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Ultrastructure and Maturational Changes in Spermatozoa in the Epididymis of the Pigtailed Monkey, *Macaca nemestrina*

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Ultrastructural characteristics of the acrosome, postacrosomal region, plasma membrane, and cytoplasmic droplet in spermatozoa taken from the caput, corpus, and cauda epididymidis of the pigtailed macaque are described. The subdivision of the postacrosomal region into an anterior and a posterior segment is demonstrated. Maturational changes manifest in the caudal shift of the cytoplasmic droplet and swelling of the plasma membrane are observed during epididymal transit in this species and are similar to those reported for other monkeys. However, the changes in the rostral segment of the acrosome are more striking than any in other Old World monkeys studied to date. In the caput epididymidis, the acrosome is asymmetric because its apical segment extends well beyond the rostral edge of the nucleus and folds under it, giving the acrosome a small but distinct hook shape in sagittal section. In the corpus and cauda, the acrosome contracts down over the nucleus, resulting in the loss of the asymmetry of the contours of the sperm head, and the distinctive hook-shaped apical segment of the acrosome is no longer seen in sagittal section. On the basis of these findings, the pigtailed macaque appears to be a suitable primate model for morphologic analysis of structural variables during epididymal sperm maturation.

Key words: ultrastructure, sperm maturation, spermatozoa, epididymis, monkey, epididymal sperm

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