



SENSORY ORGANS

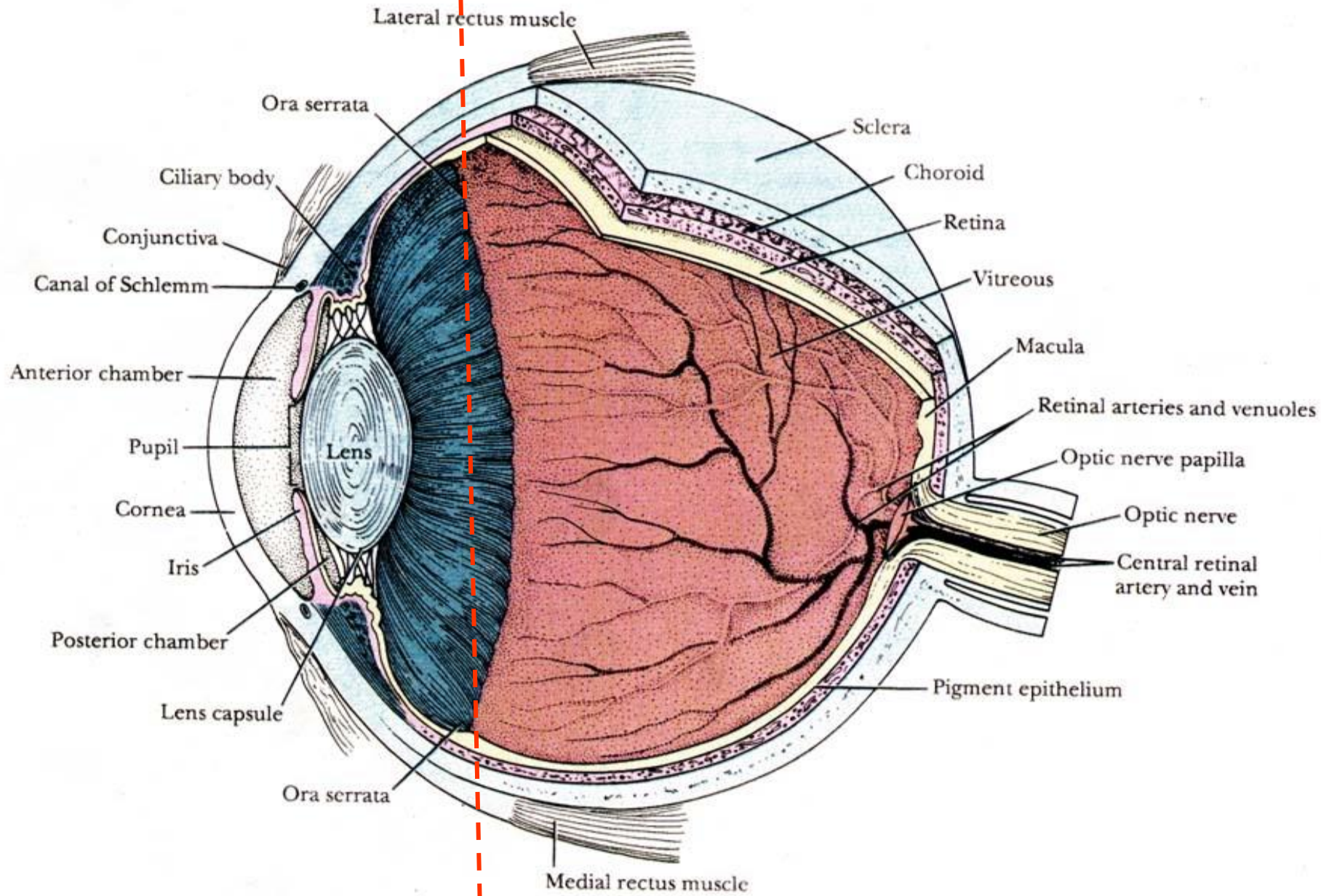
Organ of vision,
organ of balance and hearing
and accessory organs

Organ of vision

- Eyeball (bulbus oculi)
 - anterior segment of eye
 - posterior segment of eye
- Eyelid (palpebra)
- Tear gland (gl. lacrimalis)

Anterior segment

Posterior segment



The wall of eyeball

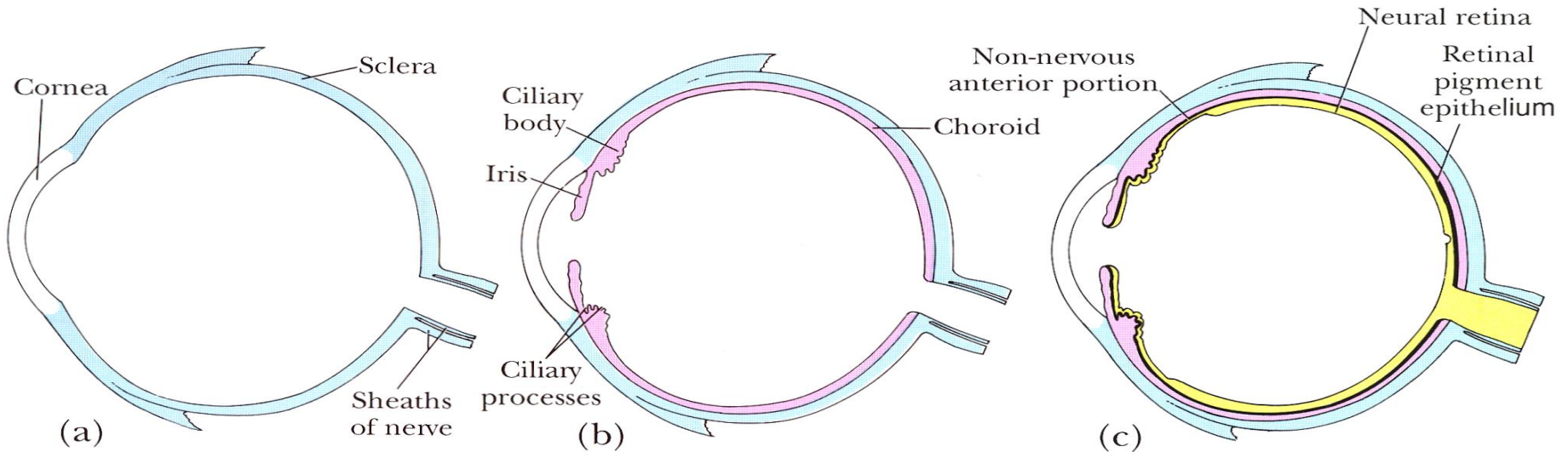
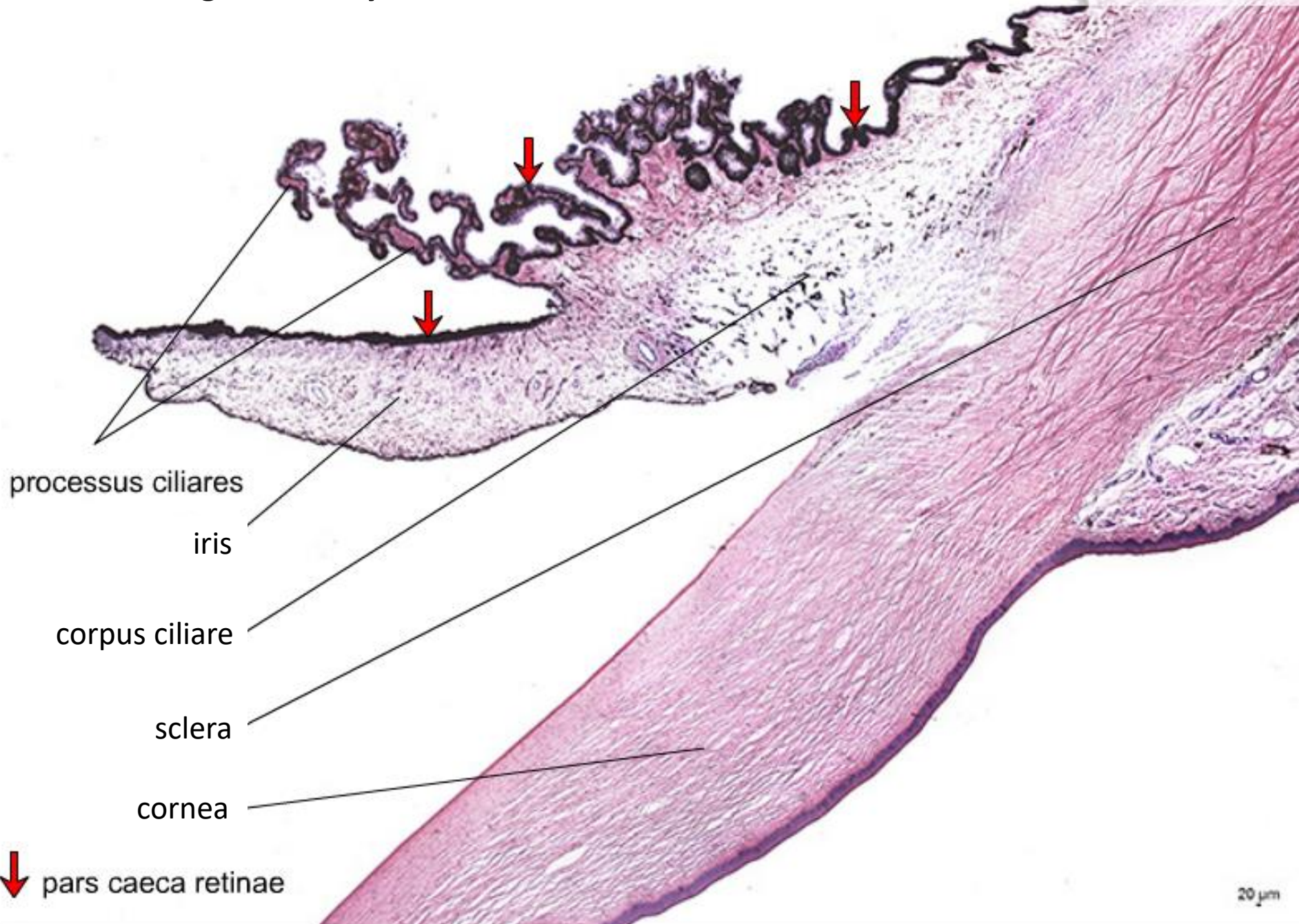


Figure 23.1. Schematic diagram of the layers of the eye. The layers are organized in three separate concentric layers: an outer supporting layer, the *corneoscleral*

coat (a), a middle vascular coat, the *uvea* (b), and an inner photosensitive layer, the *retina* (c).

	Tunica externa (fibrosa)	Tunica media (vasculosa)	Tunica interna (nervosa)
anterior segment	cornea	iris corpus ciliare	pars caeca retinae
posterior segment	sclera	choroidea	pars optica retinae

