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Studies on albino rat testis under drugs (opium) effect

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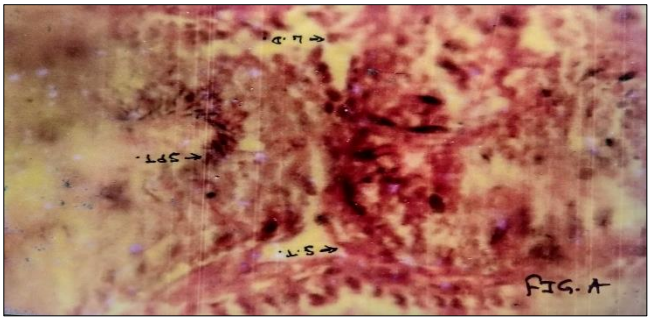
Abstract
Opium is a highly addictive narcotic drug acquired from the opium poppy, *Papaver somniferum*. Among the many problems present in connection on with opium addiction. The present study has undertaken effect of opium on the testis of albino rat. The experimental rats were orally feed with opium of constant dose *i.e.* 1.38gm /kg body weight for 10 and 15 days. The treated testis appearance of the spermatids in seminiferous tubules, partial brakeage of epithelium and vigorous damage of connective tissue, might be because of adverse effect of opium on reproductive capacity of the albino rat.

Keywords: Testis, opium, seminiferous tubules, connective tissue

Introduction
The substance used for treatment is called drug but some substance addicts the person is called drugs, the opium a narcotic is used a drug to get rid from mental anxieties and to kill the pain. It is basically used as pain killer it relives pain, suppresses cough but causes addiction and respiratory depression. The addiction becomes dangerous making the person unsocial and unhealthy. The work will be helpful in exploring the histological changes in the testis of drugs addicted rat.
Very scantly information is available as regards to effects of opium to albino rat like Alarcon (1969), Atweh & kumar (1983) [2, 7, 8], Ball and Snarr (1969), Hill *et al.* (1993), Arti & Akela (1993), Akela & arti (1994). Arti & akela (1996) [1, 7, 8], Revati *et al.* (2003), Shipra *et al.* (2005), Aruna *et al.* (2007) [4].

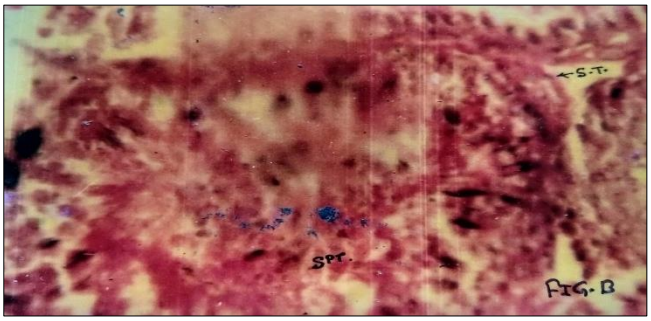
Material and Method
The healthy adult male albino rat of equal weight and age were selected for experiments after proper acclimatization to laboratory condition. The albino rats were divided in to two groups. Group - I, The rats kept as control were fed with normal pillet diet. Group - II, The second group of rats were orally feed with opium of constant dose 1.e. 1.38g/kg body weight for 10 and 15 days. At the end of exposure period (15 days) the rat of both control and experimental groups were weighed and dissected in ringer's saline. The testis was quickly taken out weight to the nearest milligrams and fixed in aqueous bouinscarnoy and 10% neutral formation fixatives. After proper washing, dehydration and cleansing the tissue were embedded in paraffin wax. Serial section of 5µ were cut and stained with haematoxylin and eosin. The selected slide were processed for routine histological examination.

Result and Discussion
In control rat testis many seminiferous tubules are seen and the tubules are lined by germinal epithelial cells and long cells, sertoll cells are found, tubules is surrounded by connective tissue. Fig 1 Under 10 days opium addicted rat showed appearance of spermatids in seminiferous tubules and accumulation of spermatozoa in the lumen of seminiferous tubules, partial breakage of outer epithelium of seminiferous tubules (fig 2). Under 15 days opium addiction showed damage of connective tissue and breakage of sominiferous tubules, less no. of spermatozoa, disappearance of leyding cells (fig 3).
In the present study the appearance of fine spermatids in seminiferous tubules partial breakage of epithelium and viagorous damage of connective tissue might be because of adverse effect of opium on reproductive capacity of the rat.



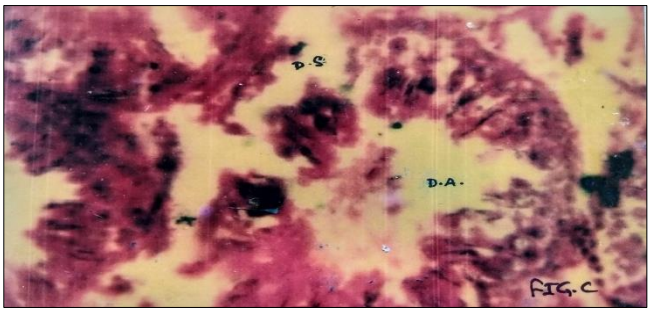
ST = Seminiferous tubules, SPT = Spermatids, LD = Long duct

Fig 1: T.S. of testis of control albino rat



ST = Seminiferous tubules, SPT = Spermatids, LD = Long duct

Fig 2: T.S. of testis of control albino rat



DS = Damage seminiferous tubules, DA = Disappearance

Fig 3: T.S of testis of 15 days opium addicted albino rat

Present findings are in conformity with Itoh *et al.* (1995) reported experimental autoimmune orchitis (EAO) model of immunologic male infertility. Actively induced by immunization of animals with antigens of germ cells sertoll cells and basal lamine of the seminiferous tubules. The pathogenesis for germ cell depletion in EAO lesion was of ten attributed to an influx of specific autoantibodies in to the germ cell ducts with a leaky blood testis barrier. Immune responses in rat with the classic EAO were against spermatids, spermatocytes. spermatogonia, sertoll cells and basal lamina of the seminiferous tubules. Those features support that a disturbance of germ cell development rather than a specific immunological depletion of germ cell is important for producing such lesions. There is a possibility that the infiltrating lymphocytes in the testis locally secrete various cytokines and tumor necrosis factor which may be harmful to the germ cell development.

Sliva (1995) studied sperm chemotaxis in mice as indused by certain hormones. He reported that certain hormones can bind to mammalian Spermatozoa *in vitro* and produce statistically significant changes in their metabolism and motility.

Glucagon, vasopressin and calcitonin can reduce the motility of the sperm Vasopressin and oxytocin which are produced by unidentified testicular cells are present in the fluid of the seminiferous tubules and epididymis and they stimulate passive transport of the granules to vitro additionally suppressing the motility of spermatozoa.

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