A novel examination of the preorbital fossae of Equidae (Perissodactyla, Mammalia)

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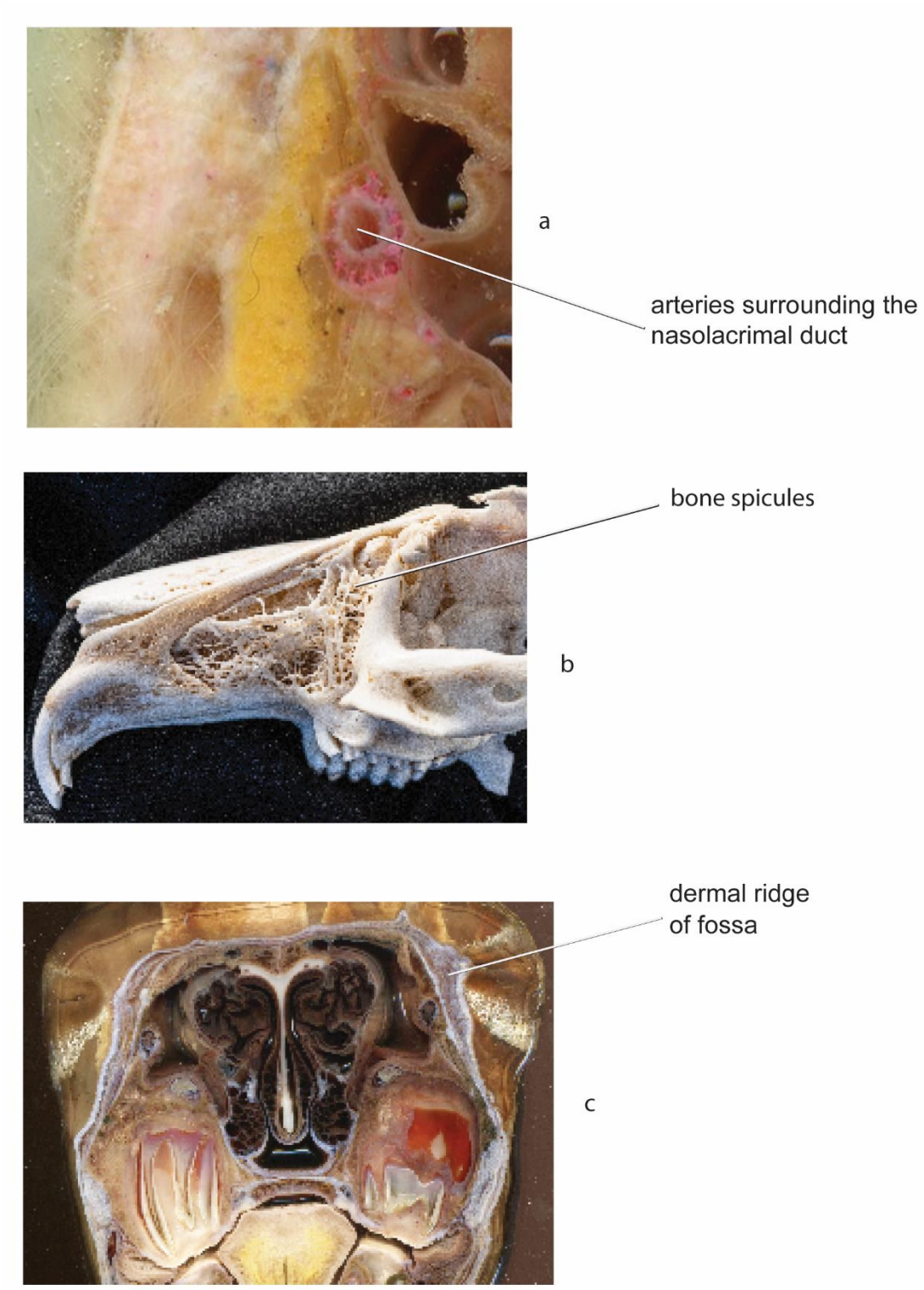

Fig. S1 - a) Section through the nasal cavity of *Silvylagus* at the fossa area. The nasolacrimal duct is surrounded by arteries. b) The POF of *Silvylagus* covered by bony spicules. c) Coronal section through a full-term fetus of *Equus* at the POF area. Dermal ridges are believed to be remnants of the POF.

