HISTOPATHOLOGICAL INVESTIGATION OF OVINE INTESTINAL ADENOMAS IN BASRAH ABATTOIR

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ABSTRACT

In order to investigate the histopathological features of ovine intestinal adenomas, the study achieved in 27 macroscopically suspected intestinal adenomas of sheep aged between 2-3 years, which diagnosed in Basrah abattoir, the intestines of slaughtered sheep were fixed and processed for light microscopy.

The histopathological results showed multiple stages of neoplastic differentiation, mainly circumscribed areas suggesting adenomatous form by proliferating mucous glands in sub mucosal region of colon of varying sizes, some of which with clear proliferating hypertrophic and hyperplastic epithelial lining with area of angiogenesis and hemorrhage around them. Morever, the results showed circumscribed areas of adenomatous glandular structures enclosed by superficial mucosal epithelium and in sub mucosal region of rectum. It had been concluded that the ovine intestinal adenomas showed a degree of differentiation in mid aged sheep (2-3 years old aged) that may resembles other adenomatous intestinal lesions reported in more older age of others domestic animals.

INTRODUCTION

The evidence comes from published researches and short economic life of the sheep may cause one to believe that the tumor in these animals was of little significance especially when the proportions of tumors are symptomless and being early cases found during routine meat inspections (1). However, in New Zealand the small intestinal adenocarcinomas were seen in 1.6% of clinically normal adult sheep species *Ovis aries* (2). As well as 7% of old and poor condition sheep (3).

Ovine intestinal adenoma has a behavioral, histological and immunohistochemical similarities to human colonic tumors (4). Spontaneous intestinal neoplasia was considered rare in most animal species (5). In addition, tumors of the intestine are rare

in man and in most animal species, with the notable exception of sheep and cattle in some parts of the world, also this type of tumor thought to be associated with the ingestion of herbicides in sheep, also ingestion of bracken fern and *papillomavirus* infection in cattle, moreover, the environmental contamination may play a crucial role in the incidence of tumors in the many parts of the world (6).

Epithelial tumors of the colon and rectum are frequent pathologic entities and deserve to be histologically reported with accuracy and completeness, in addition, epithelial polyps of the large intestine in general are often sampled or removed endoscopically, moreover, adenomas are the precursors of most colorectal cancers, whereas about 15% of colorectal carcinomas develop through an alternative morphogenetic pathway from serrated polyps (7).

Adenomas are defined by the World Health Organization and others (8) as circumscribed, polypoid lesions composed of either tubular and/or villous structures lined by dysplastic epithelium. It has an elongation of crypts, prominent serration, and no cytological dysplasia, moreover, the architecture at the bases of adenoma is altered, resulting in features such as broad, boot-shaped, L. shaped, inverse T-shaped, or branched crypts as well as basal serration which have been referred to as architectural dysplasia (9). This architectural distortion is believed to be the result of an abnormally located proliferative zone at the side rather than the base of crypts resulting in both upward and downward growth of epithelium (10).

The objective of the present study is to evaluate the histopathological aspects of intestinal adenomas in sheep in Basrah Abattoir.

MATERIALS AND METHODS

Suspected ovine intestinal adenomas specimens from 2-3 years aged sheep were made from the September 2015 until February 2016 in Basrah abattoir, with a total 27 grossly suspected lesions of ovine intestinal tumors masses. The intestinal samples were taken immediately, fixed in 10% neutral buffered formalin, dehydrated, and embedded in paraffin and sectioned at 4-5µ , stained and examined by light microscopy (11).

RESULTS

Histopathological examination of ovine intestinal adenomas showed many degrees of cellular proliferation which included mainly circumscribed area suggesting adenomatous form by proliferating mucous glands in sub mucosal region of colon of

varying sizes, some of which with clear proliferating hypertrophic and hyperplastic epithelial lining with area of angiogenesis and hemorrhage around of them (Figs.1 & 2). Furthermore, in deep center of the glands appeared more dilated and some of these were cystic in characters (Figs 3&4). Moreover, there was a nests like aggregation of mucous glands in the sub mucosal layer of colon surrounded by area of fibrosis (Fig. 5). In addition, there were nests like aggregation of mucous glands in the sub mucosal layer of rectum also present (Fig. 6).

