.

The cause of volvulus is usually obscure. However, it is possible to speculate that the weakness of the dorsal ligament caused by the enlarged cyst allowed free movement of the cyst and the affected portion of the oviduct in the peritoneal cavity. This may probably be the predisposing factor to the development of this condition.

In conclusion, oviductal volvulus appears to be a rare finding in chicken, as there is no earlier report, to the best of our knowledge, of the condition in the literature. We therefore suggest that this present condition may be a first reported case of oviductal volvulus as the cyst and the oviduct turned almost 360° clockwise around the dorsal ligament.



**Figure 2.** Oviduct volvulus, showing the cyst (CY), severely congested and oedematous oviduct (OV) and dorsal ligament (DL) with sharp area of demarcation in the shell gland (arrow).

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