Fig. S2 - Images of POF of *Equus*. The surface is covered with bony spicules. a) NS 104. b) magnification of NS 104. c) NS100.

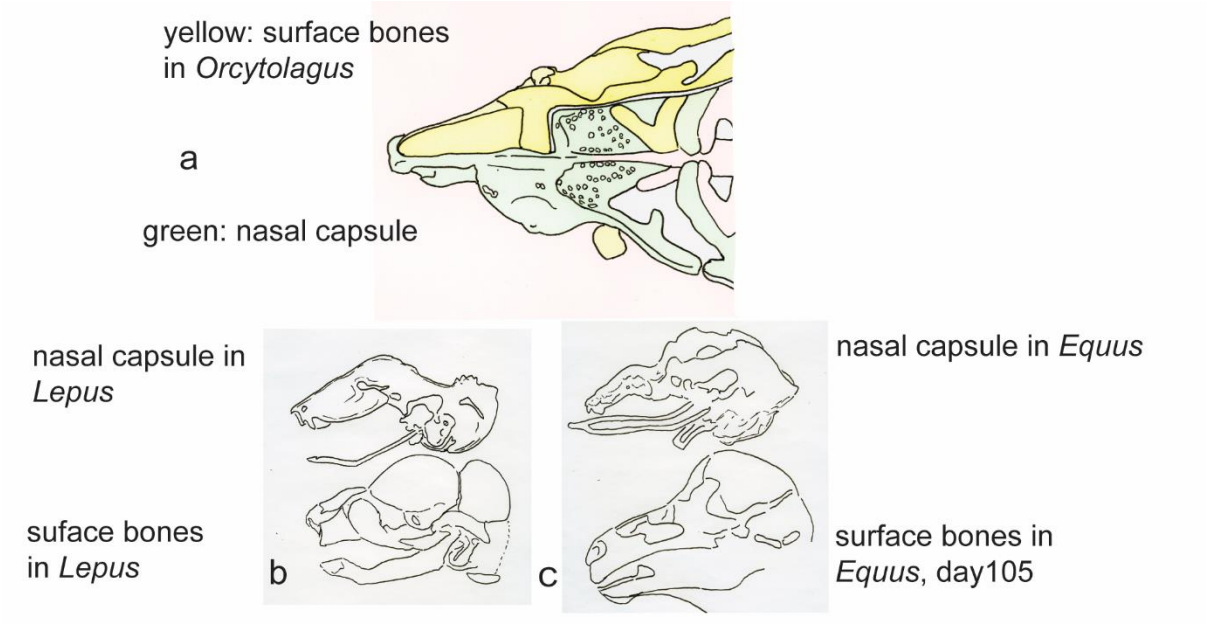

Fig. S3 - Nasal capsules. Yellow is intramembranous surface skull bones. a) *Oryctolagus* after Grassé (1967). b) *Lepus* after de Beer (1985). c) *Equus caballus* after de Beer (1985) and Barreto et al. (2016).