Other histopathological sections showed circumscribed area of adenomatous glandular structures enclosed by superficial mucosal epithelium and in sub mucosal region of rectum, there was a numerous of proliferating mucous glands (Fig. 7). Some of which with hyperplastic proliferation intermingled with mitotic figures, also a groups of small mucous glands with narrow lumen were present (Fig. 8).

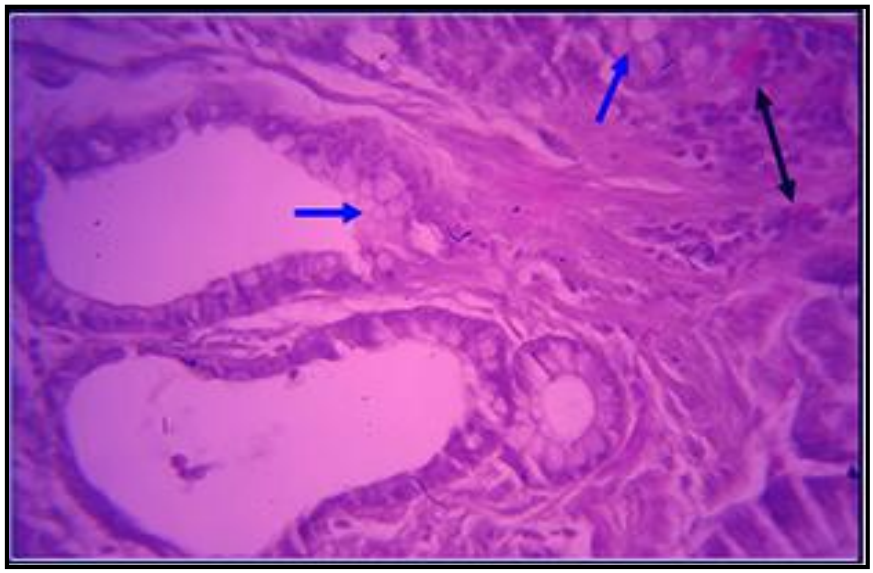

Figure (1): Histopathological section in the colon of sheep showed hyperplasia of the mucous secreting glands in the sub mucosal layer (→). In addition, there was noticed area of angiogenesis (↔)H&E stain 40X.

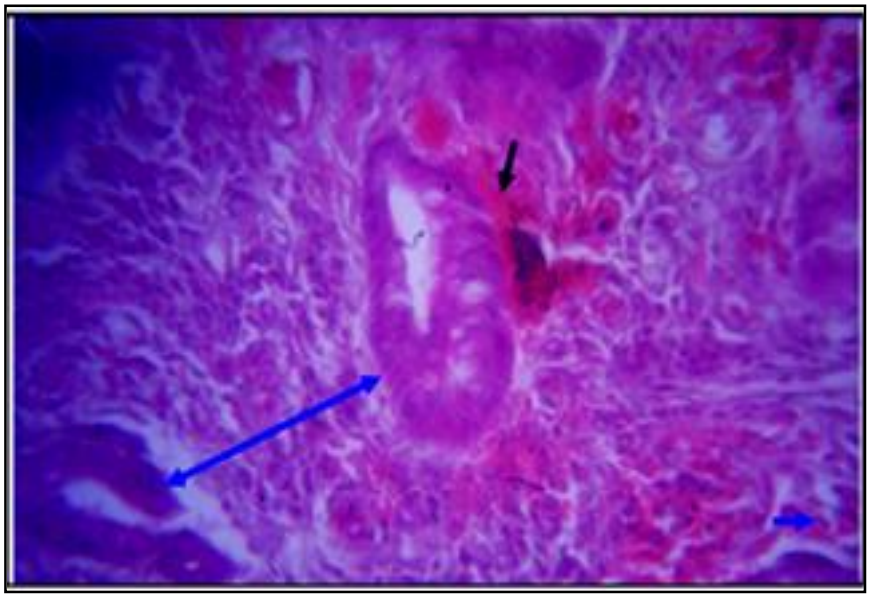

Figure (2): Histopathological section in the colon of sheep showed hyperplasia of the mucous secreting glands in the sub mucosal layer (↔). With area of hemorrhage (➞) surrounded it. H&E stain 40X.