Anterior segment of eye



processus ciliares

iris

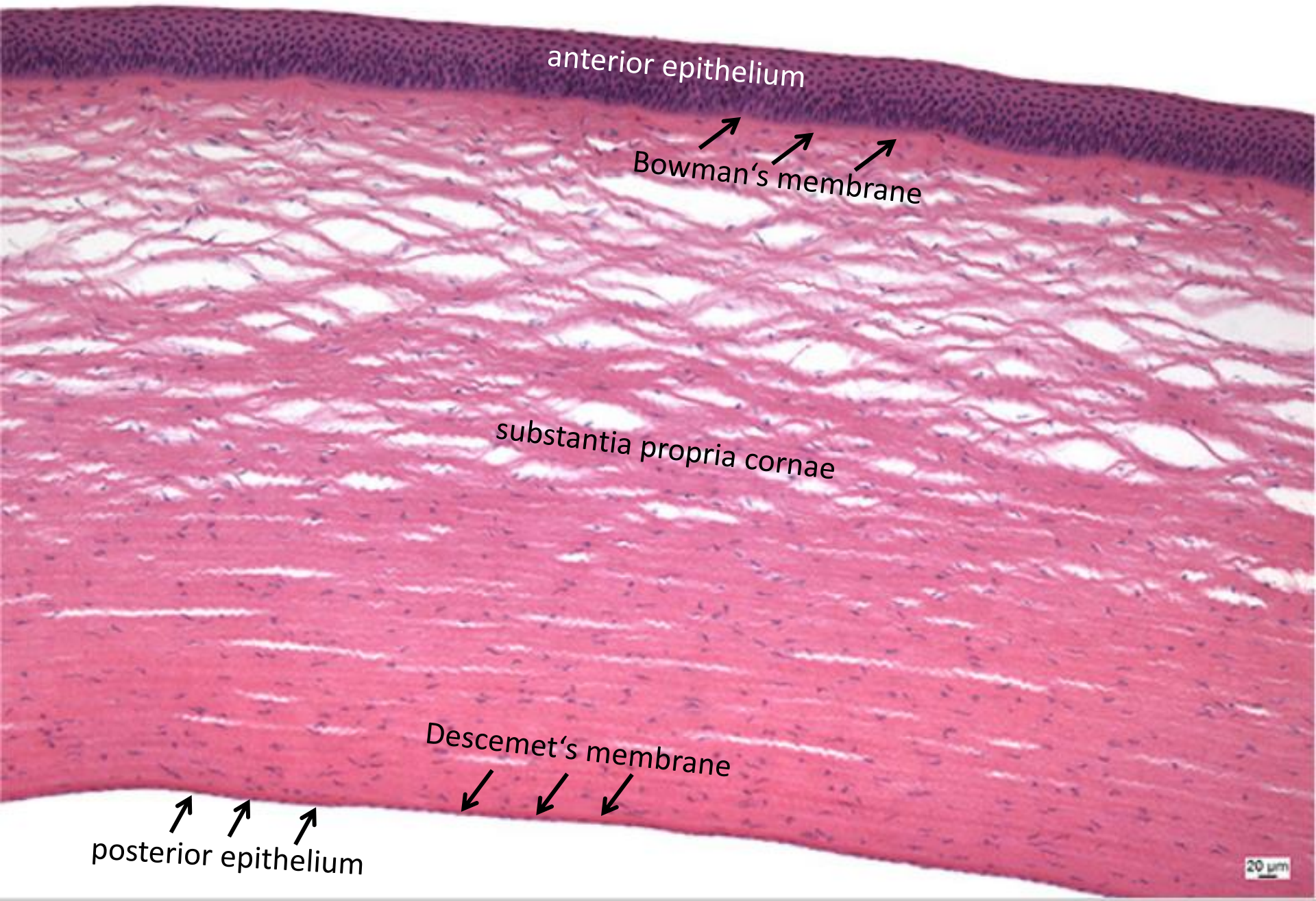
corpus ciliare

sclera

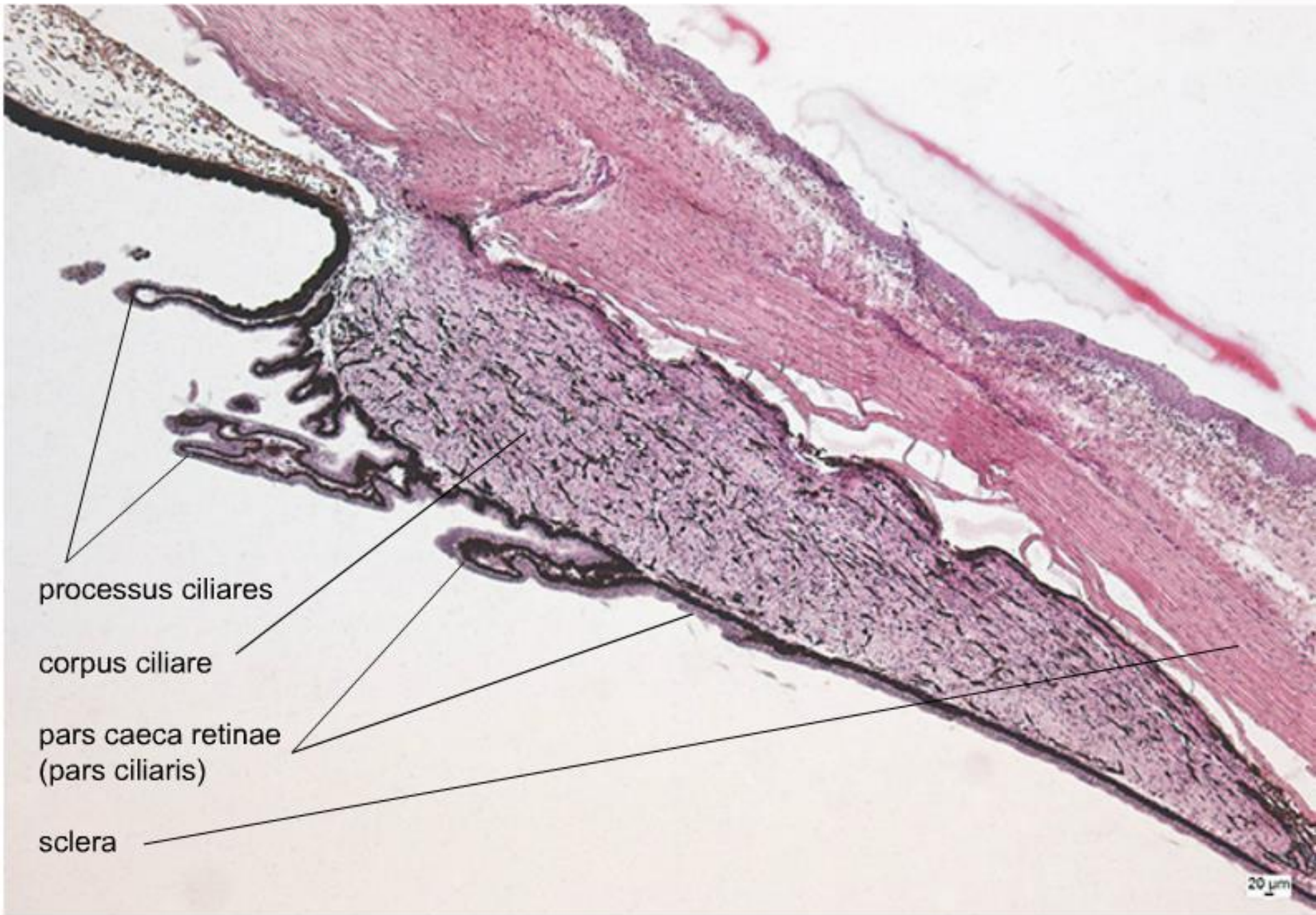
cornea

↓ pars caeca retinae

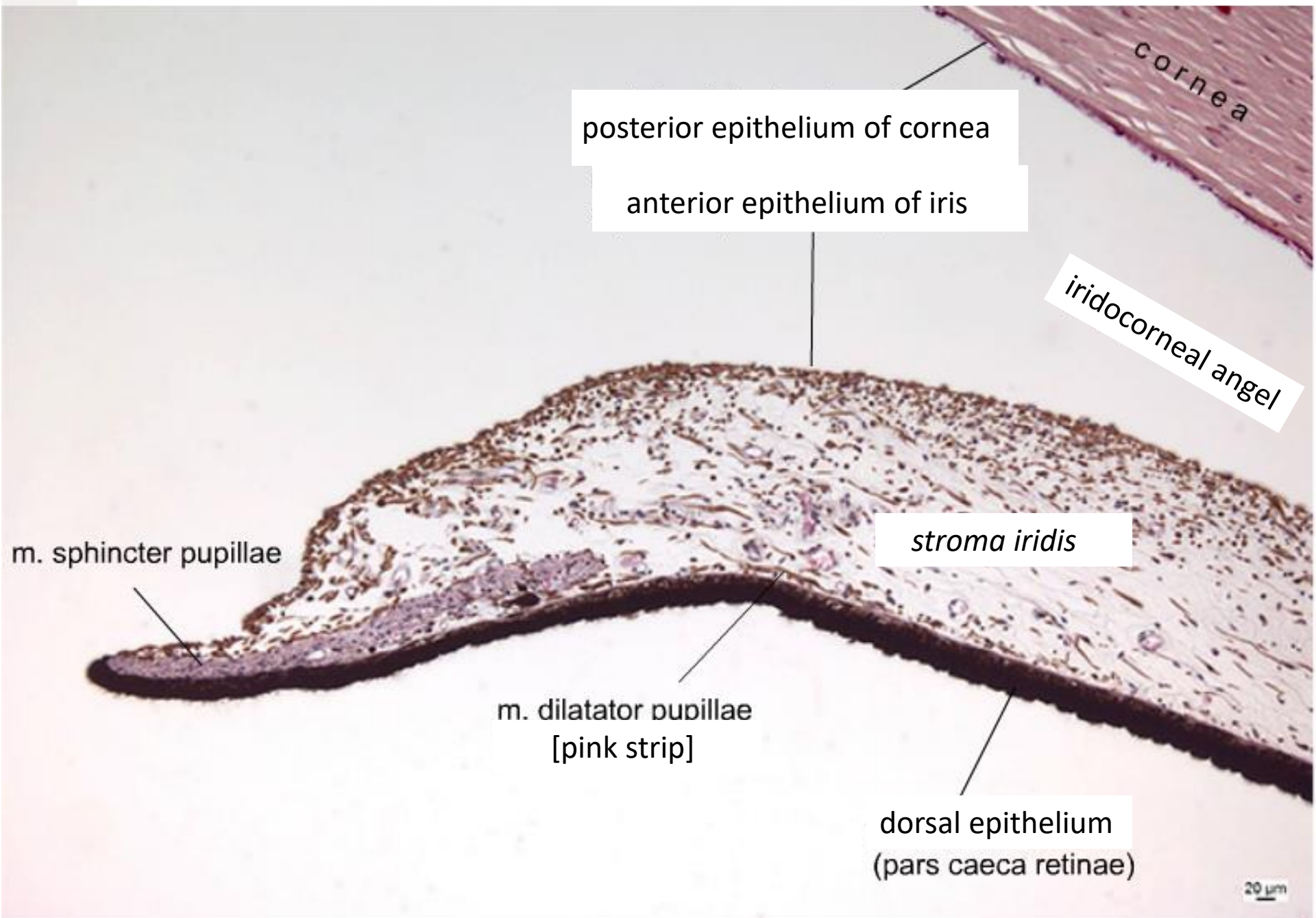
Anterior segment of eye – cornea



Anterior segment of eye – corpus ciliare



Anterior segment of eye – iris



cornea

posterior epithelium of cornea

anterior epithelium of iris

iridocorneal angle

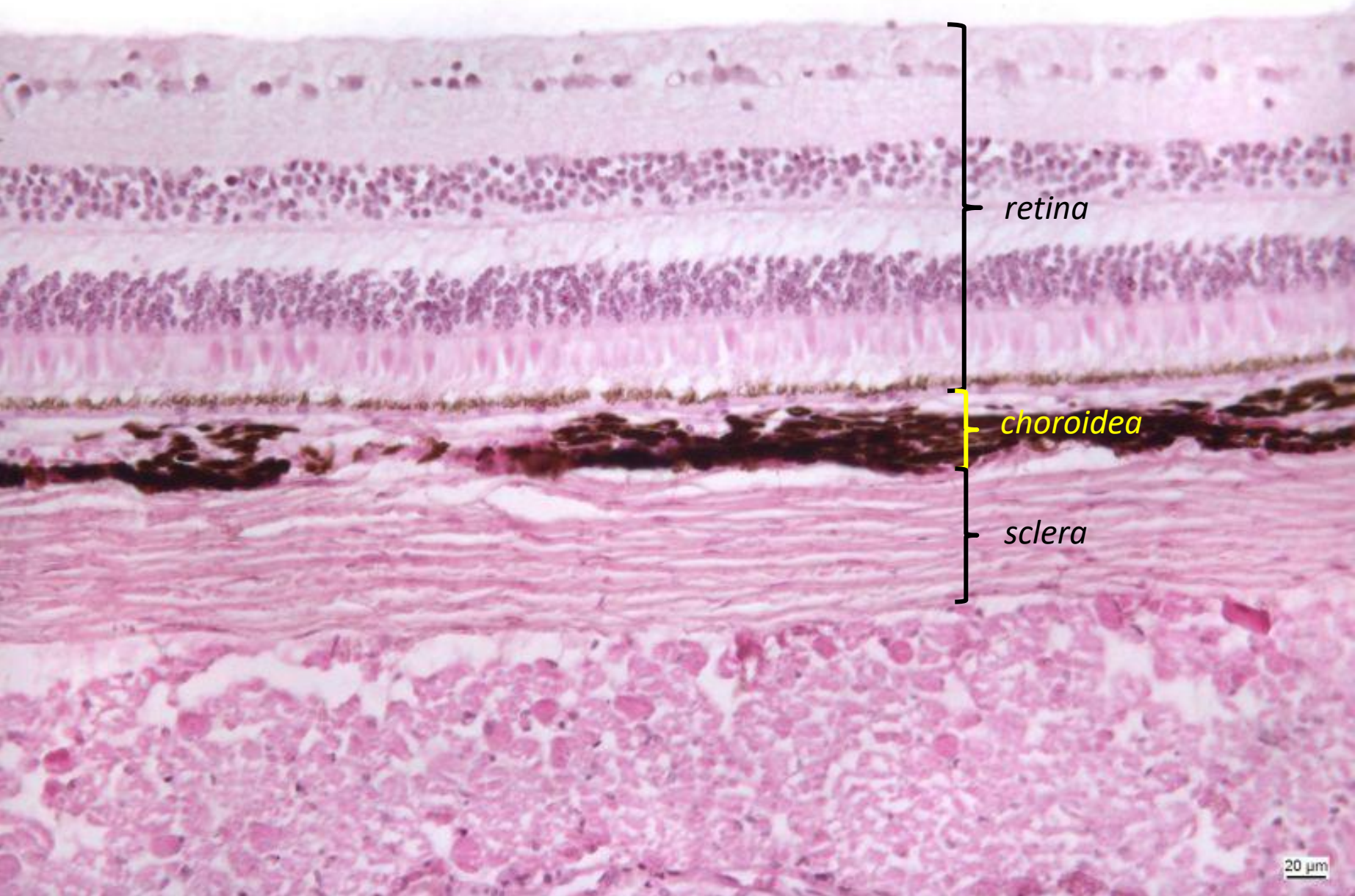
stroma iridis

m. sphincter pupillae

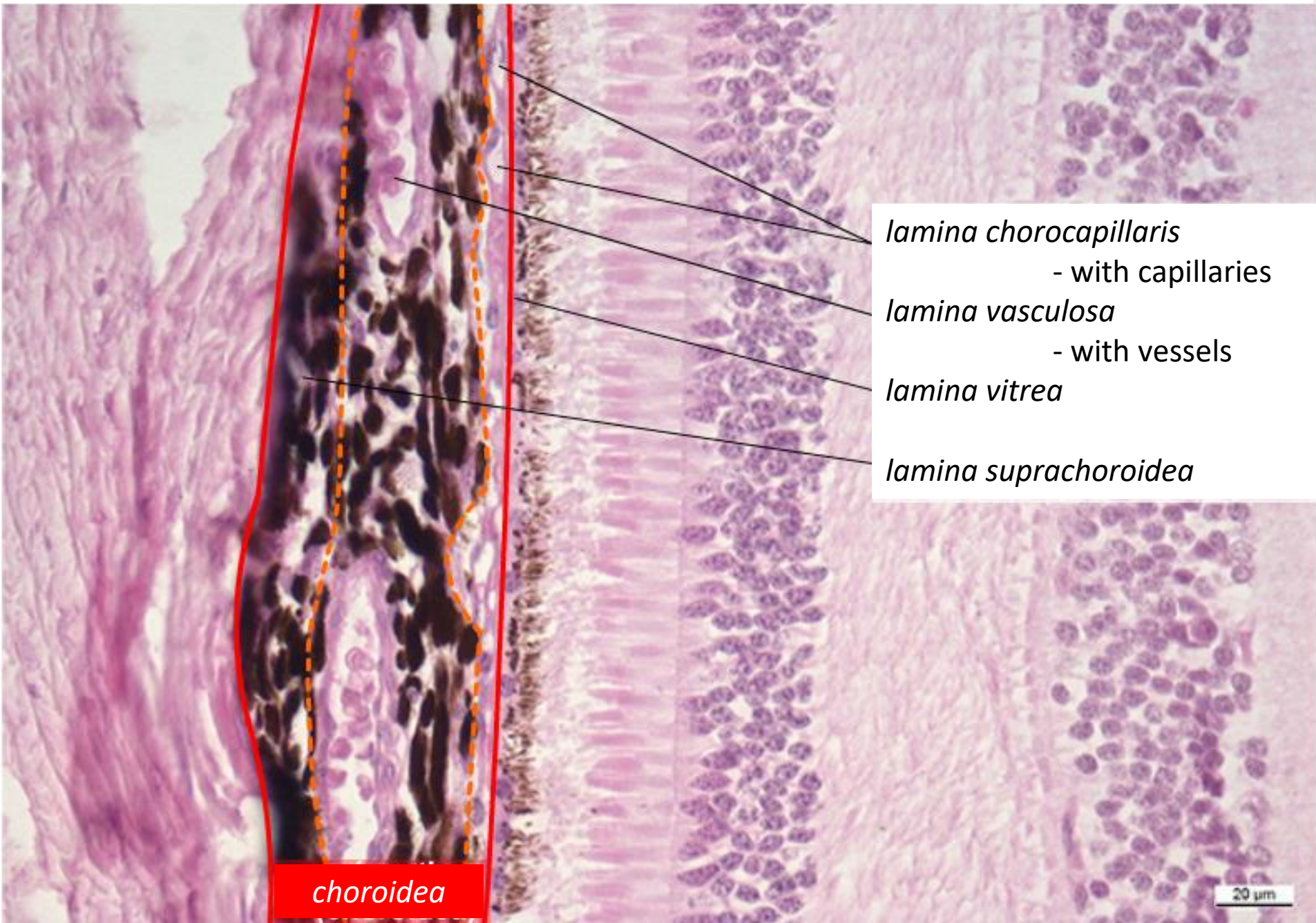
m. dilatator pupillae
[pink strip]

