Thesis Title VASCULARIZATION OF TREE SHREW'S OLFACTORY BULB AS REVEALED BY PLASTIC CORROSION CAST TECHNIQUE AND VIEWED UNDER SEM

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ABSTRACT

Vascularization of the Tree Shrew's olfactory bulb (OB) was studied by application of Batson's no 17 plastic compound corrosion cast technique and viewed under SEM, with complementary usage of color latex and color vinyl casting methods. Batson's no 17 compound media injection was particularly excellent for the study of detailed features of the vasculature and the microvasculature under SEM; however supplementation of color latex for the study of gross arterial system in relation to venous system, and of color vinyl for the study of gross arterial system separately from the study of venous system has proved considerable contribution.

The Tree Shrew's OB was found, to be supplied by two of the three terminal branches of the anterior cerebral artery (ACA), namely the medial and the lateral olfactory arteries, and to be drained by the medial olfactory, the lateral olfactory, and the olfactory collar veins; subsequent drainage was mainly by way of the dominant dorsal trend leading through the external jugular vein, which was much larger than the internal jugular vein. The internal ethmoidal artery was the other terminal branch of the ACA, which before proceeding to the nasal cavity formed arcade-like or basket-like olfactory ethmoidal plexus around the capsule of the OB, together with branches of the external ethmoidal artery. The latter one arose from the external ophthalmic artery, a branch of the stapedial artery. The vascular, particularly the capillary dimensions, in the Tree Shrew were found to be much smaller than that in human. The Tree Shrew's OB demonstrated vascular lamination which seemed to correspond to the cytoarchitectural lamination of this organ. This lamination was supported by elaboration of appropriate vascular branching system of V,Y,T and L types, and reinforced by sphincter system, particularly by the precapillary sphincter. The microvasculature of the Tree Shrew's OB represented nonfenestrated and end-capillary types. Features of vasa vasorum and venous valves were not found.

The accessory olfactory bulb (AOB) was supplied by the dorsal branches of both the medial and the lateral olfactory arteries; and was drained by correspondingly accompanying veins. Its patterns of microvasculature were similar to those of the OB, but with parallel capillary arrangment at its rostral region.

From the result of this study, the taxonomic position of the Tree Shrew in a separate or special order i.e. the Order Tupaioidea was conclusively supported.