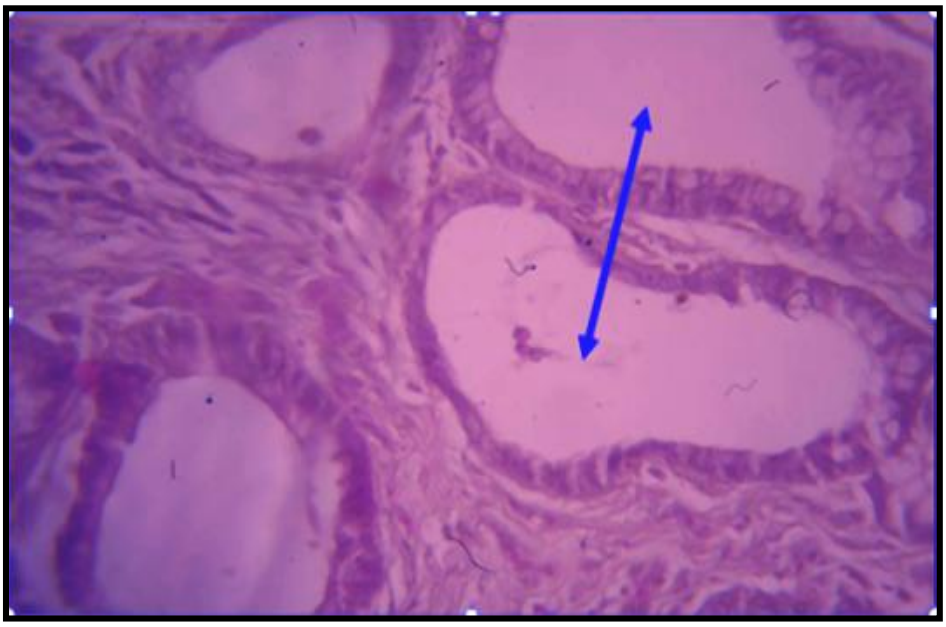

Figure (3): Histopathological section in the colon of sheep showed cystic dilation of the mucous secreting glands in the sub mucosal layer with areas of fibrosis between some of them (↔). H&E stain. 40X.

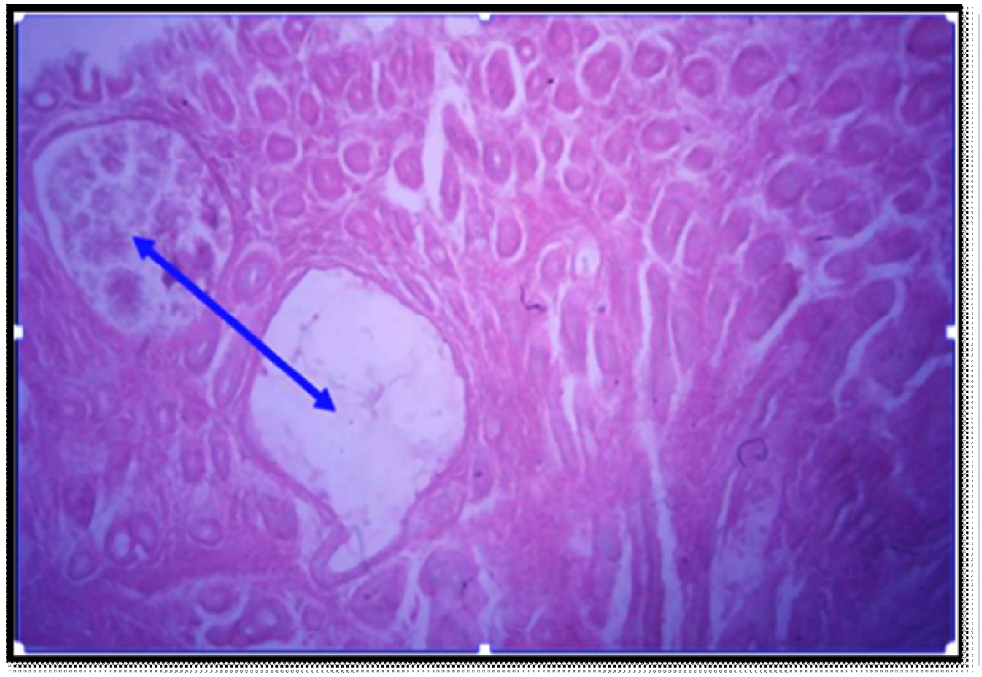

Figure (4): Histopathological section in the colon of sheep showed cystic dilation of the mucous secreting glands in the sub mucosal ( ). H&E stain. 10X.