dorsal epithelium
(pars caeca retinae)

Dorsal segment of eye



Posterior segment of eye – *choroidea*

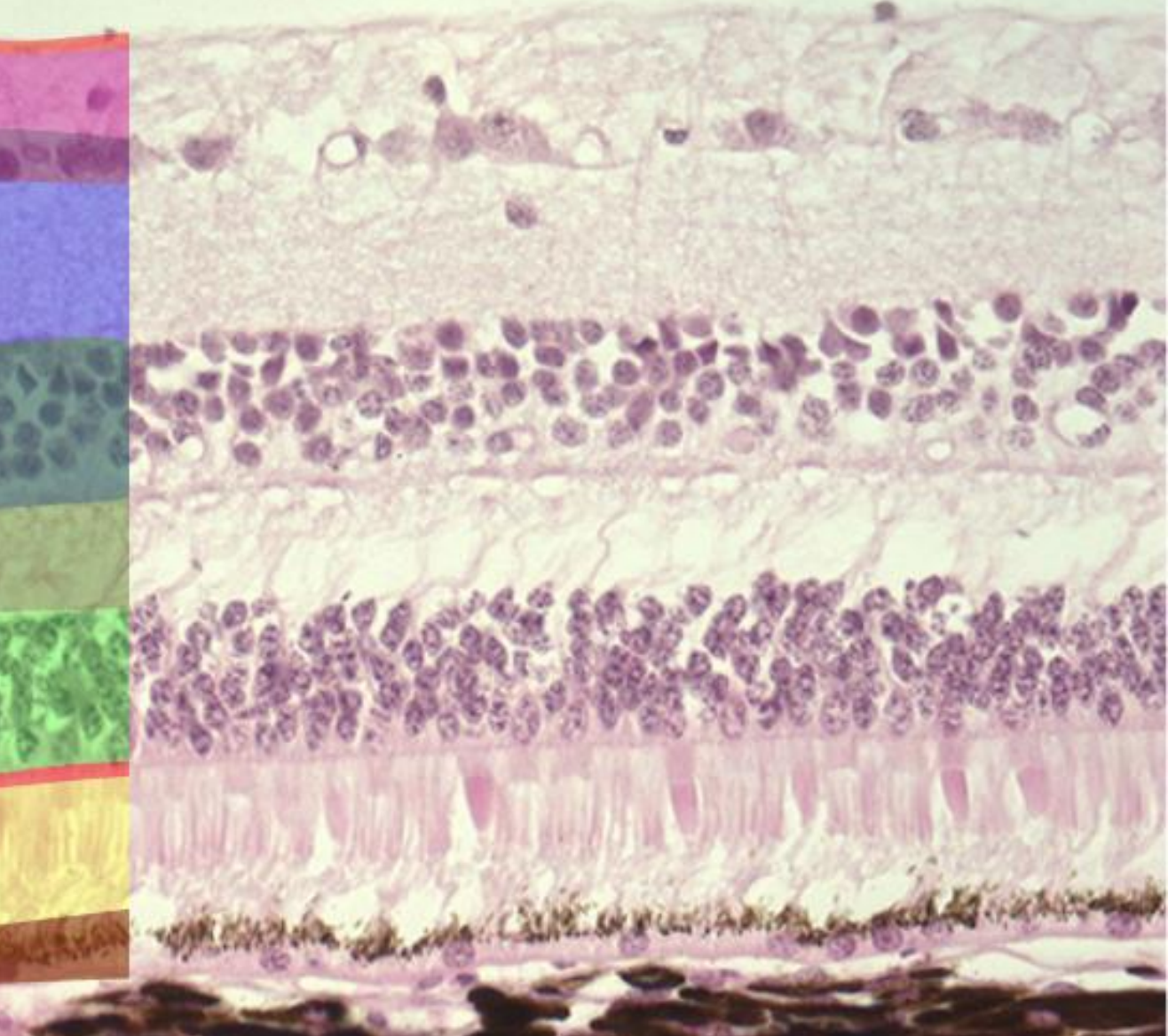


choroidea

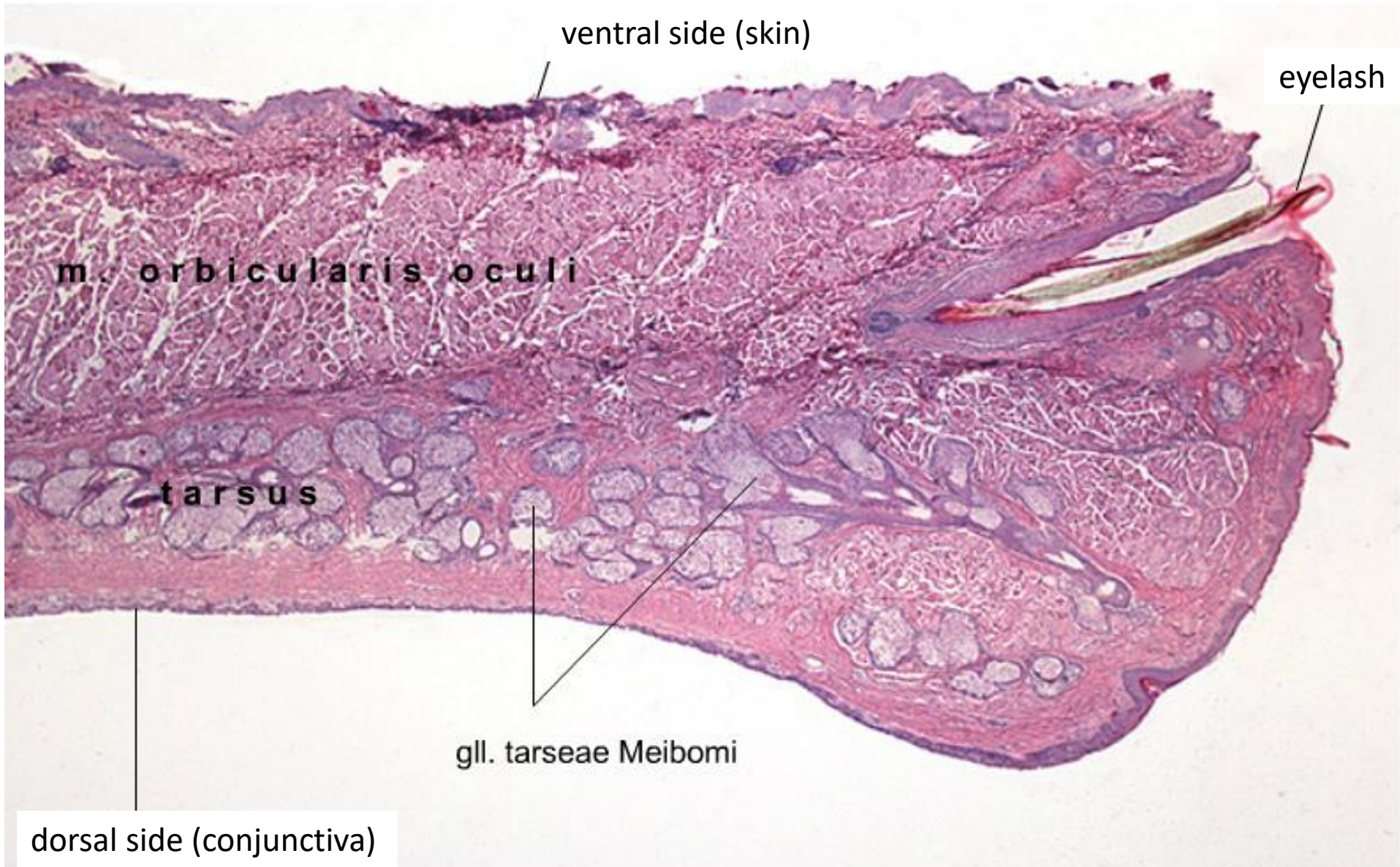
20 μm

Posterior segment of eye – retina

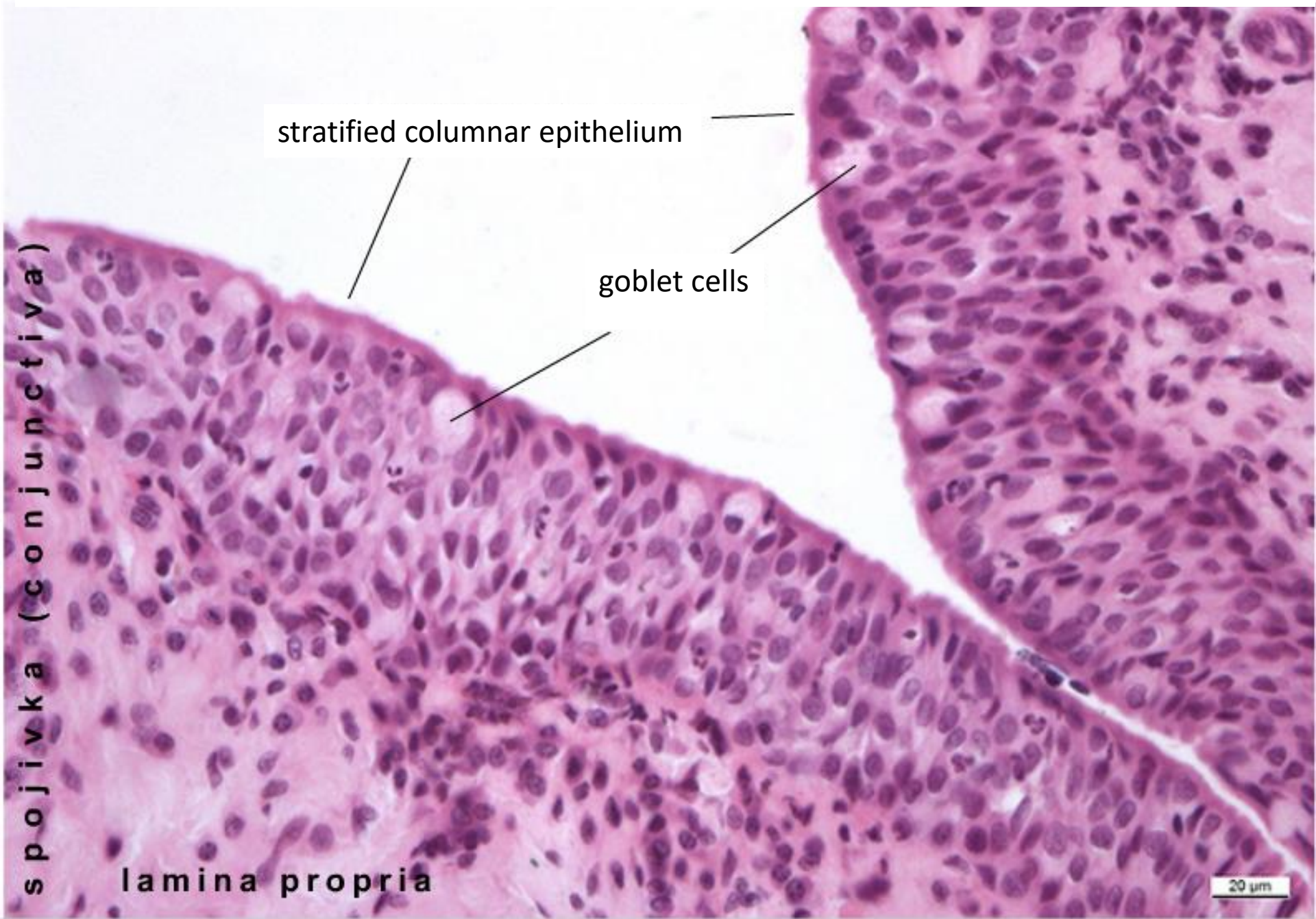
- membrana limitans interna* →
- layer of nerve fibers →
- layer of ganglionic cells →
- inner plexiform layer →
- inner granular layer →
- outer plexiform layer →
- outer granular layer →
- membrana limitans externa* →
- layer of rods and cones →
- pigmented epithelium
(*stratum pigmenti retinae*) →



