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STUDIES ON EFFECT OF CONTROL DRUGS ON HISTOLOGY OF THYROID GLAND

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ABSTRACT

The natural source of opium is a poppy plant, Papaver somniferum. This poppy has its origin in Asia Minor but is now grown in countries with similar climates throughout world. Opium is a narcotic drug that is used as drug to getrid from mental anxieties and to kill the pain but an active ingredient of it addicts the person. This study attempts to evaluate the health status of the albino rat on the basis of effect of opium on the histology of thyroid gland. Rats were really feed with opium of constant dose i.e. 1.38/ kg body weight for 5, 10 and 15 days. At the end of exposure period the rat of experimental group thyroid shows abnormalities of follicles and loss of connecting tissue.

KEYWORDS: *Opium, Albino Rat, Thyroid Gland, Follicles*

Article History

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INTRODUCTION

Opium is milky extract obtained from the unripe opium poppy seed pod exuding latex from a cut. Several active ingredients in opium are present. The two main, one are morphine which accounts for 10 % of the weight of opium and codeine which makes up only 0.5 %. Morphine was first isolated from opium latex by the German chemist Friedrich wilhelm adam serturner. He called it morphium after morphius the Greek God of sleep and published his finding in 1804.

Opium is used as drug generic name morphine sulphate, it is control drug. Morphine is used as an analgesic which has tranquilising actions, it can induce a relaxed sleep and reduced fearfulness associated with pain. It can be given orally or parenterally and is of most value in relieving dull prolonged pain. It relives pain suppresses cough but cause addiction and respiratory depression. Long term use of morphine in palliative care and the management of chronic pain always entail a risk that the patient develops tolerance or physical dependence.

Morphine is the most prevalent and important alkaloid in opium consisting of 10-16percent of the total, and is responsible for most of its harmful effects such as lung oedema, respiratory difficulties, coma, or cardiac or respiratory collapse. Morphine binds to actives opioids receptors in the brain, spinal cord, stomach and intestine. Regular use can lead to drug tolerance or physical dependence.

MATERIAL & METHOD

The Swiss albino rats, Rattus norwegicus were purchased from CDRI Lucknow. The mature male rats of equal weight and age ware selected for experiments after proper acclimatization to laboratory condition. Rats were divided into following two groups. 10 albino rats kept as control were fed with normal pillet diet. The second group of rats were orally feed with opium constant dose i.e. 1.38g / kg body weight for 5, 10 and15 days. At the end of exposure period the rat of both control

and experimental groups were weighed and dissected in ringer's saline. The thyroid was quickly taken out, Weighed to the nearest milligram and fixed in aqueous bouin's carnoy and 10 % neutral formation Fixatives. After proper washing dehydration and cleansing the tissue were embedded in paraffin wax. Serial section of 6 µ were cut and stained with haematoxylin and eosin. The selected slides where processed for routine Histological examination.

RESULT & DISCUSSIONS

In Control Rat

- The thyroid of rats consists of a number of rounded thyroid follicles of various sizes.
- Follicles are separated by one another by connective tissue stands.
- Each follicle lined with single layer of cuboidal epithelial cells.
- Within the follicle a mass of viscous colloid.

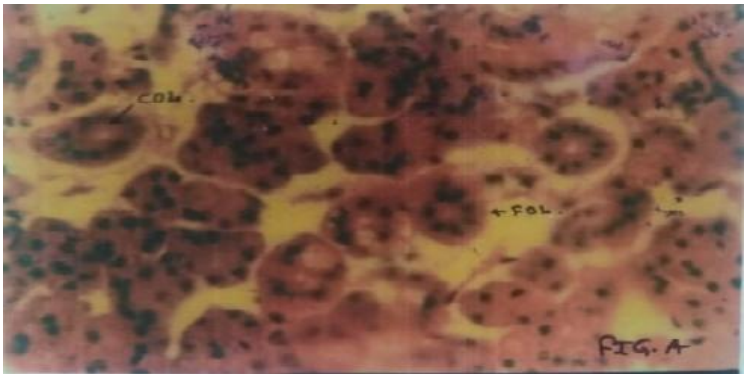

Figure 1: Microphotograph of T.S. of Thyroid Gland of Control Albino Rat Stained With Haematoxylin& Eosin (X 6000)
FOL = Follicles
COL = Colloid.

