



# Histology of Seminiferous tubule of rat affected by Sildenafil Citrate

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## ABSTRACT

Sildenafil citrate studied for its use in the male reproduction .The long term use of Sildenafil citrate has their effect on various target organs. The study and effect of Sildenafil citrate carried out their side effect on internal reproductive organ. Generally this drug use only for male reproduction, addiction and long term use may cause damage internal cell which will result as atrophy. Main objective of this study of histology associated reproductive organs and evaluation of seminiferous tubule which affected by long term use of Sildenafil citrate, whether Sildenafil citrate have on male reproductive organ.

**Keywords-** Sildenafil, reproduction, drug, histology, Seminiferous

## INTRODUCTION

Gastrostroentologist is bringing Sildenafil Citrate out of the bedroom and into the dinner table, that it is an effective cure for achalasia, Bortolotti, (2000). The Sildenafil citrate when tested in male can divert the blood flow from body part to the veins and arteries of penis which result in to the erection of the penis. The more blood flow, accelerate the function of the target organs, Eik-Nis (1964). It was reported that some male who were given sildenafil reported having erections which meant the drug was mediating with particular bits of body chemistry, Mestel (1999). Patient who had a myocardial infarction 30 min after taking his first dose of Sildenafil, Feenstra, et al. (1998). Apparently, the patient had no risk factors for ischaemic heart disease, Lopez et al. (1998). Oral Sildenafil in erectile dysfunction, it is crucial to recognize and deal with the potential problem. First, Sildenafil is no panacea, not all patients with erectile dysfunction with benefit from it. Second, there is substantial risk that many patients will receive little or no evaluation before treatment, the potential for ill, informed and inappropriate prescribing is high. Third, Sildenafil is not an aphroisiae nor does it increase sexual desire or libido. It has not been understood and studied, whether Sildenafil citrate have effect on male reproductive organ. The objective of this study to evaluate the effect of Sildenafil citrate on seminiferous of male albino rat.

The purpose of this study undertaken to find out the effect of Sildenafil citrate on histology.

## MATERIAL AND METHODS

### Selection of experimental animal

Necessary number matured male albino rat of wistar strain of proven fertility were provided from Haffkin Biopharmaceutical.

