The Study of Collagen Fibers in Various Tissues with Picro-Sirius Polarization

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ABSTRACT By using picro-sirius red stain and polarization microscopy, the collagen fibers in coronary artery with atherosclerosis, brachial artery with intimal thickening, and the cartilage and bone, were studied. The collagen fiber showed pale pink to red color after stained with picro-sirius red. With polarization microscopy, the thin collagen fiber showed green to yellow color, and the thick collagen fiber showed yellow to orange and red color. When rotating the circular specimen loading stage, the same birefringence could be observed periodically. The distribution of thick collagen fiber and thin collagen fiber could be distinguished among the atherosclerotic lesion. The thick collagen fiber and thin collagen fiber were interwoven in the intimal thickening lesion. The chondroid matrix was mainly distributed with thin collagen fiber, and the bone matrix was mainly distributed with thick collagen fiber. This method is more sensitive than Masson’s trichrome stain for the examination of collagen fiber, and can be applied for the detailed study of collagen fiber in normal tissue and diseased condition. [Lee JG, Cheng CH, Wang FI, Chang PH, Liu MRS, Chou NK, *Shyu JJ. The Study of Collagen Fibers in Various Tissues with Picro-Sirius Polarization. Taiwan Vet J 33(2): 81-87, 2007. *Corresponding author TEL: 02-27364987, FAX: 02-27361939, E-mail: jjvetmed@ntu.edu.tw]

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