

BASIC STRUCTURE VISUALIZATION OF MACACA'S FETUS UMBILICAL CORD

Winarto A¹, I K. Adnyane¹, T. Wresdiyati¹, I. Djuwita², E. Handharyani³

Laboratories of Histology¹, Embryology² and Veterinary pathology³,
Faculty of Veterinary Medicine, Bogor Agricultural University, Bogor, Indonesia

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Introduction

Anatomical structure of umbilical cord could be said that it is a kind of flexible tube that connects a developing embryo or fetus to the placenta of mammal uterine. It normally contains three vessels, two arteries (Umbilical artery) and one vein (Umbilical vein), surrounded by jellies tissue (Wharton's jelly). This tissue contains uniform cells with cytoplasm process and has big elongated nuclei. A rich proteoglycant matrix is another component that easily found inters uniform cells. Human umbilical cord anatomically has no much abnormalities are found. Related to the preservation idea umbilical cord must be one of the most valuable resources. It has 2 nice arteries and uniform cells that morphologically similar to the embryonic cells. Much futuristic medical treatment idea in possibility using something that was routinely thrown away in hospital bio-medical waste containers is quite a revelation. In fact umbilical cord blood bank for the benefit of others suffering immune, blood cancer, neural and other disease and genetic disorders is publicly offers. In contrast, studies on using other umbilical component as valuable material is still need more effort to work for big goal. Morphological information of Macaque umbilical cord is not had much attention yet. This study was aimed to explore the basic structure in order to understand more detail of macaque umbilical cord.

Materials and Method

This study was taking advantaged of 5 caesarian fetuses that were preserved in 4 % paraformaldehyde from previous studied. Umbilical cord from this 5-fetus ware collected and cross section tissue was embedded in paraffin for routine histological method. The paraffin blocks were cut 4-5 μ in thrckness and standard histochemical dye ware used to visualize the detail structure. Stained tissue slides then ware evaluated under light

microscope.

Results and Discussion

In general, macaca's umbilical cord is white shiny stalk and containing 2 arteries and 1 vein which is embedded within loose tissue of Wharton's jelly and the simple squamous epithelium lining the surface of the umbilical cord. Uniform mesenchymal cells that have processes as it found in embryonic tissue dominate the Wharton's jelly. The mesenchymal cells has big elongated nuclei and found in center of cells. The cytoplasm was looked clear and it was not stain by Periodic Acid Schiff. The 2 umbilical arteries wall has pronounce appearance in Hematoxyiine-Eosine staining and the detail component as endothelium, tunica media, adventitia. These arteries could be easily differentiated from its vein because of the wave of endothelium performance that related to the elastic fiber existence in tunica media. While vein has flat endothelium lined in inner part and keep the vein surface smooth. Its tunica media little bit thin compare to those in artery this gives an idea way in large diameter vein appearance was often found collapse. Since arterial bypass is a choice medical treatment umbilical artery may one of supplies, and if umbilical mesenchymal cell is one of stem cell resource then there is no word too late to begin. In conclusion, morphological aspects of macaque umbilical cord histological findings inform that it very much similar as reported in human umbilical cord.

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