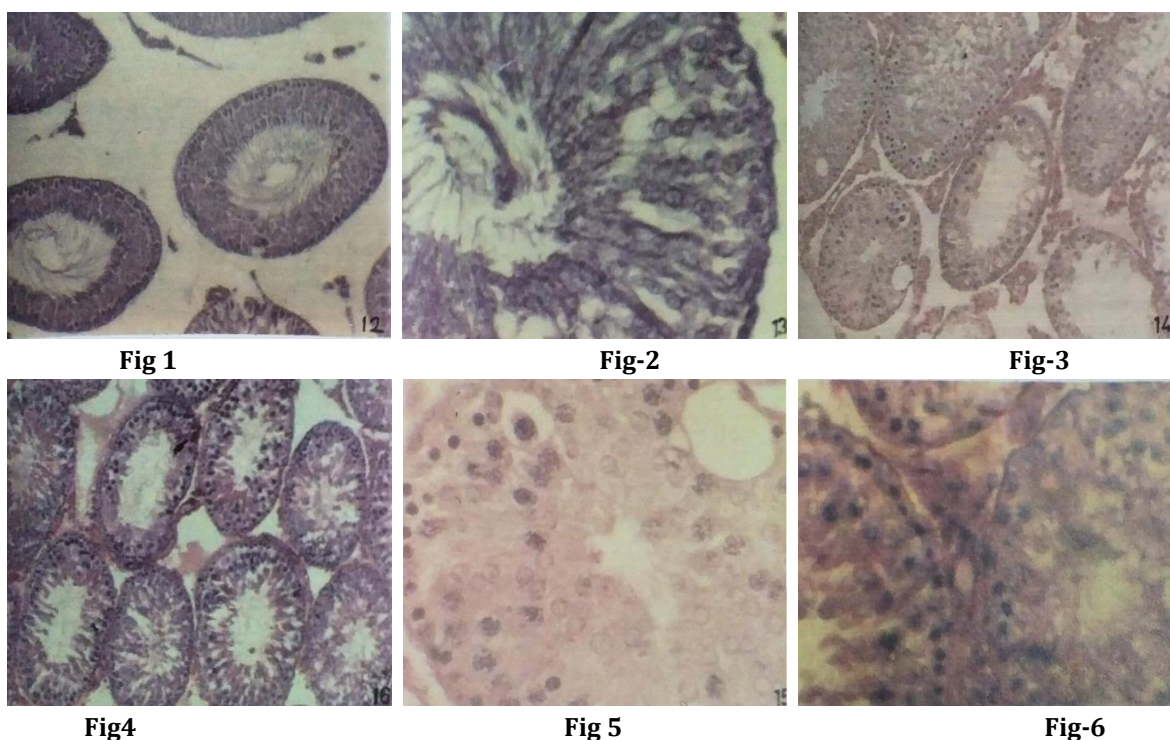
### Experimental Design

The albino Wistar male rats were divided into three groups in laboratory condition, Two groups of experimental male rats were fed orally with Sildenafil citrate compound at a dose of 0.5mg /animal/day for (40days & 60 days) days and controls were orally fed with equal volume of distil water. Dosage to be administrated are decided on the basis of the literature available concerned.

### Histological Method: Light Microscopy

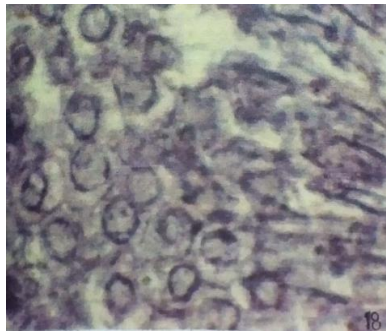
## RESULTS AND DISCUSSION

Due to the specific dose of Sildenafil citrate and 40 & 60 day duration, Seminiferous tubule results Early stage of germ cells are present but round. Late spermatids are practically absent. As the spermatogenesis arrested at the late spermatid stage, prominent lipids accumulation results which is not used by the spermatozoa, Niemi and Korman (1965), otherwise would have been used in the later stage of spermatogenesis. The increase in the lipids could be considered as a sign of gradually involvement of the cytoplasm which is n. The lumen (L) contains a few tall profiles, which are the remnants of degenerated early spermatid. The tubules appear to be shrunk resulting in the increase in the intertubular space. The shrinkage of the tubules also contributed to the reduced luminal area. The volume of the interstitial cell was also reduced. Suppression of testicular function by different modes are the most important by decreasing the testicular secretion as a result of reduced gonadotrophin levels thus bringing about an alternation in the androgen biosynthesis, Frick et al. 1976).

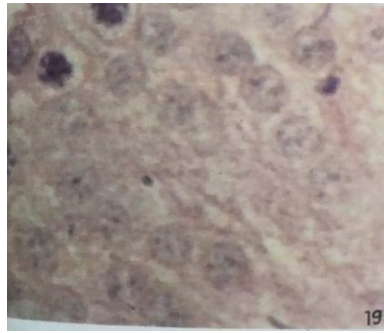


**Fig-1 and 2:** Shows, the Seminiferous Tubules of the testis of 60 days control rat. A perfect transected tubules displays a perfect picture of normal spermatogenesis. The interstitial tissues comprising of leydig cells occupying the inter tubular space bears a normal appearance. X80, X 320.

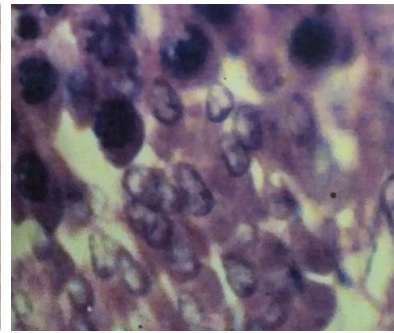
**Fig-3-4:** Shows, the seminiferous tubules of 40 days Sildenafil citrate treated rat, note the spermatogenesis has proceeded only till the round spermatid stage. Early stage of germ cells are present but round. Late spermatids are practically absent. The lumen (L) contains a few tall profiles, which are the remain ants of degenerated early spermatid. The tubules appears to be shrunk resulting in the increase in the intertubular space. The interstitial tissue appears vacuolated ( arrow). Also note vacuolation in the tubules. X80.