Palpebra



Palpebra – conjunctival side



stratified columnar epithelium

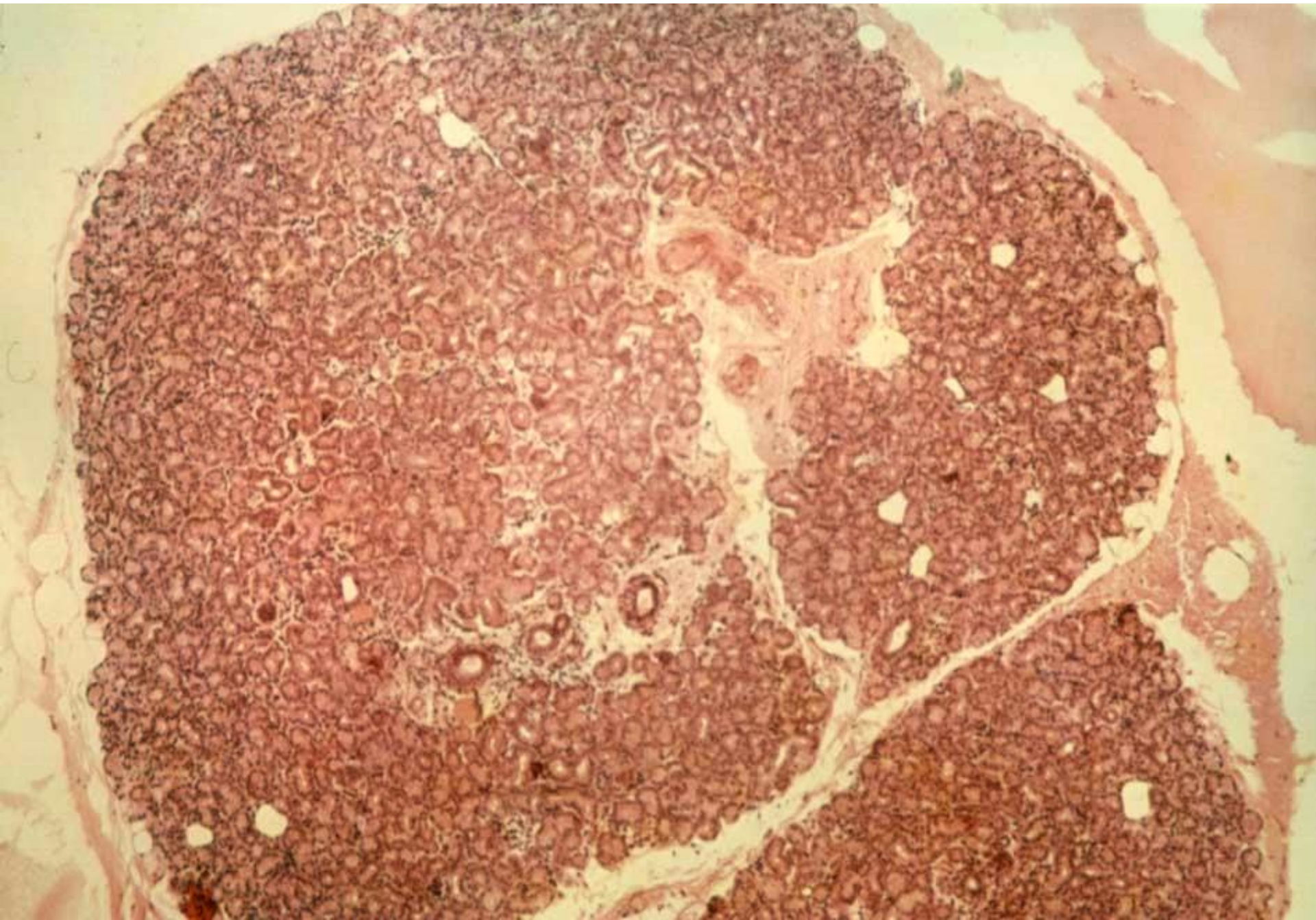
goblet cells

spojuvka (conjunctiva)

lamina propria

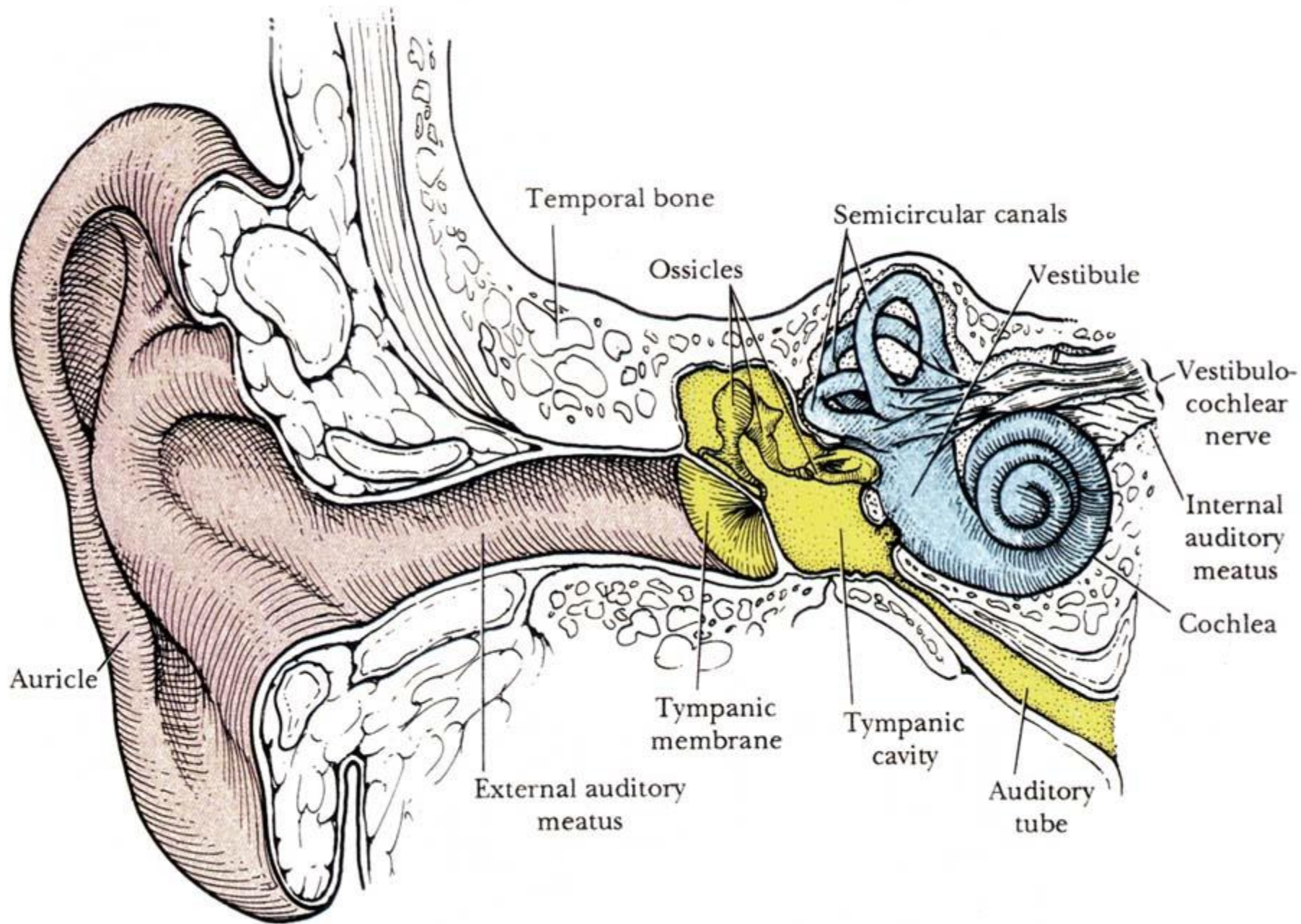
20 μm

Glandula lacrimalis



Organ of balance and hearing

- Outer ear
 - auricle (*auricula*)
 - auditory meatus (*meatus acusticus ext.*)
 - ear drum (*membrana tympani*)
- Middle ear
 - tympanic cavity (*cavum tympani*)
- Inner ear
 - sacculus – *macula sacculi*
 - utriculus – *macula utriculi*
 - ductus semicirculares – *cristae ampullares*
 - ductus cochlearis – *organon Corti*



Inner ear

(in pyramid of *ossis petrosus ossis temporalis*)

Bony labyrinth

- 1) *vestibulum*
- 2) *canales semicirculares*
- 3) *cochlea*

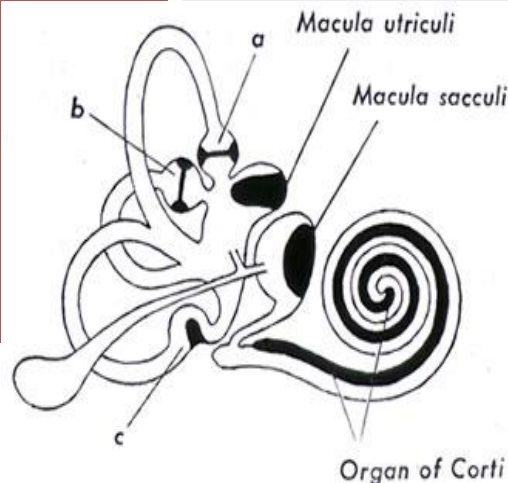
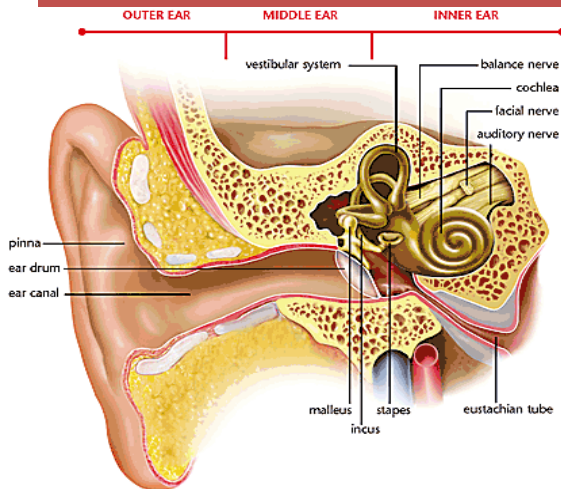
Membranous labyrinth

pars statica (1, 2)

pars akustica (3)