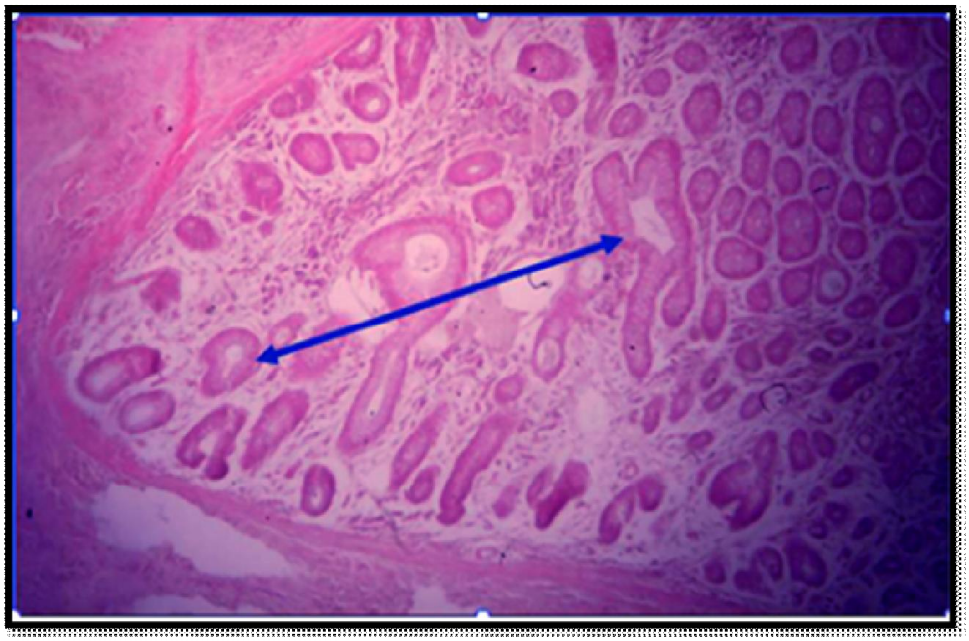

Figure (5): Histopathological section of colon of sheep showed nests like aggregation of mucous glands in the sub mucosal layer of intestine surrounded by area of fibrosis ( ). H&E stain. 10X.

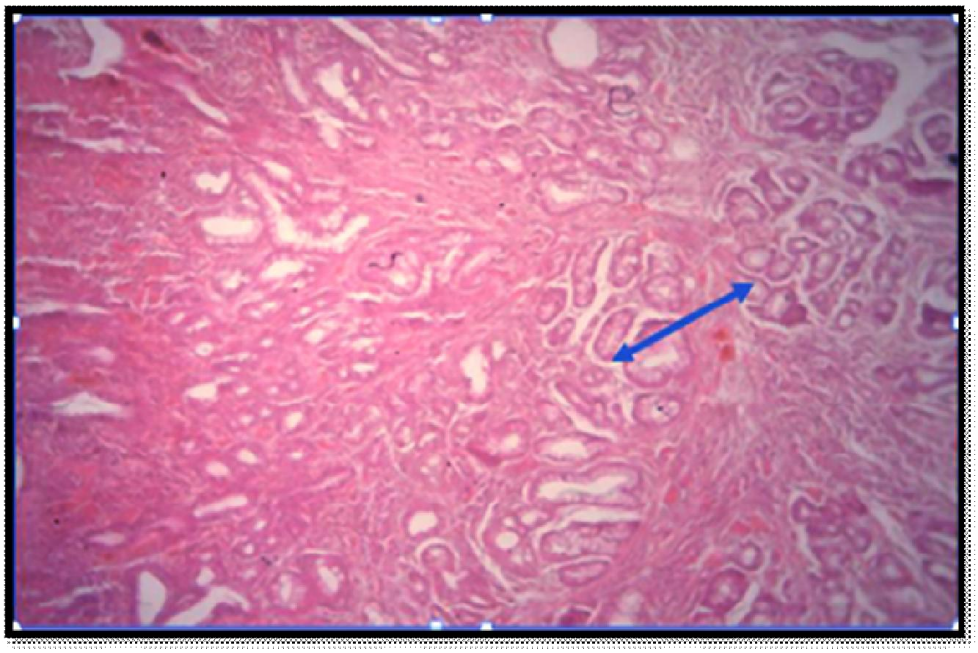

Figure (6): Histopathological section of rectum of sheep showed nests like aggregation of mucous glands in the sub mucosal layer of intestine surrounded by area of fibrosis (⟷). H&E stain. 10X.

