SOME OBSERVATIONS ON THE SPERMATOGENESIS IN THE TESTES OF RABBIT

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ABSTRACT

The seminiferous tubules of the testes of rabbits were lined by multilayered germ cells . The first layer was occupied by the spermatogonia , which were differentiated into type A(dusty type) spermatogonia, Intermediate type and type B (crusty type) spermatogonia.

Pictures of Preleptotene, Leptotene, Zygotene ,Pachytene, Diplotene and Diakinesis. Primary spermatocytes were found and followed by secondary spermatocytes. Reading the morphological changes, the spermatid proposed 10 stages of cellular association during the cycle of the seminiferous epithelium in rabbit .

INTRODUCTION

A complete series constitute the cycle of the seminiferous epithelium were studied in different animals (10) , (11), (7), (3) and (9). These morphological studies had established steps by which spermatogenesis were transformed into spermatids and by spermiogenesis into spermaozoa that arranged in an organized manner in different animals . Thus, a series of cellular stages follow one another with passage of time. Despite intensive use of the rabbit for research and reproduction seems to be little of information on spermatogenesis in this species (12). This study was aimed to build up some observaions on the speratogenesis in the tests of rabbit .

MATERIALS AND METHODS

A total of five rabbits, similar in age weight were selected randomly . All animals were killed by an overdose of Nembutal administered intraperitoneally . Removal of the testes was made and immediately a longitudinal incision was done in the tunica albuginea of the testes, which were then placed in 10% formalin for three hours . The tissue were cut into small pieces and immersed in the same fixative, dehydrated, cleared and embedded in paraffin. Serial sections of fine micrometers were cut and staind with iron haematoxylin - eosin, and periodic acid shiff reagent (6) .

our criteria was build upon the shape of the nucleus and the chromatin material within the nucleus which used by (1) .

RESULTS AND DISCUSSION

The seminiferous tubules in the testes in the testes of rabbit were lined by stratifed spermatogenic cells and a single layer of Sertoli cells . The spermatogenic cells were the spermatogonia, Primary and Secondary spermatocytes and the spermatids . These cells Present Various stages in the continuous Process of differentiation of the male Primitive germ cells . Three classes of spermatogonia were generally observed according to their morphology ; type A or dusty type , intermediate type and type B or crusty type . The nuclear shape of the type A spermatogonium was more or less rounded with rounded to ovoid nucleus . The nuclear chromatin was not adhered along the nuclear membrane . It was evenly distributed in its pale nucleoplasm .The nuclear shape of the intermediate type was ovoid with centrally placed and rounded nucleolus . Coarse granulated chromatin were scattered randomly in the nucleoplasm . The nucleus of type B spermatogonium was round with flakes of chromatin dispersed in its nucleoplasm and along the nuclear membrane . such a classification of spermatogonia has already been done in rat (2) guinea pig (1) and ram (8) . The detailed nuclear morphology of the spermatogonia in respect to the distribution pattern of chromatin has led to their further classification into type A0, A1, A2 , intermediate , type B1, B2 and B3 spermatogonia (5), (13) and (4). The primary spermatocytes were very numerous along the basement membrane and considered as the largest cells of spermatogenic lineage . They were passed through preleptotene stage ,Leptotene stage , Zygotene stage, pachytene stage diplotene stage and finally reached the stage of diakinesis . The nucleus of the preleptotene primary spermatocyte had a distinct nuclear membrane and was smaller than the type B spermatogonium . Its chromatin was less intensely stained and in the form of discontinuous thread which were distributed throughout the nucleus . The chromatin in the nucleus of leptotene stage were distributed unevenly and stained more darkly (Fig B3). The primary spermatocytes in the zygotene stage move away from the basement membrane (Fig A1)and their nuclei stained intensely and contained more chromatin- free areas . The nuclear chromatin of pachytene stage were formed a net – like or bouquet pattern . Two chromatids were noticed in the diplotene stage . subsequently, the two

chromatids shorten and moved apart in diakinesis (Fig B1) . The secondary spermatocytes were small cells . Their nuclei were spherical with evenly distributed chromatin . The spermatids were formed as a result of the second division of the secondary spermatocytes . The spermatids were passed into ten stages . The round nucleus in stage one contained small chromatin crusts adhered to the nuclear membrane (Fig A2) . Dispersed chromatin were found distributed in the nucleoplasm . Small chromatin in flakes were located more or less in the center of its nucleus . The nuclear membrane in stage two was more distincted and more chromatin crusts adhered to it . At stage three , the nuclear spermatid remained round . Chromatin crusts still attached to the nuclear membrane . The nucleus of spermatid in stage four were elongated . Chromatin mass appeared to accumulate in one place making it darker than the rest of the nucleus (Fig A3). The accumulated chromatin in stage five was found mostly at the base than the top of the nucleus (Fig B2) . The nucleus in stage six appeared spiral . cytoplasmic remnants were visible around the nucleus in stage seven and the chromatin was evenly scattered throughout the nucleus . The nucleus in stage eight became longer than the stage seven and the nuclear chromatin stained more heavily . The spiral appearance of the nucleus in stage nine had quite disappeared and the cytoplasmic remnants were still visible around its nucleus . spermatozoa were well developed in stage ten spermatid and were also found free in the lumen of tubules as well as attached to sertoli cells . This is in contrast with (12) who found only eight stages of spermatids in the rabbit .