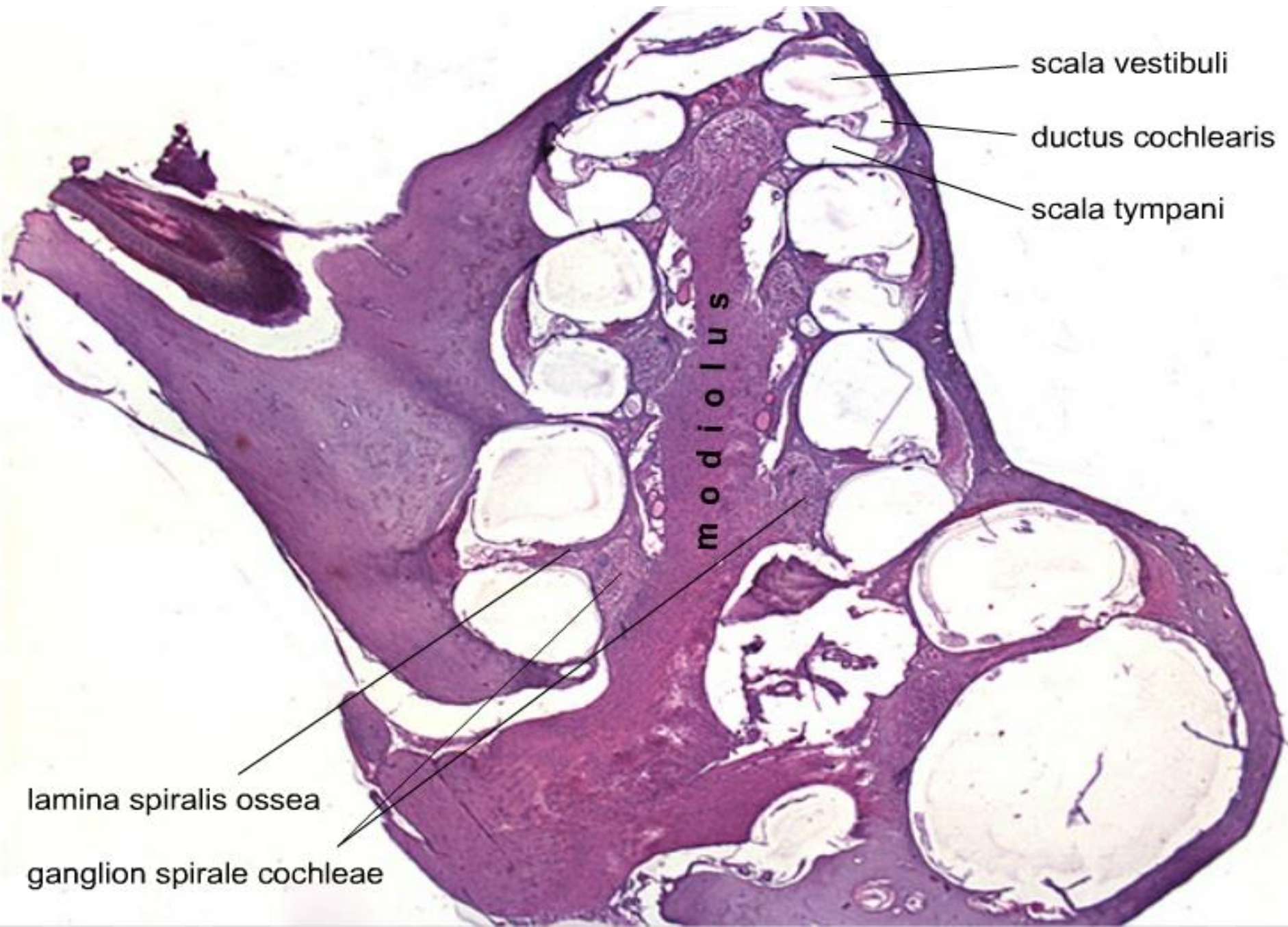
- 1) *sacculus*
utriculus
saccus endolympathicus
- 2) *ductus semicirculares*
- 3) *ductus cochlearis*

perilymphatic space
spatium perilymphaceum



endolymph

Cochlea



scala vestibuli

ductus cochlearis

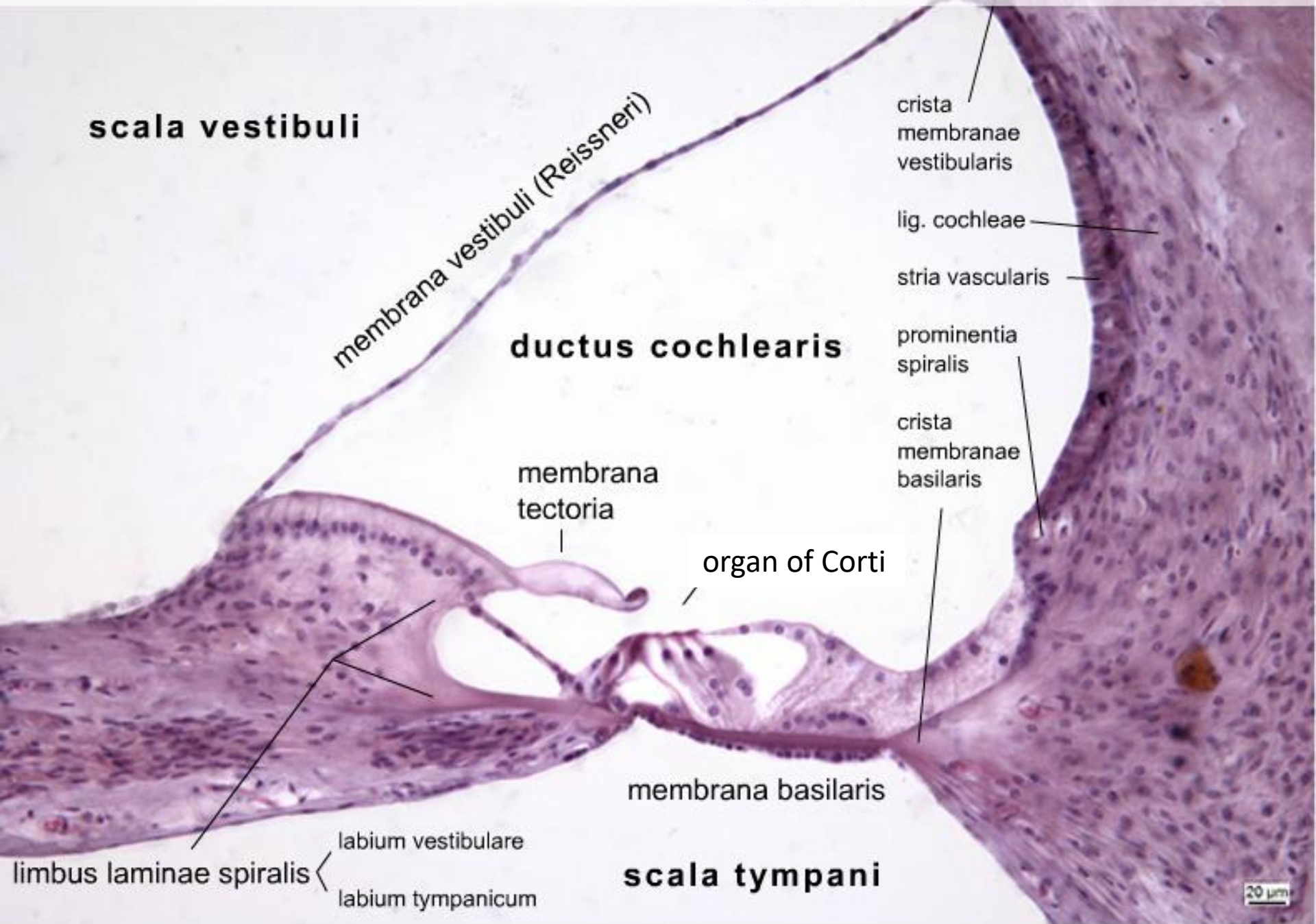
scala tympani

m o d i o l u s

lamina spiralis ossea

ganglion spirale cochleae

Cochlea – ductus cochlearis, (HE), objektiv 20×



scala vestibuli

membrana vestibuli (Reissneri)

ductus cochlearis

crista membranae vestibularis

lig. cochleae

stria vascularis

prominentia spiralis

crista membranae basilaris

membrana tectoria

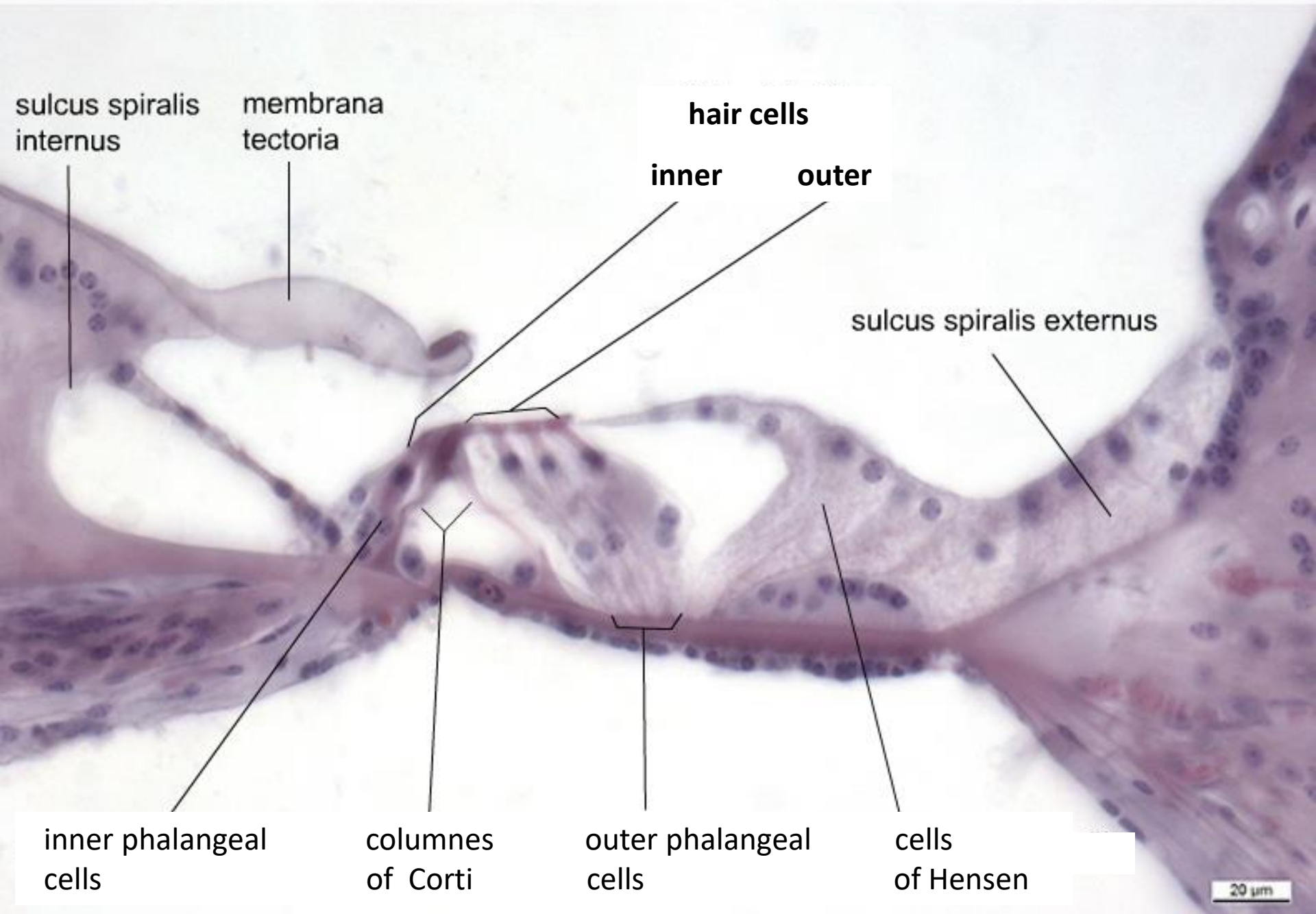
organ of Corti

membrana basilaris

scala tympani

limbus laminae spiralis $\left\{ \begin{array}{l} \text{labium vestibulare} \\ \text{labium tympanicum} \end{array} \right.$

Cochlea – organ of Corti

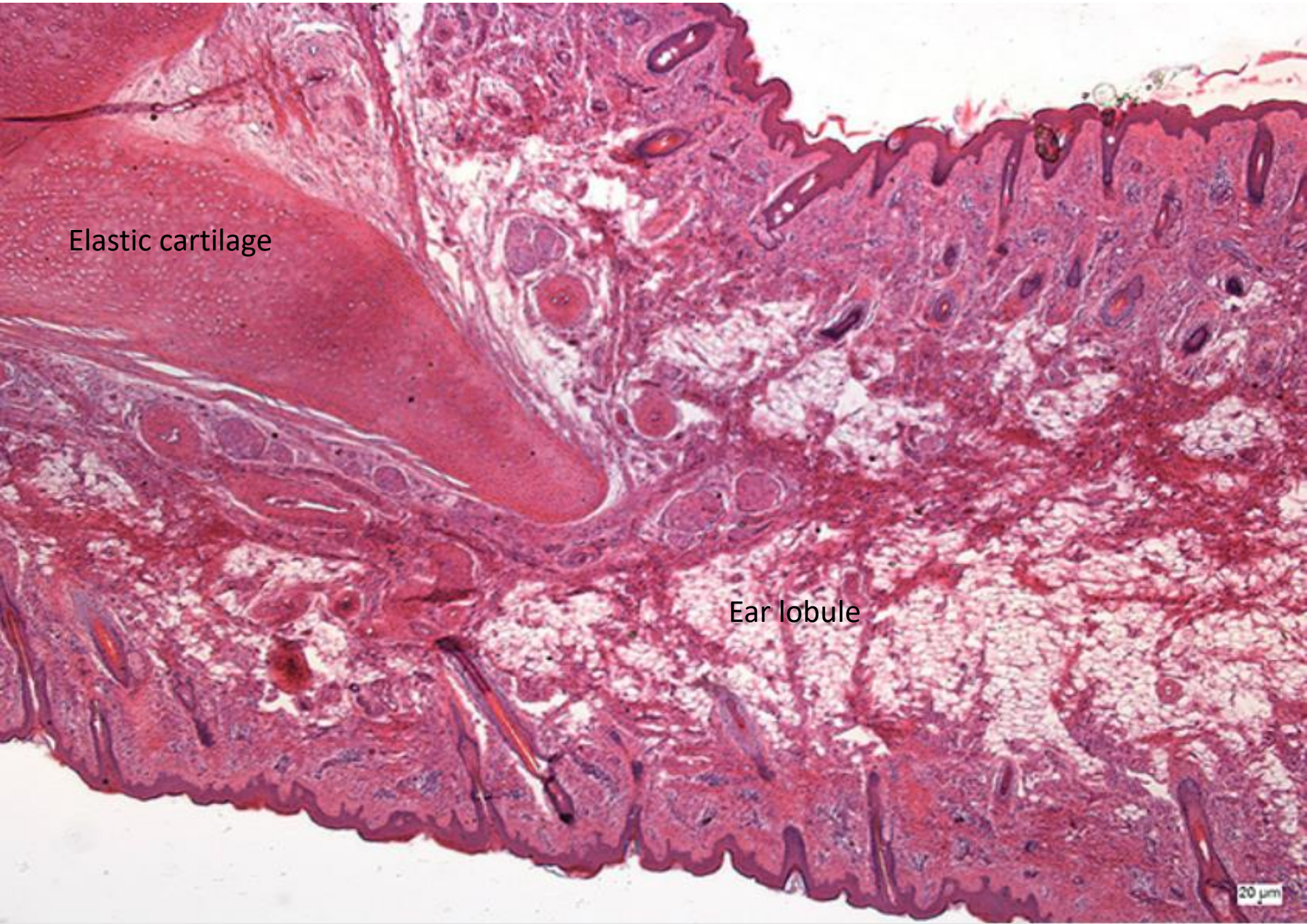


Auricle (*auricula*)

