SUMMARY

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The seminiferous tubules contain two types of cells, the germinal cells and the Sertoli cells, which extend through the full thickness of the seminiferous epithelium.

Adjacent Sertoli cells are joined to one another by a type of tight junction which is not found in other types of epithelia. A similar junctional complex is also present between Sertoli cells and spermatids. It is identical to the Sertoli - Sertoli junction except that there is no occluding junction between the two cells.

The Sertoli cell has very important functions including(a)forming the main part of the blood-testis barrier. Because of the location of this barrier, the inter-Sertoli cell space is divided into an adluminal compartment, which is not accessible to blood-borne substances and a basal compartment, which is accessible to blood-borne substances via the extracellular spaces. An intact blood-testis barrier is important for complete spermatogenesis. It also protects the germ cells from theimmune system which recognizes them as "Foreign"

cells; (b) secretory function of the Sertoli cells which secrete the following substances:the testicular androgen binding protein, transferrin, inhibin, Mullerian inhibiting substance, seminiferous tubule fluid and secretion of steroids; (c) nutritional function for the germ cells in the adluminal compartment; (d) phagocytic activity of the Sertoli cells which ingest the residual bodies at the end of the spermatogenic cycle which act as a local chemical messenger providing both information and material that the Sertoli cells utilize to elaborate some specific steroid which acts upon the spermatogonia to initiate the next cycle of spermatogenesis; (e) the Sertoli cells support the germ cells and help their upward movement towards the lumen of the seminiferous tubule; (f) The Sertoli cells participate in sperm release.

Hormonal regulation of the testis appears to involve primarily the two gonadotrophic hormones, F.S.H. and L.H. The former exerts its effects on the Sertoli cell, while L.H. predominantly controls steroidogenesis in the Leydig cells by stimulating testosterone production.

Other agents affect the Sertoli cell function as progesterone, hydrocortisone, insulin, epidermal growth factor, transferrin and vitamines A and E.

The Sertoli cells do not show, in vitro, any inhibitory effect of body temperature on its functions, but on the contrary, are more active at body than at scrotal temperature, but their function is deteriorated in cryptorchidism. It cannot be assumed that cryptorchidism differs from the normal state of the testis only in temperature. For example, the course of the spermatic artery is altered and abdominal temperature may influence the microcirculation and nerve supply to the testis. Antiandrogens as cyproterone acetate inhibit Sertoli cell function, Protein-calorie malnutrition and certain drugs as hydroxyurea and nitrofurazone can affect the Sertoli cell function.

The Sertoli cell only syndrome is an uncommon syndrome. In its classic form the major features are testes of normal consistency but slightly smaller than normal, azoospermia, and elevated FSH titers. Androgen production usually remains normal. LH concentrations

are normal and the only presenting complaint is infertility.

The Sertoli cell tumors constitute less than 1% of all testicular tumors and may occur in any age group including infancy. The presenting signs and symptoms are those of a testicular mass with or without gynecomastia. Radical orchiectomy is the initial procedure of choice and will be curative in the 90% of cases that are benign.