APPENDIX: CLASSIFICATION OF ARTERIAL VESSELS:

Classification	Elastic Arteries	Muscular Arteries	Arterioles	Metarterioles
Function	Conducting vessels	Distributing vessels	Resistance vessels	Resistance vessels
Calibre	Large, near the heart	Varying size	Usually not more than 100μm in diameter	Usually 5 -100μm long and 5-30μm in diameter
Examples	Aorta and main branches: brachiocephalic, common carotid, subclavian. Pulmonary.	Axillary and femoral arteries and their branches	Usually within the parenchyma of organs etc.	As for arterioles
Tunica intima	Lined by a single layer of non-fenestrated endothelial cells supported by sub-endothelial c.t. Fenestrated internal elastic membrane (inconspicuous because of similar elastic lamina in the t. media)	Lined by a single layer of non-fenestrated endothelial cells backed by varying amounts of c.t. (depending on vessel size) Fenestrated **internal elastic membrane - conspicuous, wavy refractile line**	Lined by a single layer of non-fenestrated endothelial cells, supported by a few connective tissue cells Has a thin fenestrated internal elastic membrane but the smallest arterioles lack elastic elements altogether	Lined by a single layer of non-fenestrated endothelial cells, supported by a few collagen fibres but no internal elastic membrane is present
Tunica media	**Series of concentric fenestrated elastic lamellae, scattered smc lie between the lamellae.** External elastic membrane is indistinguishable.	**Layer upon layer of circular or spiral smc with a relatively weak external elastic lamina.**	**Only 1-2 layers of circular or spiral smc**	Proximal end of the metarteriole - **intermittent single layer of circular or spiral smc**, but **towards the distal end - no smc** therefore no t. media
Tunica adventitia	Elastic fibres reinforced by collagen fibres mingle with surrounding c.t.	Collagen and some elastic fibres blend with the surrounding c.t. Sympathetic vasomotor fibres in the adventitia innervate smc in the t. media	Composed of loose c.t. carrying unmyelinated axons that innervate the smc's.	Composed of varying amounts of loose c.t. that blends with the surrounding c.t.

c.t. = connective tissue smc = smooth muscle cells

CLASSIFICATION OF VENOUS VESSELS:

Classification	Muscular venules	Small to Medium Veins	Large Veins
Function	Capacitance vessels	Capacitance vessels	Capacitance vessels
Calibre	50 - 1000μm	Varying size: Small 0.2-1mm Medium 1-10mm	Greater than 10mm
Examples	Usually within the parenchyma of organs etc.		Cranial and caudal vena cava
tunica intima	Lined by a thick layer of non-fenestrated endothelial cells supported by a few scattered collagen and elastic fibres	Lined by a thick layer of non-fenestrated endothelial cells supported by a thin layer of collagen fibrils and in the medium size veins a few scant elastic fibres	Same as small - medium veins
tunica media	**Weakly developed with 1-2 layers of innervated smc** (compared to several in accompanying arteriole)	**Very thin layer with a limited number of smc layers**	Similar to small-medium but **may have several layers of innervated circular smc with some collagen and elastic fibres**
t. adventitia	Relatively thick layer of collagenous c.t. with sympathetic vasomotor axons	**Often the thickest layer-consisting of many collagen fibres and a few elastic fibres and some smc**	**Thickest layer - contains abundant longitudinally oriented smc along with collagen and elastic fibrils**

c.t. = connective tissue smc = smooth muscle cells