Elastic cartilage

Ear lobule

20 μ m





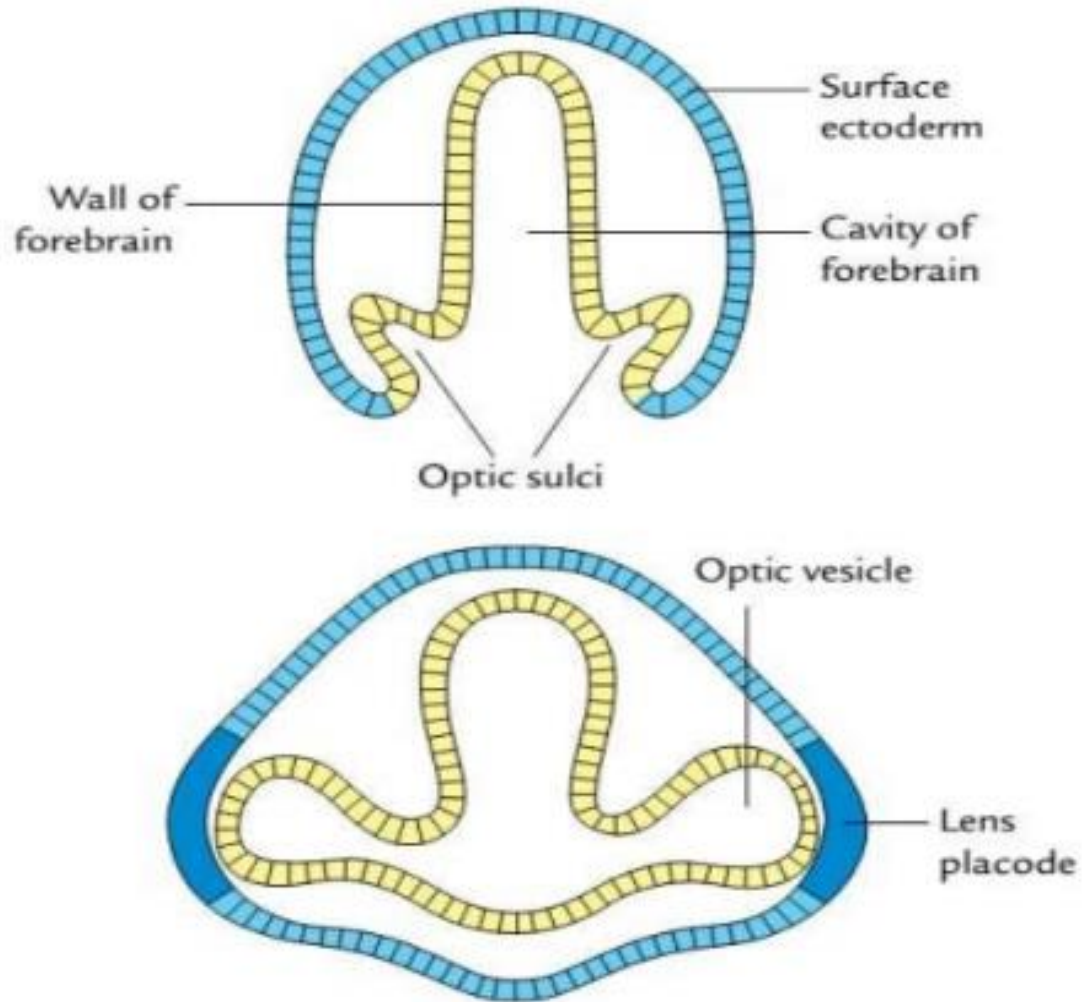
SENSORY ORGANS



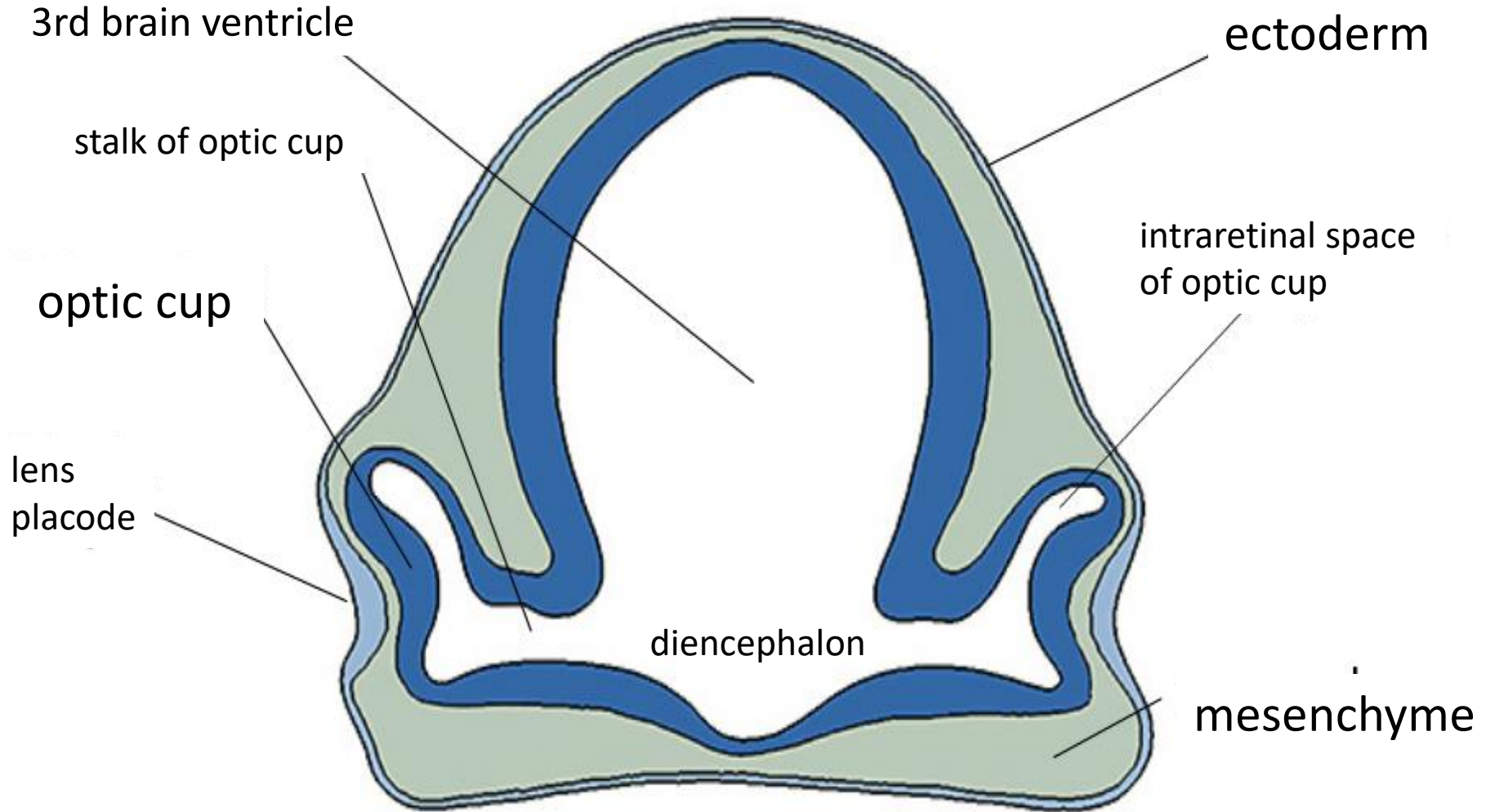
Slides:

- 88. Anterior segment of the eye
- 89. Posterior segment of the eye
- 90. *Fasciculus opticus*
- 91. *Palpebra*
- 92. *Gl. lacrimalis*
- 93. *Ductus cochlearis*
- 94. *Auricula*

