

## COMPARATIVE MORPHOLOGICAL AND ANATOMICAL STUDY ON THYMUS GLAND OF HUMAN AND PRIMATE

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### ABSTRACT

**Context:** The comparative morphological and anatomical study on thymus was carried out in human and primate. The prenatal stage of *Macaca radiata* was selected for the present study.

Study Design: Cross sectional analytical type of study.

**Place and Period of study:** Department of Anatomy, Dr. A.L.M. PG Institute of Basic Medical Sciences, Chennai from July 1999 to June 2000.

**Materials:** The comparative morphology and anatomy of thymus of human embryonic, 10 weeks, 15 weeks and prenatal foetuses, and monkey foetus was carried out.

**Methods:** Comparative micro-anatomical study was done by paraffin processing method. The sections were stained as per the method published by Culling (1974).

**Results:** In monkey foetus, the thymus gland is slightly elongated, whereas in human foetuses it is not elongated and oval in shape. The size of the thymus is larger in human foetuses than monkey foetus. In both cases cells are parenchymal in nature. Due to spatial organization in human foetuses, the lymphocytes aggregation is more in cortex than in medulla. In monkey foetus the lymphocyte aggregation is simpler in arrangement through spatial organization is much less.

**KEYWORDS:** human foetus, *Macaca radiata*, monkey foetus, thymus gland

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### INTRODUCTION

Thymus gland is found in all the vertebrates except in the cyclostomes and derives its name from the resemblance of its lobes in human beings to a leaf of the thyme plant [1,2]. Reptiles and birds have a series of large nodes in the neck. In neonatal and young mammals, the thymus is a bi-lobed mass in the thoracic cavity. The thymus gland is regarded immunologically as a primary or central lymphoid organ. Its presence is essential for the development of peripheral

lymphoid tissues and their associated adaptive immune functions [3].

In human thymus is almost fully developed at birth [4]. It has been found to undergo many changes as the age advances [5]. These changes have been reported to start between 11-15 years [6]. There is reduction in the parenchyma of the gland and by middle age most of it has been replaced by fat although functional thymic tissue is found until 6<sup>th</sup> decade of life [7]. In the adult monkey, i.e., in primates, the thymus is not