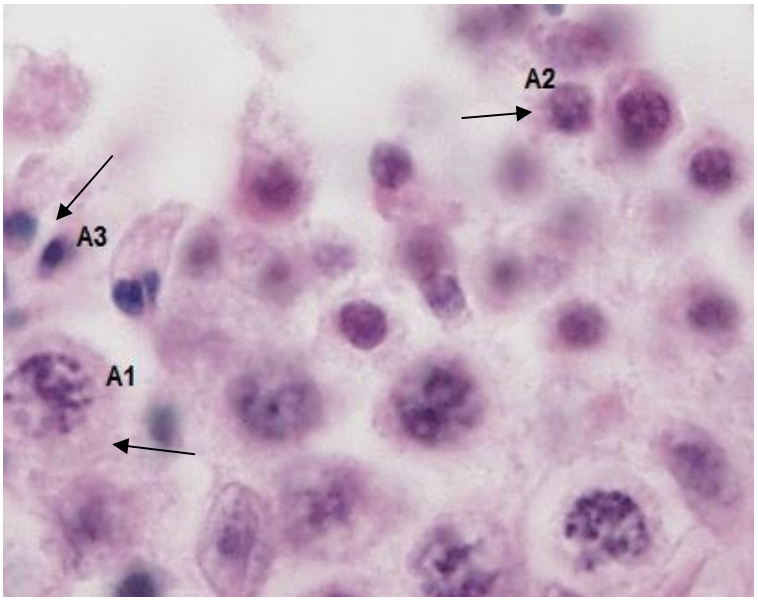

Fig A: 1- Primary spermatocyte (Zygotene stage)

2- Spermatid (stage one)

3- Spermatid (stage four)

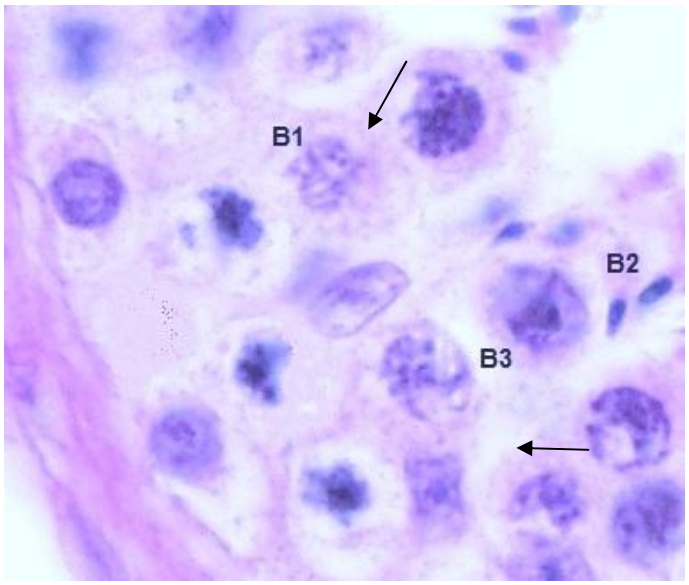

Fig B: 1- Primary Spermatocyte (Diakenesis stage)

2- Spermatid (Stage five)

3-Primary spermatocyte (Leptotene Stage)

بعض الملاحظات عن نشأة الخلايا النطفية في خصي الارنب

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الخلاصة

تبطن النبيبات الناقلة للمني لخصى ذكور الارانب بخلايا مطبقة انتاشية تحتل سليفات النطف ، الطبقة الاولى والتي تتمايز الى النوع أ (النوع الغباري) ، سليفات النوع الوسطي وسليفات النوع ب (النوع القشري) . ظهرت دلائل المرحلة قبل الخيطية والمرحلة الخيطية والمرحلة الاعتناقية ومرحلة التغلظ والمرحلة التضاعفية ومرحلة الحركة للخلايا النطفية الاولية كما تتكون الخلية النطفية الثانوية . اظهرت الاورمات النطفية عند قراءة تغيراتها الشكليائية ، عشرة مراحل خلوية خلال الحدث الدوري لظاهرة ناقل المني

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