

Abstract

Ageing changes in the tunica media of the aorta may be influenced by the prevailing haemodynamic stress. These changes are associated with higher cardiovascular morbidity and mortality among the aged. Although the goat is a suitable model for vascular studies, little attention has been paid to aging changes in its aorta. This study investigated the histomorphological ageing changes in the goat aortic tunica media by light and transmission electron microscopy. Sixteen male domestic goats of age range 60-120 months were euthanised with sodium pentobarbital 20 mg.mL⁻¹ and fixed with 3% phosphate buffered glutaraldehyde solution. Samples from various aortic regions were processed routinely for paraffin embedding and sectioning for light microscopy. 7 µ sections were stained with Mason's trichrome and Weigert resorcin fuchsin/Van Gieson. The specimens for transmission electron microscopy were post-fixed in osmium tetroxide, and ultrathin sections stained with uranyl acetate, counter stained with lead citrate and examined by EM 201 Phillips[®] microscope. It is observed that ageing is characterized by fragmentation of elastic lamellae, increased amounts and tangling of collagen, and disorganization smooth muscle cells. These aging changes are more pronounced in luminal than in adventitial zone, and in proximal than in distal parts of the aorta. This distribution of structural ageing changes in the goat aorta suggests that they are influenced by mural strain, and the amount of smooth muscle. Control of blood pressure in human beings constitutes a useful

approach to reduction of age related vascular disruption.