

**POSTNATAL PROGRESSION OF TESTICULAR FORMATION: A STRUCTURAL AND MEASUREMENT-BASED STUDY IN HEALTHY RABBITS**

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**The objective of this study** was to characterize the age-related morphological and morphometric features of testicular maturation and spermatogenic development in intact rabbits at different stages of postnatal ontogenesis (3 and 6 months), in order to establish reference structural parameters of normal spermatogenesis.

**Materials and Methods.** The experimental study was conducted on intact male rabbits divided into two age groups: 3-month-old ( $n = 5$ ) and 6-month-old ( $n = 5$ ). Histological examination was performed on paraffin-embedded sections 4–5  $\mu\text{m}$  thick stained with hematoxylin–eosin and Van Gieson's stain. Morphological assessment was carried out using light microscopy (ocular  $\times 10$ , objective  $\times 40$ ). Morphometric analysis included measurements of seminiferous tubule diameter, height of the spermatogenic epithelium, and the relative proportion of different spermatogenic cell populations. Statistical analysis was performed with a significance level set at  $p < 0.05$ .

**Results.** It was established that in intact 3-month-old rabbits the testicular architecture corresponds to the early stage of spermatogenic activation and is characterized by a predominance of spermatogonia and spermatocytes, with a limited number of spermatids and absence of mature spermatozoa. The mean diameter of seminiferous tubules was  $156.8 \pm 9.4 \mu\text{m}$ , while the height of the spermatogenic epithelium reached  $42.3 \pm 3.7 \mu\text{m}$ . In 6-month-old rabbits, pronounced features of morphofunctional testicular maturity were observed, including a multilayered organization of the spermatogenic epithelium and the presence of mature spermatozoa within the tubular lumen. The diameter of seminiferous tubules significantly increased to  $198.6 \pm 11.2 \mu\text{m}$ , and the height of the spermatogenic epithelium reached  $61.9 \pm 4.5 \mu\text{m}$  ( $p < 0.05$ ). Van Gieson staining demonstrated moderate development of connective tissue elements without signs of fibrotic remodeling.

**Conclusion.** The age-related transition from 3 to 6 months in intact rabbits is associated with a progressive morphofunctional maturation of the testes and the establishment of complete spermatogenesis. The obtained morphological and morphometric parameters may be used as reference values in experimental studies of the male reproductive system.