Histopathological Study of Endometritis of the cows

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Abstracts

The present study was designed to investigate histopathological changes of endometritis in cows. 32 specimens of uteri of normal cows were collected from AL-Diwanyia slaughter house during 3 months twice weekly. All these specimens were cut and prepared for histopathological sections, then stained with haematoxyline and eosin stain and it examined under light microscope, the result showed hyperplasia of epithelial layer of uterus, severe infiltration of inflammatory cells, atrophy of uterine glands with hemorrhage and serous edema in the uterine tissue in some cases.

Introduction

The goal of reproductive management in dairy cows is to have cow become pregnant in an efficient manner and at profitable interval calving (1,2). Although there are many causes of reproduction inefficiency in dairy cows particularly management factors such as lack of estrus detection intensity, traditional veterinary practice has focused on post partum uterine disease (3,4). The peri- and early post partum in dairy cows is from a reproductive perspective very important (5). Also during the reproductive life of female, uterus is exposed to the risk of infection particularly at the time of breeding and following parturition when various micro-organisms are carried from the posterior part of the genitalia or from environment in the uterine cavity (6). This micro-organism such as *Escherichia* and *Trichomonas* spp., causing clinical disease and infertility During sexual intercourse and after parturition (7). Retention of fetal membranes in cows often leads to increase of growth of bacteria and progress of local intra uterine inflammation almost 100% of case (8,9). The term endometritis refer to

inflammation of endometrial lining of uterus, most inflammatory lesion of uterus are infectious in origin and result either from ascending infection by organism that normally inhabits the lower genital tract or infectious agents introduced in to the uterine cavity during mating, artificial insemination, or post partum (10). There are two forms of endometritis acute and chronic form (11):

*Acute endometritis: is a short term of inflammation of endometrium caused by infection, characterized by infiltration with polymorph nuclear leukocyte (PMNs) in sub-epithelial zone of stratum compactum. (12).

*Chronic endometritis: It is characterized by predominantly lymphocytic infiltration some time with presence of plasma cell, Macrophage, eosinophils or mast cells (13).

The aim :

Because of great importance of endometritis in economic condition and for shut alight on this disease this study was done.

Materials and Methods

This study conducted about 3 months. we collected about 32 specimens which taken from weak, big old cows from AL-Diwanyia slaughter house, the specimens taken from different areas of uterus (body, cervix, horns). All these uteri examined grossly and then 1-2cm³ species from uteri were taken and kept in 10% neutral buffered formalin about (7-14 days) for fixation. Then the specimens sent in to the laboratory of anatomy and histology in

veterinary medicine collage of AL-Qadisiya university for preparation of microscopic slides, all formalin fixed specimens were dehydrated, embedded in paraffin wax and sectioned on microtome at thickness 5Mm. by microtome (jung, 4291, west Germany) and stained by haematoxylin and eosin (HE) stain (14) and then all microscopic slides are examined under light microscope.

Results

Macroscopic changes :

All uteri which taken from weak cows were examined macroscopically. The uteri characterized by thick wall congestion, swallow and it contain serous exudate.

Macroscopic changes:

All the microscopic slides of uteri were examined under light microscope we observed, There is hyperplasia of uterus epithelium and infiltration of inflammatory

cells in sub epithelial layer (specially neutrophils and macrophages) Figure(1) and Figure(2). Atrophy of endometrial glands and also there are severe infiltration of inflammatory cells Figure(3) and Figure(6). Some uteri in metaestrus phase showed severe hemorrhage with serous exudates (edema fluids) Figure(4) and Figure(5).

Fig.(1): Histological section Uterus of cow: showed hyperplasia of epithelial lining cells of endometrium (arrow) and infiltration of inflammatory cells in sub epithelial layer. 50X H&E

Fig.(2): Histological section Uterus of cow: showed hyperplasia of epithelium (arrow) and infiltration of inflammatory cells (neutrophil and lymphocyte) (double arrow). 100X H&E.

Fig. (3): Histological section Uterus of cow: There are atrophy of endometrial glands ,infiltration of inflammatory cells in sub epithelial layer and presence of edema in uterine tissue (arrows). 50X H&E.

Figure(4) Histological section Uterus of cow : There is sever hemorrhage in the uterine tissue (arrow) with scattered inflammatory cells (double arrow).50X H&E.

Fig.(5) Histological section Uterus of cow : There is sever hemorrhage in the uterine tissue (arrow) with scattered inflammatory cells.100X H&E.

Fig.(6)Histological section Uterus of cow : There is few hemorrhage (arrows) with presence of edema in uterine tissue.50X H&E.

Discussion

The present study demonstrated that the macroscopic and microscopic changes related with endometritis in cows. Grossly, the uteri appeared thick wall, congestion, swelling and it contain serous exudates. This agreed with (15), He suggest that any thickening in uterine wall and excessive

dilation of blood vessels referred to presence of uterine inflammation. Microscopic examination, we note there is hyperplasia in epithelial layer of uterus due to sever infiltration of inflammatory cells and this agreed with (16). He side that the infiltration of neutrophiles and

lymphocytes in the lamina propria ,dense infiltration of lymphocytes and plasma cells resulting in hyperplasia of stratum compactum in uterine layers.Also from our result there are hemorrhage in the uterine tissue due to presence of inflammatory response which resulting in dilatation of blood vessels and emerge of RBCs out the vessels into the tissues and this agreed with (17), He showed that there is mild amount of cellular debris and hemorrhage in case of endometritis. Uterine glands

were absent or less than normal which agreed with (18), he showed in endometritis there is atrophy of endometrial glands and reduce in diameter and secretory activity.The uterine tissue contains serous exudate (edema) which appeared due to inflammatory response and this result agreed with (18), he showed that hyperemia, edema, and focal hemorrhage, which occurred in sub clinical endometritis in repeat breeder cows.

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دراسة مرضية نسجية لالتهاب بطانة الرحم في الأبقار

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الخلاصة

صممت الدراسة الحالية للتحري عن التغيرات المرضية النسجية لمرض التهاب بطانة الرحم في الأبقار. تم جمع 32 عينة (أرحام الأبقار) من مجزرة الديوانية للحوم خلال 3 أشهر بمعدل زيارتين بالأسبوع . كل هذه العينات قطعت وحضرت مقاطع نسيجية منها ، بعد ذلك صبغت بصبغة الهيماتوكسيلين-ايوسين. فحصت جميع الشرائح تحت المجهر الضوئي حيث لاحظنا فرط تنسج في بطانة الرحم الداخلية مع ارتشاح كثيف للخلايا الالتهابية كذلك قلة أو ضمور الغدد الرحمية ، مع نزف وخزب (وذمة) في النسيج الرحمي لبعض الحالات.