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Short communication

HISTOLOGICAL EVIDENCE FOR BLOOD SUPPLY TO THE SPERM-HOST GLANDS (SHG) IN THE OVIDUCT OF NATIVE CHICKEN (GALLUS DOMESTICUS)

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ABSTRACT

Blood supply to the uterovaginal sperm-host glands of native chicken was investigated in the present study using light microscopy (X40) during the period from January to June 2002. Samples were collected from the oviduct of deshi chicken and stained with H and E stain in Histology Laboratory of the Department of Anatomy and Histology, BAU, Mymensingh, Bangladesh. Results of the present study revealed that the arterial and venous capillaries were present mainly in the submucosa, also in the core of the villi of the oviduct. However, the evidence for the blood supply of the sperm-host glands in the chicken's oviduct suggesting nutritional supplies to these glands as well as spermatozoa.

Key words: Blood supply, sperm-host gland, native chicken

INTRODUCTION

Sperm-host glands have been identified and described in the uterovaginal region of the oviduct of the domestic fowl (Fujii, 1963; Fujii and Tamura, 1963; Bobr et al., 1964 a & b). The sperm-host glands first make their appearance as slight invaginations of the epithelium, become progressively deeper. The depressions gradually become tubular and take on the appearance seen in the adult (Gilbert et al., 1968a). They are distributed in the infundibulum, uterovaginal junction and vagina, but more numerous in the uterovaginal junction than other regions (Khan et al., 1999). They are involved in the storage and survival of spermatozoa in the oviduct (Fujii and Tamura, 1963). However, it is unknown how this survival is achieved. Likewise little is known about the mechanisms involved in the control of glandular function and the release of spermatozoa at the correct time. Hodges (1965) reported in detail on the blood supply to the uterus, but didn't consider the region where the host glands are found. Gilbert et al. (1966) and Gilbert et al. (1968b) gave brief details of the vascular supply in Single Comb White Leghorn (SCWL) chicken, but till now there is no available literature regarding evidence of blood supply to the sperm-host glands of oviduct in native chicken (*Gallus domesticus*) in Bangladesh. Thus, the present piece of work was undertaken to demonstrate the blood supply to these glands.

MATERIALS AND METHODS

The experimental birds used were single comb native chickens (Gallus domesticus), purchased from the local market of Bangladesh Agricultural University campus having apparently good health and devoid of any external anatomical deformities. The birds were killed by cervical subluxation method. Immediately after killing, the abdominal and pelvic cavities were opened sufficiently to find out the oviduct. The oviducts of the birds were collected as soon as possible with the help of scalpel and scissors avoiding any destruction of the organ. Then the oviducts were placed on the tray straightly and samples were collected from infundibulum, uterovaginal junction and vagina with the help of sharp scalpel. The specimens then were collected and fixed in the Buin's solution. The tissues were then dehydrated in a series of graded ethanol, cleared in xylene, embedded in paraffin and finally the sections were cut at 6 μm in thickness using rotary microtome (Model 820, USA). The sections were then stained with Hematoxylin and Eosin (H & E) stain. Detail histological study was completed using high power light microscopy (X40). Photographs were placed for better illustration of the result.

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RESULTS AND DISCUSSION

In the present study, the arterial and venous capillaries were observed mainly in the submucosa of infundibulum (Fig. 1), utero-vaginal junction (UVJ) (Fig. 2), in the core of the villi (Fig. 3) of the oviduct supplying to the sperm-host glands. These results are almost similar to those as observed by Gilbert et al. (1968 a & b), Gilbert et al. (1966). They elaborately mentioned that the glands have a complex blood supply consisting of a capillary network connected to the arterial and venous systems and to the epithelial capillary plexus. The capillaries of the glands are in close contact with the cells over relatively great lengths.

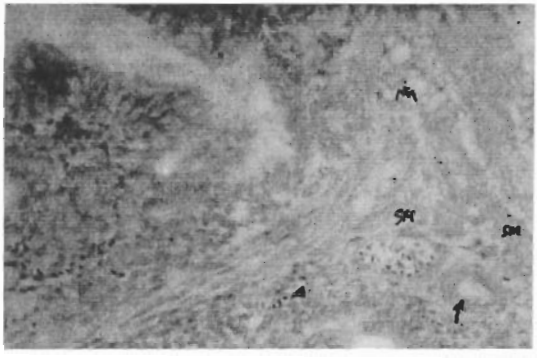

Fig. 1. The infundibulum of native hen's oviduct showing arterial capillaries (arrow) and venous capillaries (arrowhead) surrounding the sperm-host glands (SHG) and nerve ganglion (NG) and smooth muscles (sm) in the submucosa (SM) (X40).

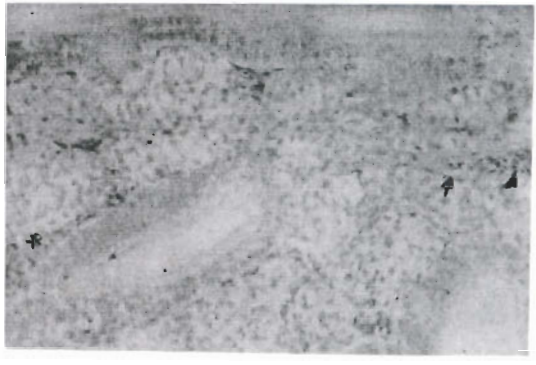

Fig. 2. The utero-vaginal junction (UVJ) of native chicken showing arterial capillary (arrow), venous capillary (arrowhead) and heavy immunocompetent cells (IC) (asterisk) around the SHG (X40).

Fig. 3. The utero-vaginal junction (UVJ) of native chicken showing artery (arrow), and vein (arrowhead) in the core of the villi indicating blood supply to the SHG (X40).

However, the existence for the blood supply of the sperm-host glands in the chicken's oviduct suggesting nutritional supplies to these glands as well as spermatozoa, but it need a further research to clarify how it occurs.

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