Presence of the Unique Duct Containing the Sertoli Cell-Like Cluster on a Histological Section of Human Testicular Tissue

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Background and objective: In observation of a human testicular section slide for teaching preparation of male reproductive system for medical students, it was found a unique duct that has never been documented previously in any basic histological text book. Therefore, researcher aimed to observe all histological slides of human tissues to additionally confirm the presence of this unique duct.

Methods: Of 50 slides from 15 boxes, all human testicular tissue section slides (stained by hematoxylin and eosin dyes) purchased from commercial company for teaching and learning of medical students, faculty of medicine, Khon Kaen University, were observed under light microscope using objective lens of 4, 10, 20, and 40 x respectively. Then the unique duct found in the testicular section was recorded and photographed.

Results: From all testicular section, only one crossed section of human testicular tissue shows the unique duct containing the pseudostratified or simple columnar epithelium with abundant glycocalyxes on apical surface. In addition the ductal wall is composed of simple columnar thatLiots that are composed of smooth muscle cells. Interestingly, there is a cluster of cells located in the lumen which is similar to the histology of Sertoli cells. Therefore, it is primarily named as the cluster of Sertoli-like cells.

Conclusion: This study reports a very unique duct present in the human testicular tissue for the first time. However, the reconstruction and functional tests of the unique tests need to be further study to elucidate its roles.
Introduction

In general basic histology of human testis, a testis is enclosed with dense connective tissue called tunica albuginea\(^1\). The dorsoposterior area of testis is called mediastum testis that is developed from thickening of the tunica albuginia (TB) embedded with rete testis. Internally, partial TB runs into the testis to be testicular septum dividing internal testis into approximately 250 testicular tubules\(^1,2\). In general, the septum composes of connective tissue (CNT), fibroblasts, autonomic nerves, and blood and lymphatic vessels\(^1-3\). Classically, each testicular lobule contains the seminiferous tubules (composed of spermatogenic cells and Sertoli cells) and intertubular tissues (composed of CNT, Leydig cells, and vessels). In the literatures, the histology of the normal and abnormal testes has been documented\(^4-9\). However, they only reported the abnormal structures observed in the normal and abnormal development periods of testes\(^4\). The structures that mostly were explained to be abnormal were the seminiferous tubules and interstitial tissues \(^4-9\). Up to date, the unusual or unique structure present in the human testicular tissues has never reported. This study attempted to explain a very unique duct observed within a normal human testicular tissue which it has never been documented in previous literatures.

Methods

This study used 50 glass slides of human testicular tissues from 15 boxes. All human testicular tissue section slides stained with hematoxylin and eosin dyes were purchased from a commercial company used for teaching and learning of medical students, faculty of medicine, Khon Kaen University. They were systemically observed under standard light microscope (LM) using objective lens of 4X, 10X, 20X, and 40X, respectively. All testicular tissues were scanned through sections to find the unique duct. The testicular section present the unique duct was recorded and photographed to explain its micro-anatomical structures.

Results

During observation of a testis section slide (H&E) commercially available (No. H9.415, testis, human interstitial tissue [Turtox, Macmilan Science Co, Inc. Made in U.S.A]) in teaching preparation of testis histology, it was found a unique duct located in the testicular septum) between intertesticular lobules (Fig 1 and 2 A.) Interestingly, this duct has never been previously reported in the literatures.

The crossed section of this duct clearly showed its wall, epithelium, and contents in the lumen (Fig 2  A and B). Its epithelium is likely psudostratified or simple columnar epithelium with abundant glycocalyxes on apical surface while the wall is composed of smooth muscles or fibroblasts (Fig 2 A). In the lumen of this unique duct, there is a huge cluster of cells which are similar to the morphology of Sertoli cells (Fig 2 A and B). Therefore, it is assumed to be a cluster of Sertoli like cells (Fig 2 B).

Discussion

There are many histological text books describing about normal microanatomy of testicular tissues\(^1,3\). In general, a testis contains about 250 lobules of convoluted seminiferous tubules surrounded by
interstitial tissues mainly containing the Leydig cells. In addition, each seminiferous tubule connects with the tubuli recti before emptying to the rate testis. The most unusual structures observed by basic histological techniques are only seminiferous tubules and Leydig cells in different normal testicular development and some disorders. Those text books including histopathology have never described any special structure possibly present in the testicular tissue. For the first time, this study has provided a unique duct located between seminiferous tubules of human testicular tissue (Fig. 1 and 2). Interestingly, it is found in the normal condition or healthy testis section purchased from a commercial company. It is implied that this structure is not associated with testicular pathology although the real function or development is still unclear. Unfortunately, only one unique duct was observed through section (one-fourth of testis); hence, the route of this duct is difficult to be identified. To complete a new knowledge of this unique duct especially its path, the reconstruction of testicular serial sections needs to be further investigated before studying of its functions.
Conclusion

This study reports a very unique duct present in a normal human testicular tissue for the first time. However, the reconstruction of the unique testis needs to be further studied to elucidate its origin-termination within the testis before observations of its functions.

References

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