Thesis Title Angioarchitecture of Spinal Cord in the Common Tree Shrew (Tupaia glis) as Revealed by Corrosion Cast Technique in Conjunction with SEM

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ABSTRACT

The general feature and microvascularization of spinal cord in the common tree shrew have been studied using paraffin technique and vascular corrosion cast technique /SEM, respectively. With paraffin technique, it is found that the cross section areas of cervical and lumbar enlargements are larger than the other parts. The largest area of white matter is observed at cervical enlargement. With vascular corrosion cast technique /SEM, it is shown that the main arterial supply of the spinal cord is from radicular branches of vertebral, posterior intercostal and lumbar arteries. Some but not all radicular arteries extend to supply the spinal cord. Such radicular artery usually becomes either anterior or posterior radicular artery accompanying the anterior or posterior spinal nerve root. Occasionally, it devides

into both anterior and posterior spinal arteries. The anterior radicular arteries anastomose each other at the anterior median fissure giving rise to a single anterior spinal artery while the posterior radicular arteries do the same at laterally dorsal nerve rootlet to form two posterior spinal arteries. The anterior and posterior spinal arteries give off 2 sets of their branches : central and circumferential branches. The anterior spinal artery supplied the anterior gray horn and anterior funiculus. The rest of the spinal cord is supplied by branches of the posterior spinal artery. The capillary network in the gray matter is denser than that in the white matter. The venous blood drains into venules and veins accompanying the branches of central and circumferential arteries. Thereafter the blood drains into anterior spinal vein and into posterior venous network on the posterior surface of the spinal cord before joining with epidural venous plexus. The epidural venous plexus connects with vertebral, external jugular and segmental veins.