

## Morphological and Anatomical Features of the Thymus in Newborns

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**Annotation:** The article examines the anatomical structures of the thymus in 21 thoracic children and elderly people (corpses). As a result of scientific research – thymus consists of lobules. Longitudinal connective tissue fibers pass under the capsule, predominantly collagen type. A different "age" of Gassal's bodies is noticeable. On the brain layer multiple small blood capillaries and lymph slits, and lymphocytes occur. In infants, weight averages 12 to 19 g. Determined during autopsy, thymus in elderly people yellowish gray. Its surface is flat, thin and soft. As thymus gland reduction, its parenchyma is gradually replaced by adipose tissue. At elderly people weigh an average of 6-8 g.

**Relevance of the topic.** Children's health is a complex indicator, the formation of which, according to the World Health Organization, should be considered in unity with the health of the mother and the state of the external environment [WHO, 2007]. Today, one of the most important problems for researchers is the study of morphology, physiology and pathology of the immune system, which is primarily due to requests of clinical medicine, given that the human body began to provide significant impact and new environmental, social and other factors. Thymus is the central organ of immunogenesis and endocrine gland [1, 4-6, 11, 13]. Infants with a pathology of the thymus gland have a high mortality rate [5, 7, 8, 11]. The main functions of the thymus gland (lymphatic, immunoregulatory and endocrine) are carried out mainly due to secretion by epithelial hormone cells, mainly of polypeptide nature - thymosin, thymopoietin, etc. Data literature indicate functional significance of the thymus at all postnatal lives. At the same time, data on the age characteristics of the structural components of the thymus people are contradictory, which is primarily associated with different gradation by researchers age groups and studying this organ mainly in infancy. Scientific data are a necessary element in clinical medicine for proper treatment and preventive measures in people with varying degrees of disability and pathology thymus [1-3, 6, 9, 10, 12].

**Purpose of the study.** Study of the structure and biometric, anatomical indicators of the thymus gland in infants.

**Methodology and research methods.** In infants, the longitudinal dimensions of the right lobe range from  $4.8 \pm 8.1$  cm (on average 6.45), left lobe - from  $5.2 \pm 5.9$  cm (average - 5.55). Transverse dimensions of the right lobe range from  $1.8 \pm 2.6$  cm (average - 2.2), left - from  $1.5 \pm 3.6$  cm (average - 2.0). Thickness right lobe ranges from 0.7 to 1.4 cm (average 1.0). Thickness of the left lobe  $0.6 \pm 1.3$  cm (average 1.0). The upper border of the thymus gland is at the level of the handle notch sternum or  $1.5 \pm 2.7$  cm (average 2.1) above it. The boundary of the right lobe is usually somewhat above the left. The lower border of the gland extends beyond the body and the handle of the sternum: on the right  $0.6 \pm 2.0$  cm (average -1.3),  $1.3 \pm 1.4$  cm on the left (average -1.35). Determined during autopsy, thymus in elderly people yellowish gray. Its surface is flat, thin and soft. As you decrease thymus, its parenchyma is gradually replaced by adipose tissue. In the elderly age, weight averages 6-8 g.

The morphological features of the thymus in newborns are determined by their important functions in the immune system. The thymus is a very active organ at the birth of a child, involved in the formation of immune cells and the provision of immunological tolerance.

**Morphological structure of the thymus.** Structure: The thymus consists of two main parts: the cortex (surface) and the brain (medulla, interior). Cortex: The cortex has very dense cells consisting mainly of T lymphocytes (T cells) and epithelial cells. Here the number of lymphocytes increases, and the main cells are created for the immune system. Brain part (medulla): The brain part has relatively few cells, mainly epithelial cells, a small number of lymphocytes, as well as special structures called Gassalle cells. In the brain, T cells prepare for their duties. Size and shape: At birth, the thymus becomes "relatively large" as it is essential for the development of the immune system. It is bright yellow in color, has a triangular shape and is located at the top of the heart.

At birth, the thymus weighs about 10-15 grams, which is more than that of a baby. Cell composition: T lymphocytes: These cells are the main defenders of the immune system. T lymphocytes are formed in the thymus, which then spread to various parts of the body, and an immune response to external influences. Epithelial cells: These cells help form and protect T lymphocytes. They also provide immunological tolerance. Histological features: The thymus was "covered with fibrous tissue" and capsules. Cells in the cortex become less differentiated, and in the brain part (medulla) - larger. Functional features: The thymus plays an important role in establishing the activity of T lymphocytes in infants. These cells play a key role in protecting the immune system from infections and disease. The thymus forms T cells and directs them to different parts of the body.

**Conclusions.** Thus, in infants, the thymus is lush, juicy consists of multiple lobules of different sizes separated by layers of connective tissue. The thymus has a delicate thin connective tissue capsule, consisting mainly of elastic fibers, mainly collagen fibers are detected among the fibers. Fabric glands under the capsule, consists of longitudinal layers of connective tissue fibers, predominantly collagen. There are more macrophages in the brain layer. Distinctly intraolar partitions are expressed, in the thickness of which full-blooded blood vessels. Gassal bodies of different "age" are noted. In the elderly, unlike from infants, epithelial stroma to a greater extent, replaced by adipose tissue.

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