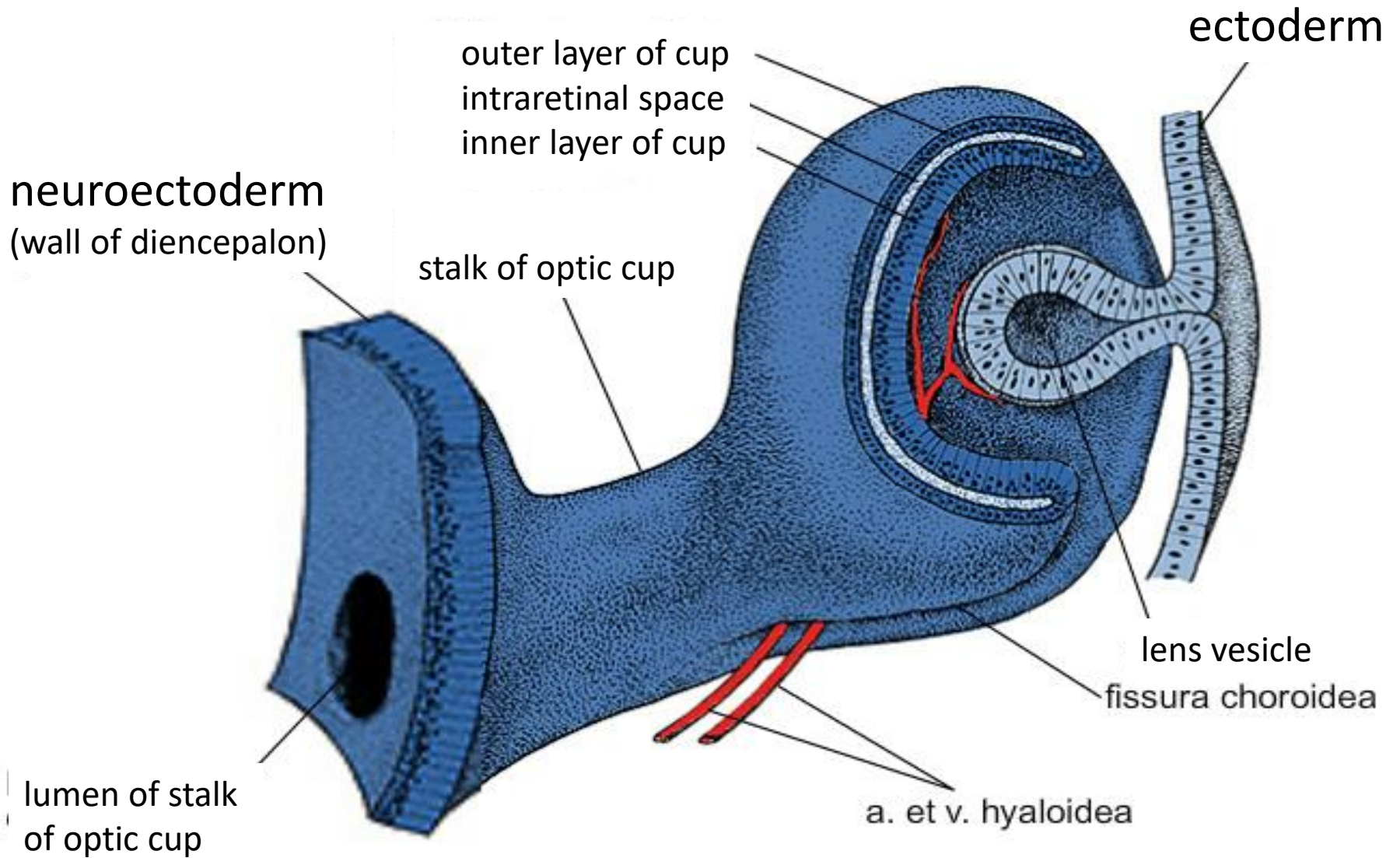
Development of eye

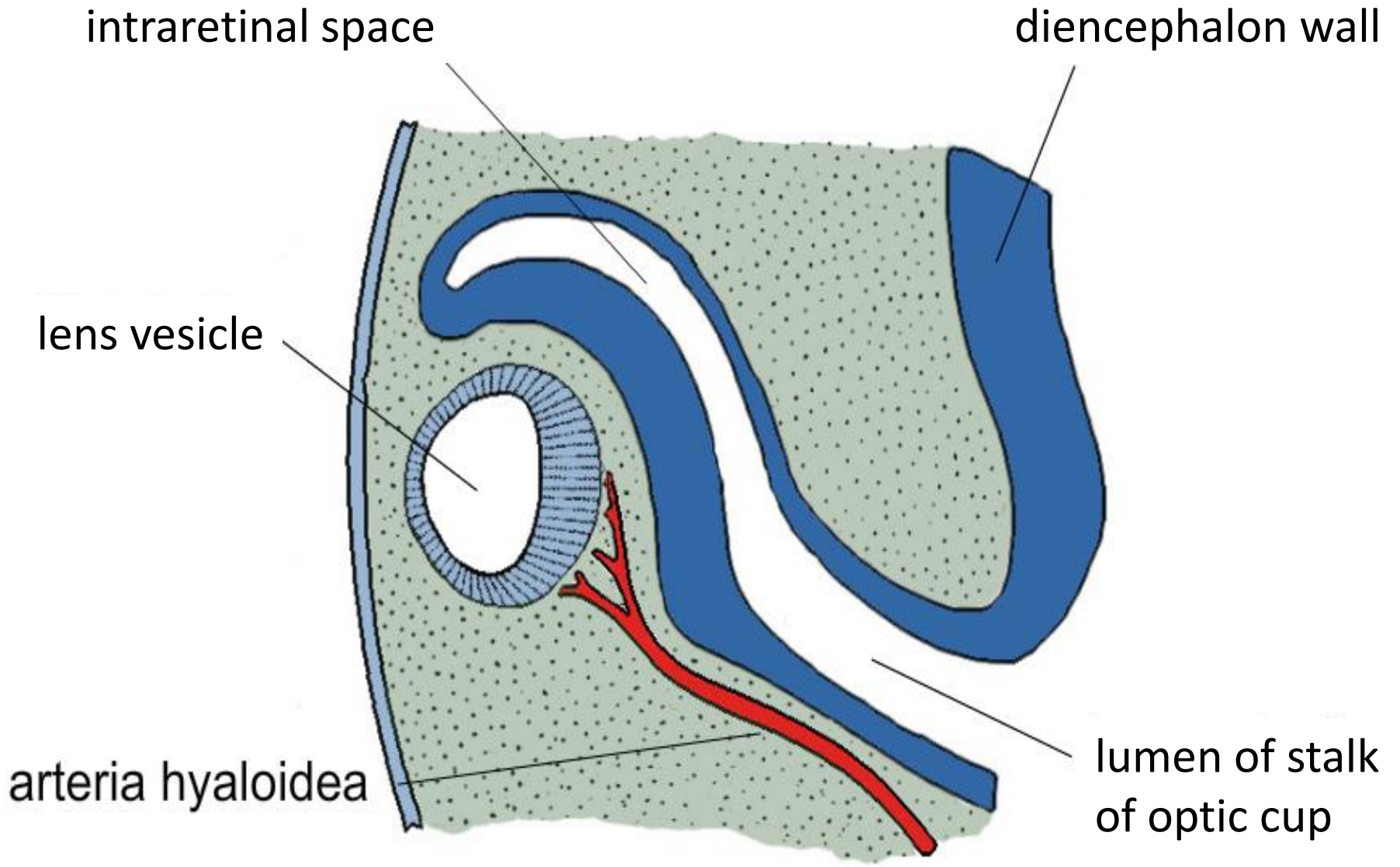


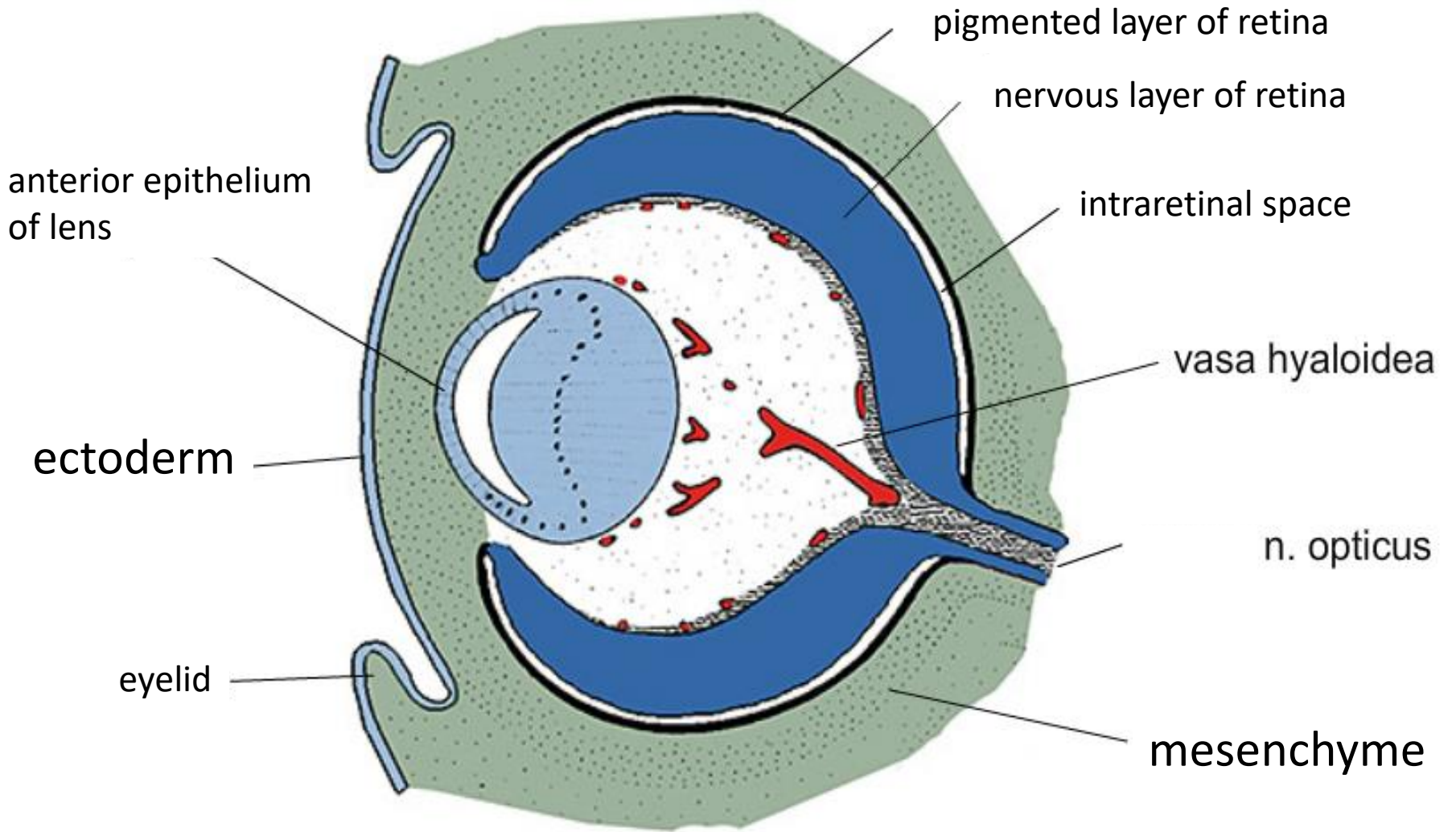
Development of eye

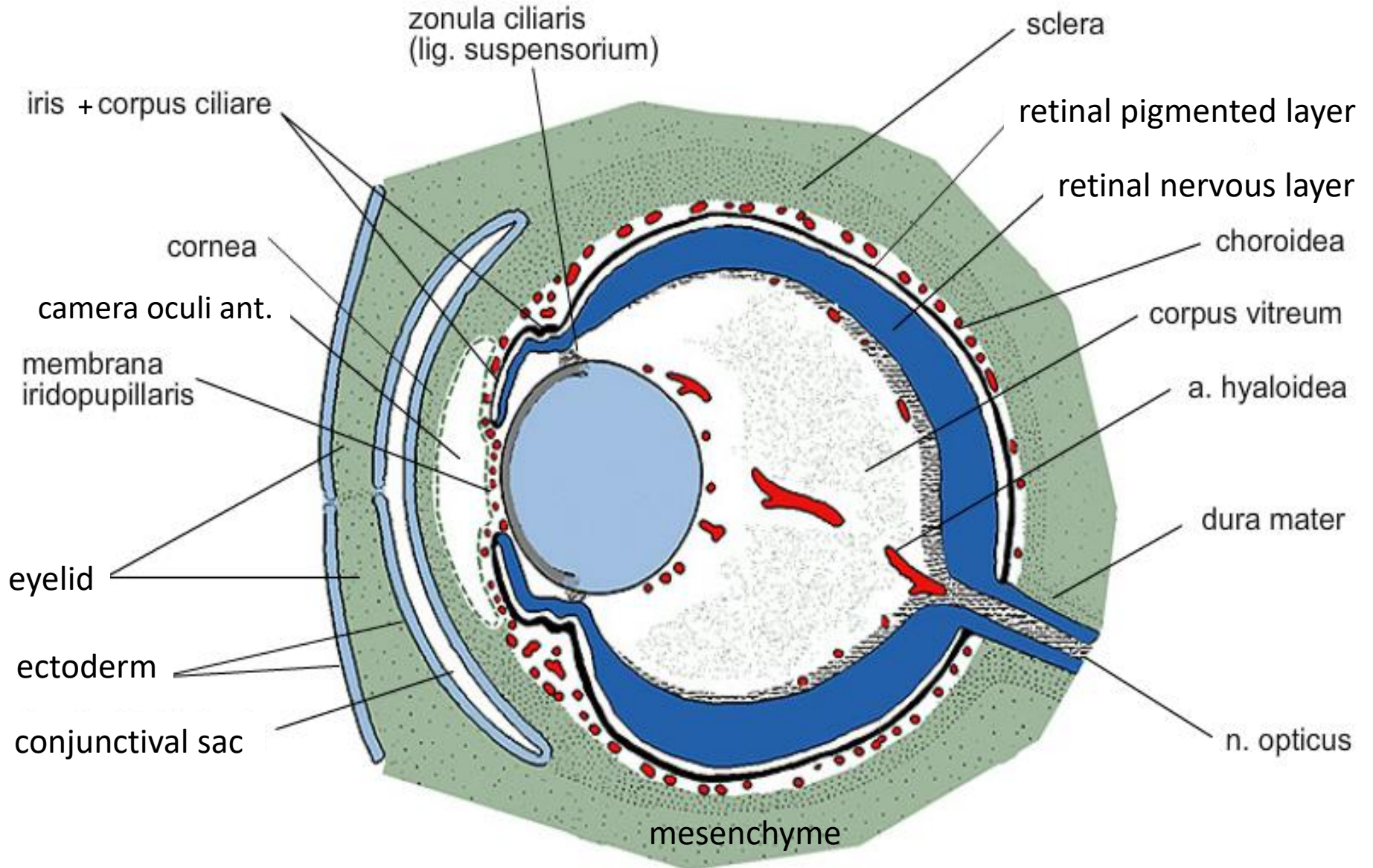


Development of optic cup and lens

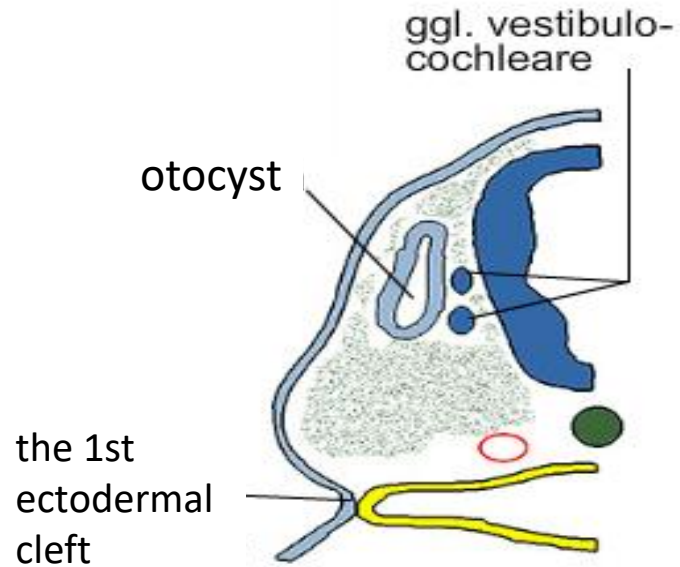
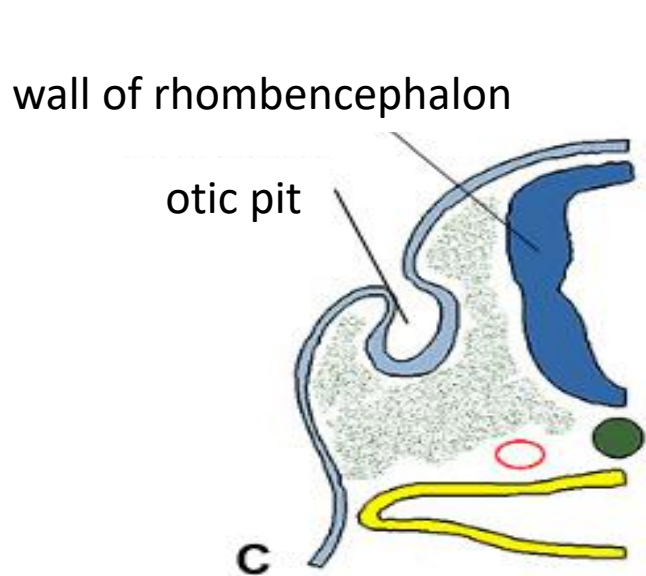
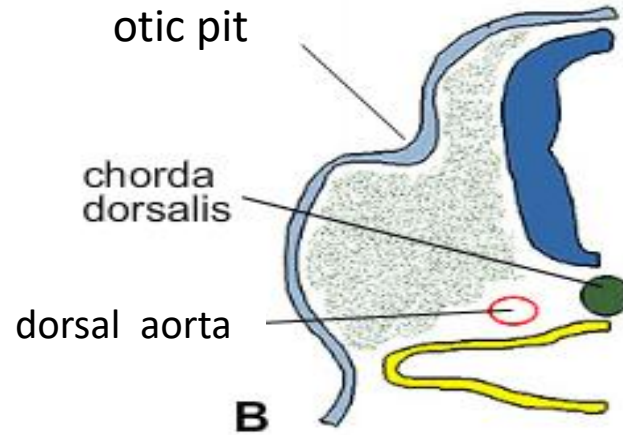
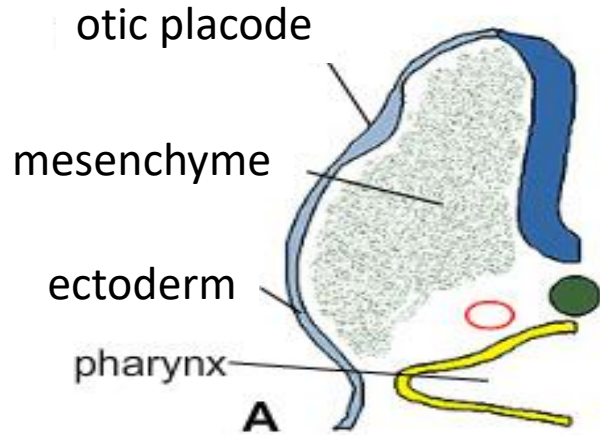