UNDER 10 DAYS OPPIUM ADDICTED RATS

The Thyroid of 10 Days Opium Addicted Rats is Show in

- Reduction in diameter of follicles.
- Appearance of large number of blood vessels.
- Reduction in colloid contents.
- Damage of connective tissue.
- Irregularity in the shape of follicle.

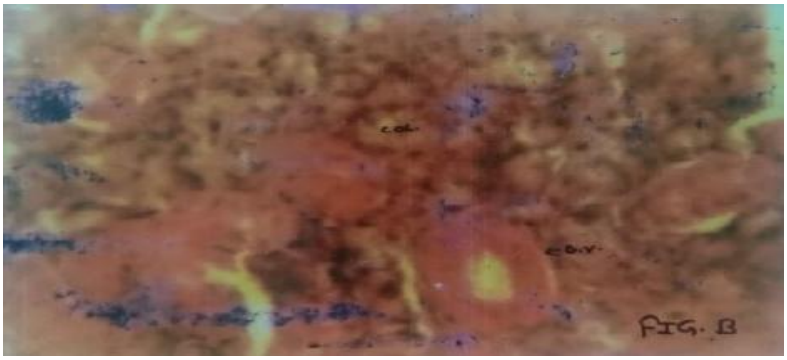

Figure 2: Microphotograph of T.S. of Thyroid Gland of 10 Days Opium Addicted Rat Stained With Haematoxylin &Eosin (X 6000)
BV = Blood Vessel
Col = Colloid.

UNDER 15 DAYS OPPIUM ADDICTED RATS

The Thyroid of 15 Days Opium Addicted Rats is Show in

- Reduction in follicle.
- Loss of connective tissue.
- Absence of colloid content in follicle.

In case of thyroid gland the reduction in the size and evacuation of colloid from the follicles might be due to increased secretion of thyroid gland which in turn is due to high metabolic rate of animal concerned. Thus under opium addiction the thyroid gland of rat had no adverse effect on the thyroid gland at histological level. fig- A,B,C. Similar findings were reported by Jha 1992, Jha and Jha (1995), Roy (2003) in fish while Rajain 1993, Akela et.al 1994, Singh(1997), Majumdar(2005), Aruna et al 2007 in rats.

The thyroid follicles extract inorganic iodine from the blood store in the form of thyroid hormone, monoiodotyrosine, diiodotyrosine and thyroxine have been identifies in the thyroid hormone of fish.

The secretion of the hormone by the thyroid gland is under the influence of the thyrotrophic hormone of the pituitary and plays an important role in the metabolism of the fish, however definite information is lacking in this respect as surgical thyroidectomy is not possible in fishes due to its diffused nature.

However chemical thyroidectomy i.e. inactivation of the thyroid gland by the use of chemicals like thiourea and radio thyroidectomy using. I^{131} have been successfully employed in studying the functions of this gland. Thyroid is considered to play an important role in oxygen consumption but recent investigations have shown contradictory results.

Thyroid hormone appears to be involved in carbohydrate metabolism in rat as the liver glycogen is low when thyroid gland is active. Treatment with thiourea causes decrease in liver glycogen. Thus there is no doubt in it that thyroid appears to be involved in several important processes in rat.

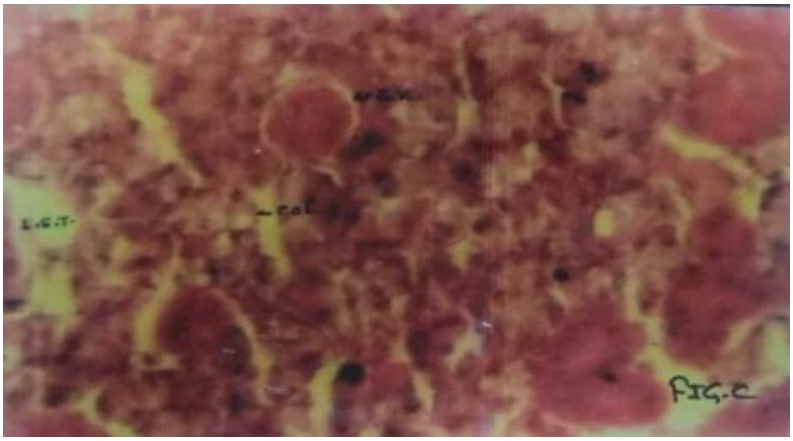

Figure 3: Microphotograph of T.S. of Thyroid Gland of 15 Days Opium Addicted Rat Stained With Haematoxylin & Eosin (X 6000)
BV = Blood Vessel
FOL = Follicle
LCT = Loose Connective Tissue.

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