



Morphological and Morphometric Study of the Development of Seminiferous Epithelium of Donkey (*Equus asinus*) from Birth to Maturity.

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Abstract:

In this investigation, testes of 20 donkeys ranging from birth to maturity were studied. The postnatal morphologic and morphometric characteristics of donkeys seminiferous epithelium during the postnatal period were studied. The volume percentage of the tubular compartment (Seminiferous tubules) was about 12.76% in neonates, progressively increased with postnatal age, reaching about 78.42% of the testicular parenchyma in mature donkeys. The seminiferous tubules measured about 205 μ m in diameter, and their lining epithelium was about 73.7 μ m in height in mature animals. The supporting (Sertoli) and germ cells (gonocytes) were the main components of the seminiferous cord or (tubules). The supporting type gradually decreased in number from neonates through suckling to the premature and mature stages, while they started to acquire the morphological characteristics of mature cells in late suckling period. The gonocytes maintained the same morphological characteristics during the neonatal and suckling periods; however, they showed a slight increase in number during the latter stage. In addition, dividing germ cells were frequently observed. The germ cells were mostly demonstrated in a central position within the testicular cords of neonatal donkeys. In suckling animals, some gonocytes started to contact the basement membrane, whereas in late suckling period, most of germ cells in contact with basement membrane. In premature donkeys, the gonocytes arranged in 2-3 layers between the supporting cells. In addition, the lumen of the seminiferous cords occurred in 1.5 year. The germ cells could be distinguished to spermatogonia, and primary, as well as secondary spermatocytes. Spermatids, at different stages of transformation, were also detected within some seminiferous tubules. In adults, the seminiferous cords became more coiled and were totally lumenated. All kinds of germ cells could be observed within the seminiferous epithelium, representing the complete seminiferous cycle and spermatogenesis is completed by 2 years of age. The present study provides baseline information for further experiment or quantitative studies exploring normal development of the testis and hormonal regulation of Sertoli cells, spermatogonial stem cells and spermatogenesis in donkey and other related species

Keywords:

Development; Donkey; Testis; Seminiferous cycle; Interstitial tissue; Morphology

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