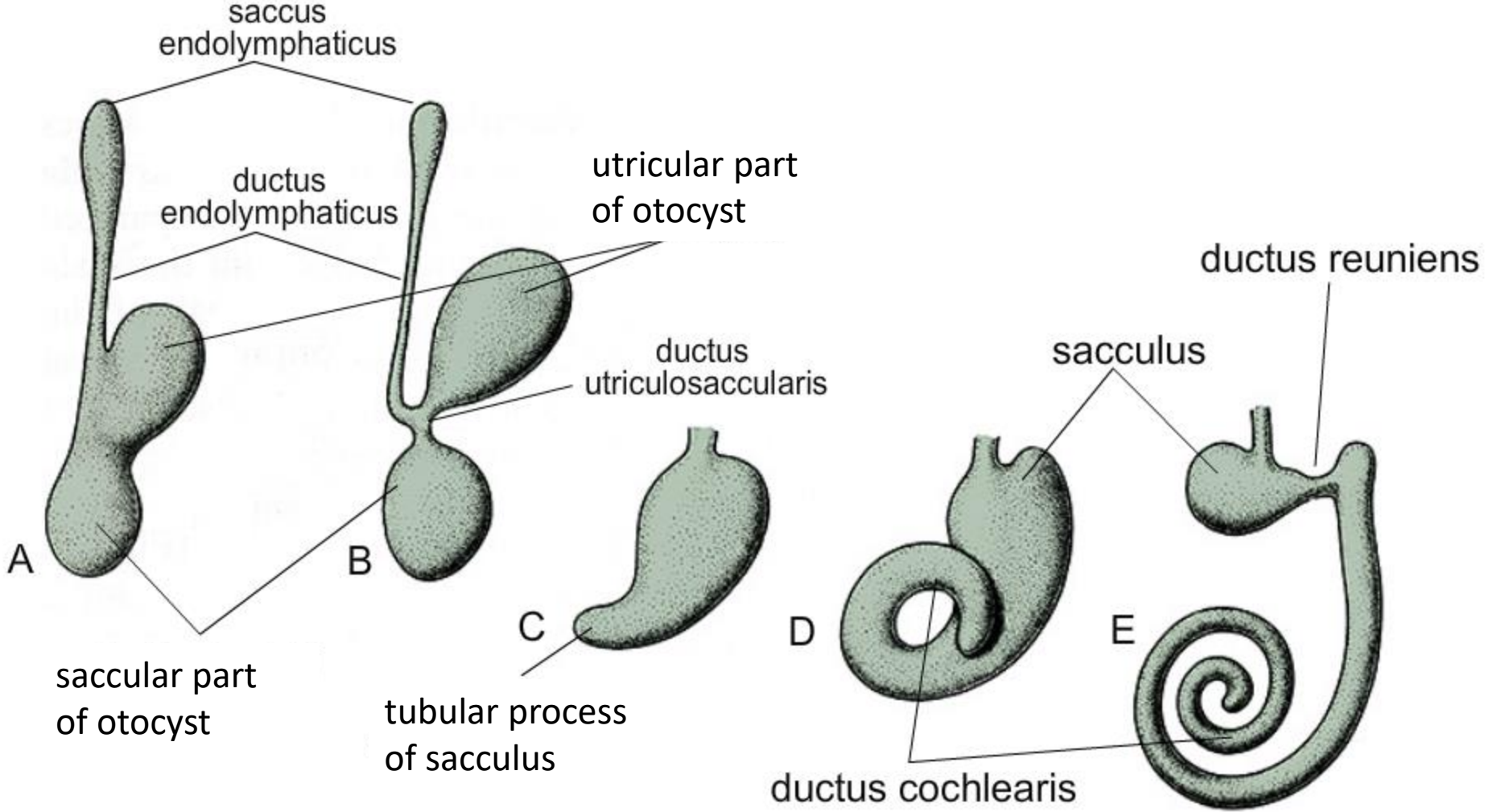




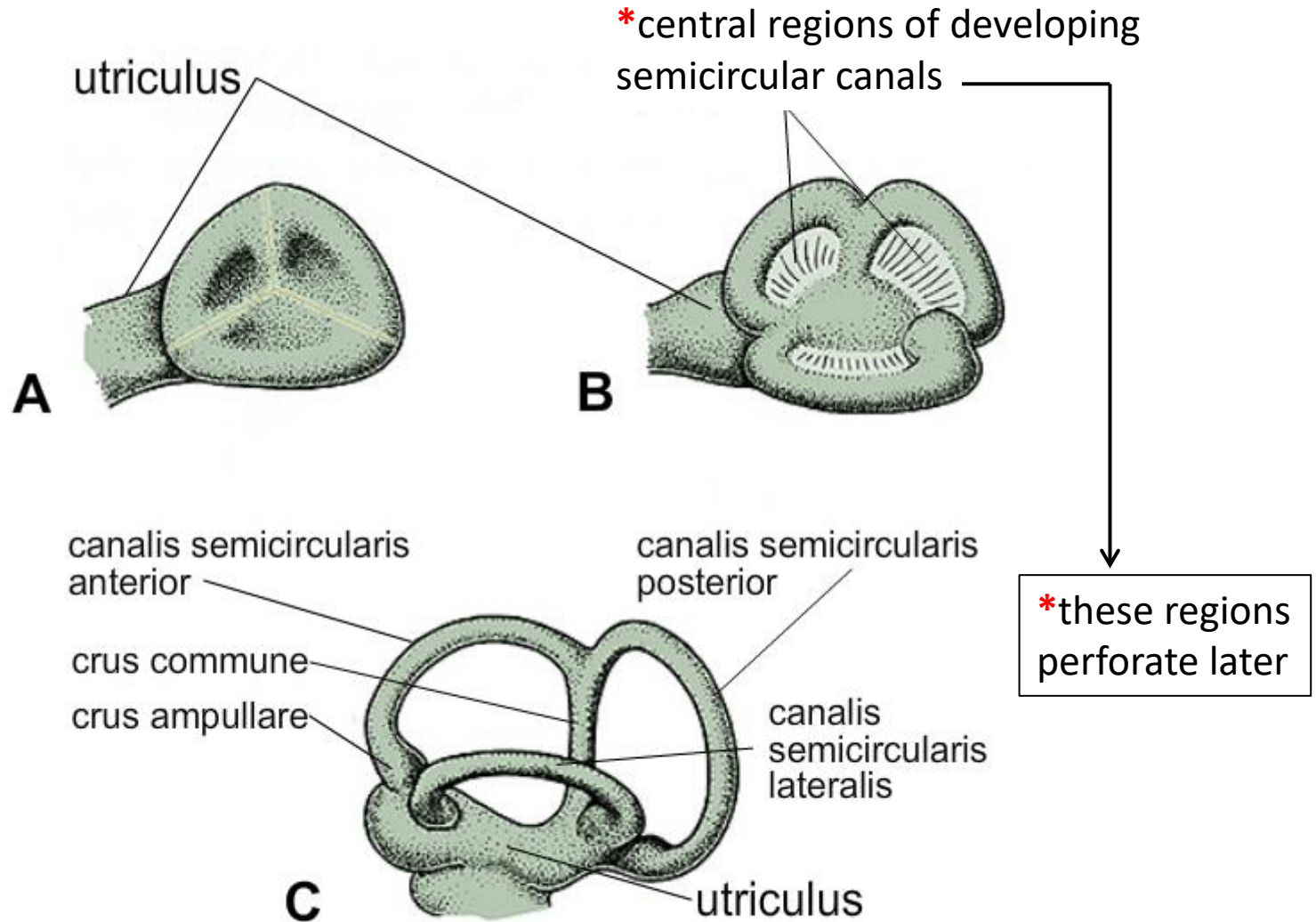
Development of inner ear



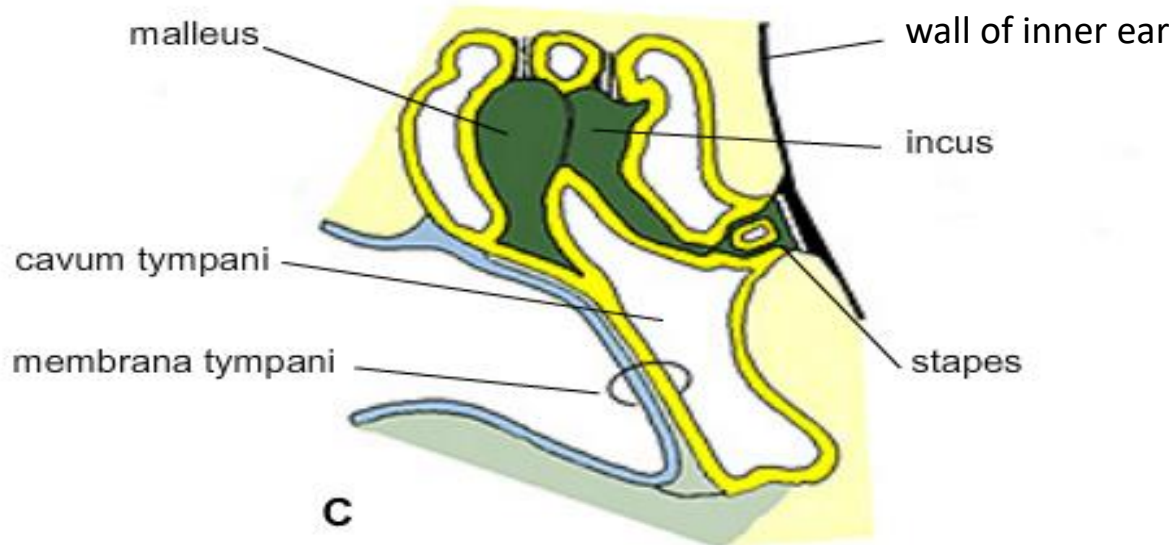
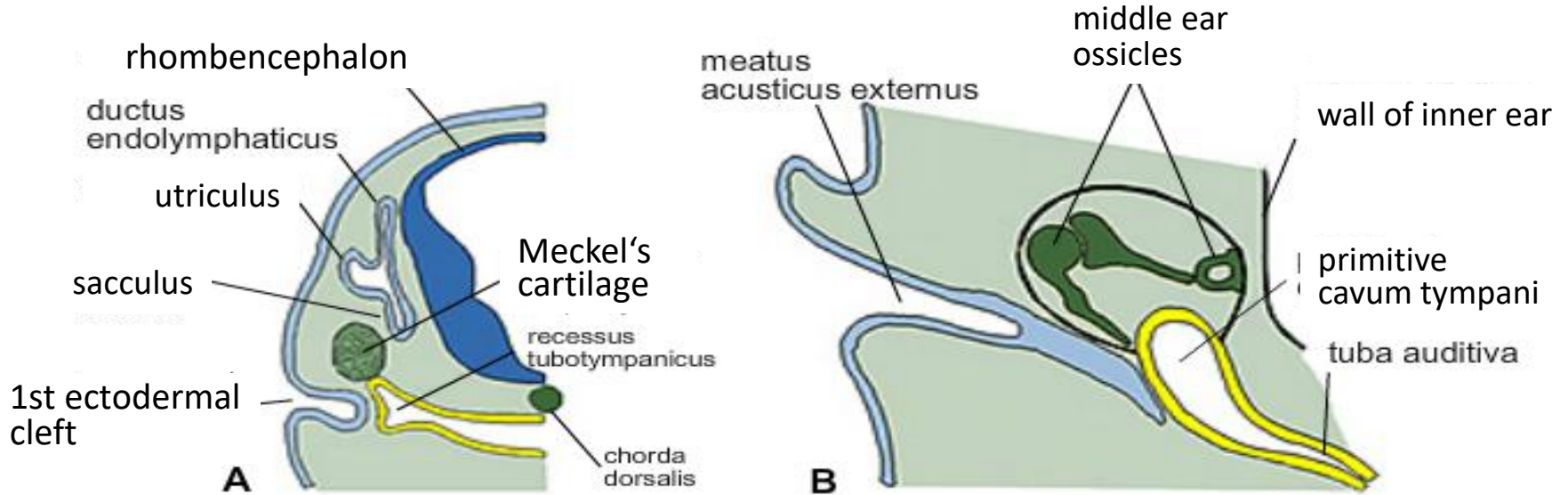
Development of membranous labyrinth



Development of semicircular canals



Development of middle ear



Development of external ear