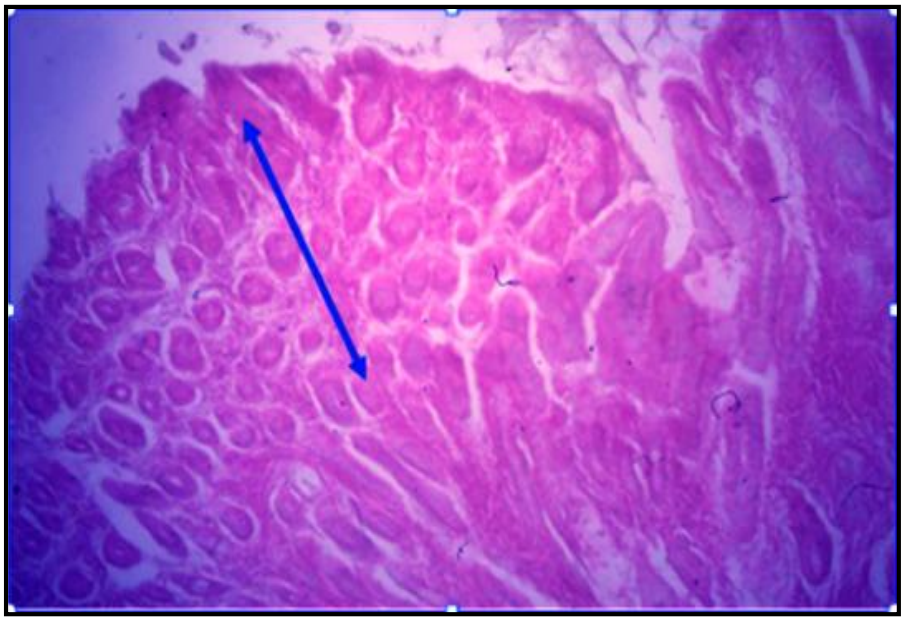

Figure (7): Histopathological section of rectum of sheep showed circumscribed area of adenomatous glandular structure enclosed by superficial mucosal epithelium and in sub mucosal region there was a numerous of proliferating mucous glands (⟷). H&E stain. 10X.

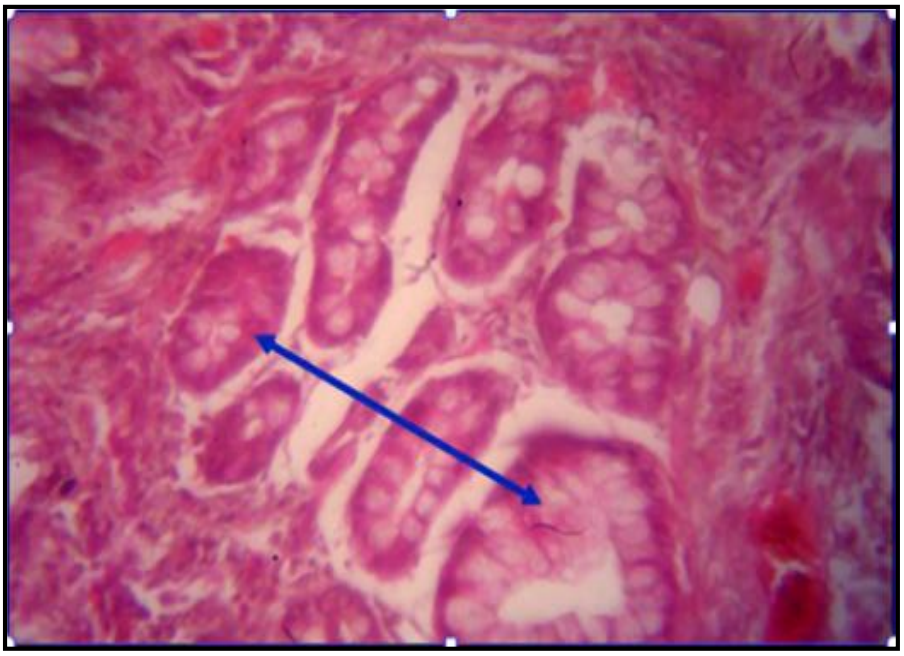

Figure (8): Histopathological section of rectum of sheep showed groups of small mucous glands with narrow lumen with hypertrophic and hyperplasic epithelial lining (⟷). H&E stain. 40X.

