

The resin-embedded cornea prepared via rapid processing protocol: a good histomorphometric target for clinical investigation in ophthalmology and optometry.

ABSTRACT

This study illustrates and quantifies the changes on corneal tissue between the paraffin-embedded and resin-embedded blocks and thus, selects a better target in investigational ophthalmology and optometry via light microscopy. Corneas of two cynomolgus monkeys (*Macaca fascicularis*) were used in this study. The formalin-fixed cornea was prepared in paraffin block via the conventional tissue processing protocol (4-day protocol) and stained with haematoxylin and eosin. The glutaraldehyde-fixed cornea was prepared in resin block via the rapid and modified tissue processing procedure (1.2-day protocol) and stained with toluidine blue. The paraffin-embedded sample exhibits various undesired tissue damage and artifact such as thinner epithelium (due to the substantial volumic extraction from the tissue), thicker stroma layer (due to the separation of lamellae and the presence of voids) and the distorted endothelium. In contrast, the resin-embedded corneal tissue has demonstrated satisfactory corneal ultrastructural preservation. The rapid and modified tissue processing method for preparing the resin-embedded is particularly beneficial to accelerate the microscopic evaluation in ophthalmology and optometry.

Keyword: Cornea; Paraffin; Primate; Resin.