39) Studies on Pregnancy Hypertension and IUGR-SFD - Utero-Placental Vascular Construction in Placenta of Pregnant SHRSP (Stroke-Prone Spontaneously Hypertensive Rats) - Isao Fuchi and Kiichiro Noda, Department of Obstetrics and Gynecology, Kinki University, School of Medicine, Osaka-fu 589. Yoshiharu Matsubara, Tatsushi Ono, Kazuya Morimoto and Seizi Takemoto, Course of Applied Chemistry, Department of Science and Engineering, Kinki University.

INTRODUCTION An important subject in current perinatal medicine is clarifying the factors behind, as well as the prevention of, IUGR and accompanying SFD infants. Since the conditions of pregnancy hypertension in SHRSP are similar to those in humans, in this study on clarifying the factors causing IUGR-SFD we examined the placenta of pregnant SHRSP. In order to clarify utero-placental vascular construction and the hemodynamics of maternal blood flow in rats, we prepared resin plastic as well as microscopical specimens using a contrasting medium of 5% gelatin and 0.1% tripan blue in 35% barium sulfate injected into the abdominal aorta and umbilical veins.

MATERIALS AND METHOD Pregnant SHRSP and WKY in their 20th day of pregnancy were used. A catheter was inserted through the common carotid artery and physiological saline used to wash out all the blood. Then, another catheter was inserted through the abdominal aorta in the direction of the caudal. Some specimens were prepared by using resin plastic; red for the artery, blue for the vein and light yellow for the umbilical blood vessel. For other specimens, gelatin-barium sulfate containing trypan blue was injected and fixed in formalin. The uterus and placenta were sliced both vertically and horizontally and then stained with HE and elastica van Gieson.

RESULTS The arcuate arteries branch off from the uterine artery, and then forks in three directions. Relatively fine blood vessels branch off from the arcuate artery to the peripheral arteries and pass through the uterine surface. These blood vessels go from the arcuate to the basal, and then to the radial artery. A relatively thick vessel, or "spiral artery," branches off from the arcuate artery and passes through the central region. When it reaches the fetal side, it changes 90° and runs radially. This is not observed in human beings. The fetal blood vessels in contact with this aspect correspond to those found in the human chorionic membrane.