24) Vascular Lesions in SHRSP, with Respects to Periarteritis Nodosa in Rat Mesenteric Artery. Noboru Saito, Teruhiko Okada*, and Toshiaki Moriki**. Department of Geriatrics, * Department of Anatomy, and ** Department of Laboratory Medicine, Kochi Medical University, Kochi 587-75.

High blood pressure causes vascular lesions, especially in the malignant phase of hypertension. Therefore, the incidence of hypertensive vascular lesions was investigated using stroke-prone spontaneously hypertensive rats (SHRSP), stroke-resistant SHR (SHRSR) and Wistar Kyoto rats (WKY), with special respects to periarteritis nodosa of mesenteric artery.

Methods: In this investigation 471 rats aged 1 to 34 months were used, consisting of SHRSP, SHRSR and WKY. Vascular lesions of mesenteric artery were observed macroscopically, microscopically or electronmicroscopically. Microscopic specimen was made with hematoxylin eosin staining after 10% formalin fixation. For electronmicroscopic specimens, mesenteric artery was fixed in 2% paraformaldehyde and 2% glutaraldehyde in 0.1M phosphate buffer at pH 7.2 and treated with uranylacetate and lead citrate.

Results: The bead-like nodular alterations of mesenteric artery were found in 69 of 100 male SHRSP (69%), 44 of 83 female SHRSP (53%), 4% of 58 male SHRSR (7.4%), 3 of 80 female SHRSR (3.9%), 0 of 61 male WKY (0%) and 0 of 89 female WKY (0%). When rats were more than 8 months old, the above vascular alterations were found in 69 of 87 male SHRSP (84.1%), in 44 of 77 female SHRSP (57.1%), in 4 of 48 male SHRSR (8.3%), in 3 of 76 female SHRSR (3.9%). The bead-like nodular lesions were observed more often in male SHRSP over 11 months old and in female SHRSP over 16 months old, but not in WKY. Macroscopic bead-like lesions of mesenteric artery consisted with periarteritis nodosa, which showed the enlarged width of arterial wall, the infiltrations of mononuclear leucocytes (inflammatory stage), the granulations and so on. Electronmicroscopic findings of mesenteric artery showed the activated states of the endothelial cells, fibrin deposits beneath the endothelial cells, the damages of the inner elastic lamina, the proliferated fibrous cells and so on. Periarteritis nodosa of mesenteric artery was found most often in SHRSP, especially in male SHRSP, as compared to SHRSR or WKY, indicating malignant phase of hypertension.

Figure 1 (a)

Figure 1 (b)