DISCUSSION

Few-reported incidence of overall tumors in sheep as compared with other domestic animals and humans may attributable to the relatively few mean age of commercially slaughtered sheep. In an older population of sheep, intestinal neoplasms may be more frequently encountered.

The epithelial tumors of intestine especially the colon and rectum are frequently had a pathological entities and deserves to be histopathologically reported with accuracy and completeness focused when limited reports conducting these diseases in domestic farm animals, therefore, the present study came to screening the histopathological investigation of ovine intestinal adenomas which showed wide degree of histological differentiation that evident from the proliferated aspects of hypertrophic and hyperplastic changes of glandular structures in the intestine of examined cases, which may due to the cellular structures of these glands may exposed to initiator signals of proliferation leading to a degrees of hyperplastic differentiation, these ideas may agreed with (12) who reported that the intestinal adenomas may conceivable that juxtaposed epithelium had undergone entirely separate transformations; an alternative

would be hyperplastic-type differentiation within an adenoma or conversely neoplastic changes within a pre-existing hyperplastic adenomas.

In addition, the current results showed there was a nests like aggregation of mucous glands in the sub mucosal layer of colon and rectum that may as a resulting to the neoplastic proliferation of the glandular structures causing hyperplastic proliferation like nests in characters in the sub mucosal layer of intestine, these aspects may similar to investigation came by (13) who mentioned when identified another subset of serrated lesions of adenoma within hyperplastic polyposis, displaying an abnormal architectures without cytological dysplasia and defined them as sessile serrated adenomas (SSAs), which are now considered as precursors of microsatellite unstable colorectal carcinomas.

Moreover, the histopathological sections showed circumscribed area of adenomatous glandular structures enclosed by superficial mucosal epithelium and in sub mucosal region of rectum, there was a numerous of proliferating mucous glands, these may as a resulting to some of epithelial lining of glands had hyperplastic proliferation mixed with mitotic figures, these explanation may partly agreed with (14) they documented that the intestinal adenoma have a circumscribed benign lesion composed of tubular and / or villous structures showing intraepithelial neoplasia ; and these neoplastic epithelial cells are immature and typically have enlarged, hyper basophilic with stratified nuclei.

In conclusion, the results of this study confirmed that the ovine intestinal adenomas may present in mid aged sheep particularly from 2-3 years old in Iraq, and the lesions were resemble domestic animal intestinal tumors as reported by many authors in the world but in older aged animals, in addition, the current study recommends to achieve a lot of studies in different types of domestic animals tumors especially that are not recorded in Iraq yet.

In acknowledgment, Iam appreciate all veterinary stuff of Basrah abattoir for them thankful help to achieve this work.

التحري النسجي المرضي للغرنات الغدية لأمعاء الأغنام في مجزره البصرة

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الخلاصة

لغرض التحري عن الصفات النسجية المرضية للغرنات الغدانيه للأمعاء في الأغنام ، أجريت هذه الدراسة على 27 عينه مشكوك بها عيانيا على أنها غرنات أمعاء أغنام وكانت الأغنام المدروسة بعمر 2-3 سنه حيث تم التشخيص العياني في مجزره البصرة ، بعد ذلك أخذت الأورام المعويه وتم إجراء التحضيرات النسجية المرضية وتم تشخيص هذه الأورام مجهريا. أظهرت النتائج النسجية المرضية مراحل متعددة من التمايز الغداني وبشكل أساسي ظهرت مناطق معينه من النمو الغرني من خلال تكاثر الغدد المخاطية في منطقه تحت المخاطية للقولون وبأحجام مختلفة بعضها تميز بتكاثر حجمي ونسجي للخلايا الظهارية مع وجود مناطق لنمو ألاوعيه الدموية الجديدة مع نزف واضح حول منطقه التكاثر النسجي. كذلك شوهدت مناطق محدده من النمو الغرني المحاط بطبقه المخاطية وكذلك في منطقه تحت المخاطية للمستقيم.

تستنتج هذه الدراسة إن غرنات الأمعاء في الأغنام أظهرت درجه من التمايز النسجي في أعمار متوسطه 2-3 سنه حيث يشبه إلى حدا ما الغرنات المعويه في بقيه الحيوانات المستأنسة ولكن تحدث تلك في أعمار كبيره جدا.

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