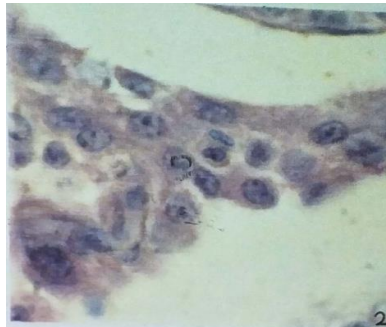
**Fig-7**



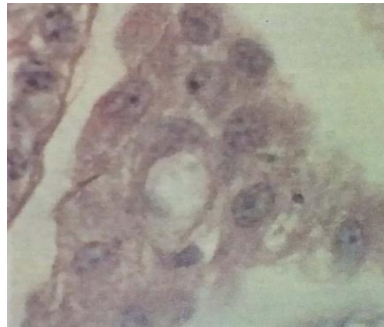
**Fig-8**



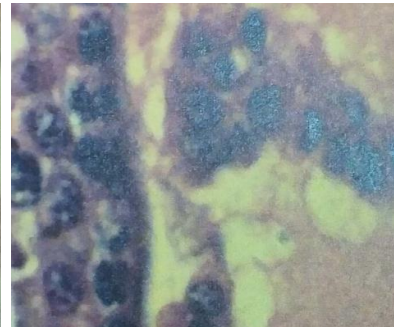
**Fig 9**



**Fig 10**



**Fig 11**



**Fig 12**

**Fig-5-** Shows Various somniferous tubules and interstitial tissue of 60 days Sildenafil citrate treated rat through some tubule display mature sperms about to be released , majority of the tubules display the late spermatid stage as the oldest stage. The germinal epithelium has regressed resulting in an increase in the inter tubular space leading to the degeneration of the interstitial tissue. X80. **Fig-6-** shows Section of testis as in under higher magnification . Note seminiferous epithelium with mitosis of secondary spermatocy . The chromatin has become dense resulting in its deep staining a dense degenerating cell is indicated by an arrow. The spermatids are undergoing degeneration ( arrow head ) , Lumen (L). X 320 **Fig-7-**shows Seminiferous tubule of 60 days control rat under higher magnification . Note the various stages of normal spermatogenesis . Also note the seminiferous epithelium . The chromatin of the nucleus display normal structure. X 800. **Fig-8-**shows the seminiferous tubules of 40 days Sildenafil citrate treated rat under higher magnification . The chromatin has become dense resulting in its deep staining . Hypertrophy of various spermatogenic stages . Also note the dense germinal cell (arrow) X800. **Fig 9.** Shows section of the seminiferous tubule of 60 days Sildenafil citrate treated rat under higher magnification . Note the spermatogenesis proceeded only till the round spermatid stage . Early stages of germ cell are present but rounds the spermatids are practically absent . The lumen with tail profile which are the remainants of degenerating early spermatids . the tubule appear to be shrunk . The chromatin has become dense resulting in its deep staining . A dense degenerating cell is indicated ( arrow). The spermatid undergoing degeneration. X800. **Fig-10,11,12-** shows The interstitial tissues showing leyding cell of 60 days control rat.(fig.10) .40 days Sildenafil citrate treated rat (fig-11) 60 days Sildenafil citrate treated rat (fig.12) .**Fig10** shows the control rat interstitial tissue exhibits well-formed clusters of leyding cells embedded in the interstitial tissue . The extravascular space is occupied by interstitial fluid.**Fig11-** shows the interstitial tissue in case of 40 days Sildenafil citrate treated rat shows hertrophy in the cell of the cluster of leyding cells with partly embedded in the interstitial tissue .Also note the vacuoles in the interstitial tissue.**Fig-12** shows the interstitial tissue in case of 60 days Sildenafil citrate treated rat apart from showing condensation of leyding cells also displayed dense heterochromatin resulting in its dark staining (arrow0 X800.

Seminiferous tubules of 40 days Sildenafil citrate treated rat under higher magnification. The chromatin has become dense resulting in its deep staining.

displayed dense heterochromatin resulting in its dark staining.

Hypertrophy of various spermatogenic stages. 60 days Sildenafil citrate treated rat under higher magnification, Note the spermatogenesis proceeded only till the round spermatid stage. Early stages of germ cell are present but rounds the spermatids are practically absent. treated rat shows hypertrophy in the cell of the cluster of leyding cells with partly embedded in the interstitial tissue also showing condensation of leyding cells also

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