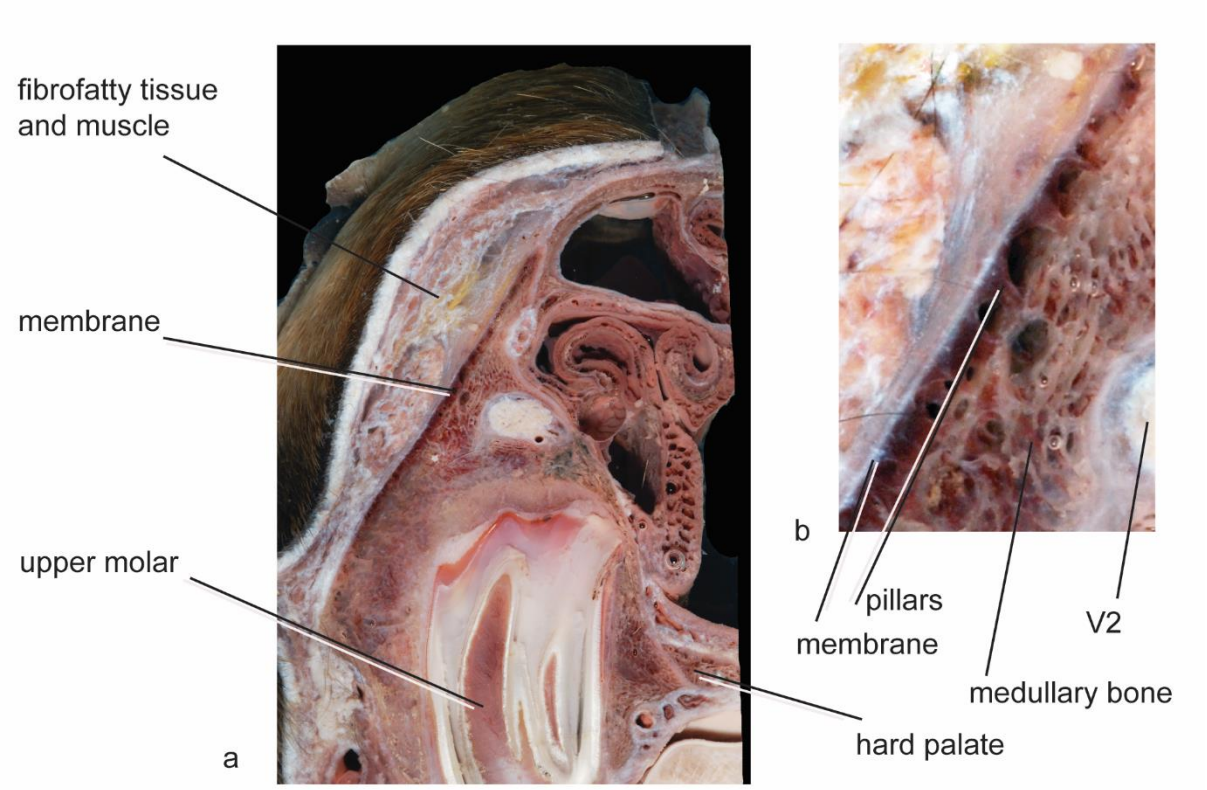

Fig. S4 - a) Cross section of a horse or donkey (NS103). Specimen showing the membrane which is taut on the surface of the POF. External to the membrane are the muscles and internal to the membrane are pillars connecting the membrane to the inner bone. After dissection, the fossa shows a red hue, indicating perfusion with blood. b) Magnification. V2 = cranial nerve V2

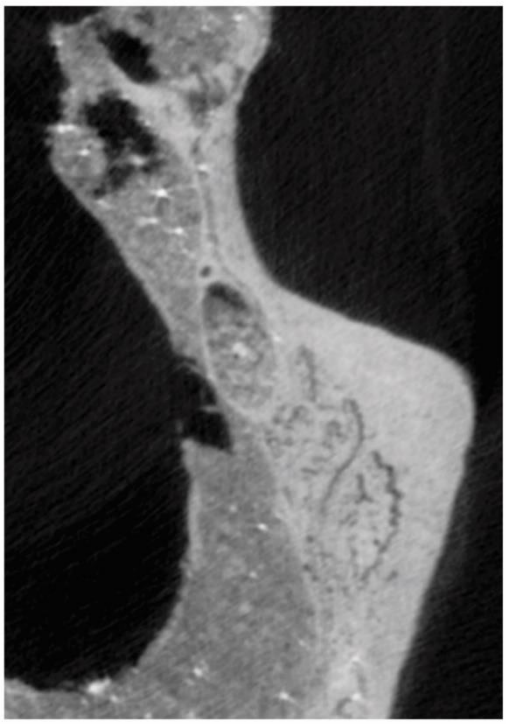

Fig. S5 - The junction of the nasolacrimal duct (top) with the POF. Two more ducts are visible ventrally. The fossa appears as a notch.

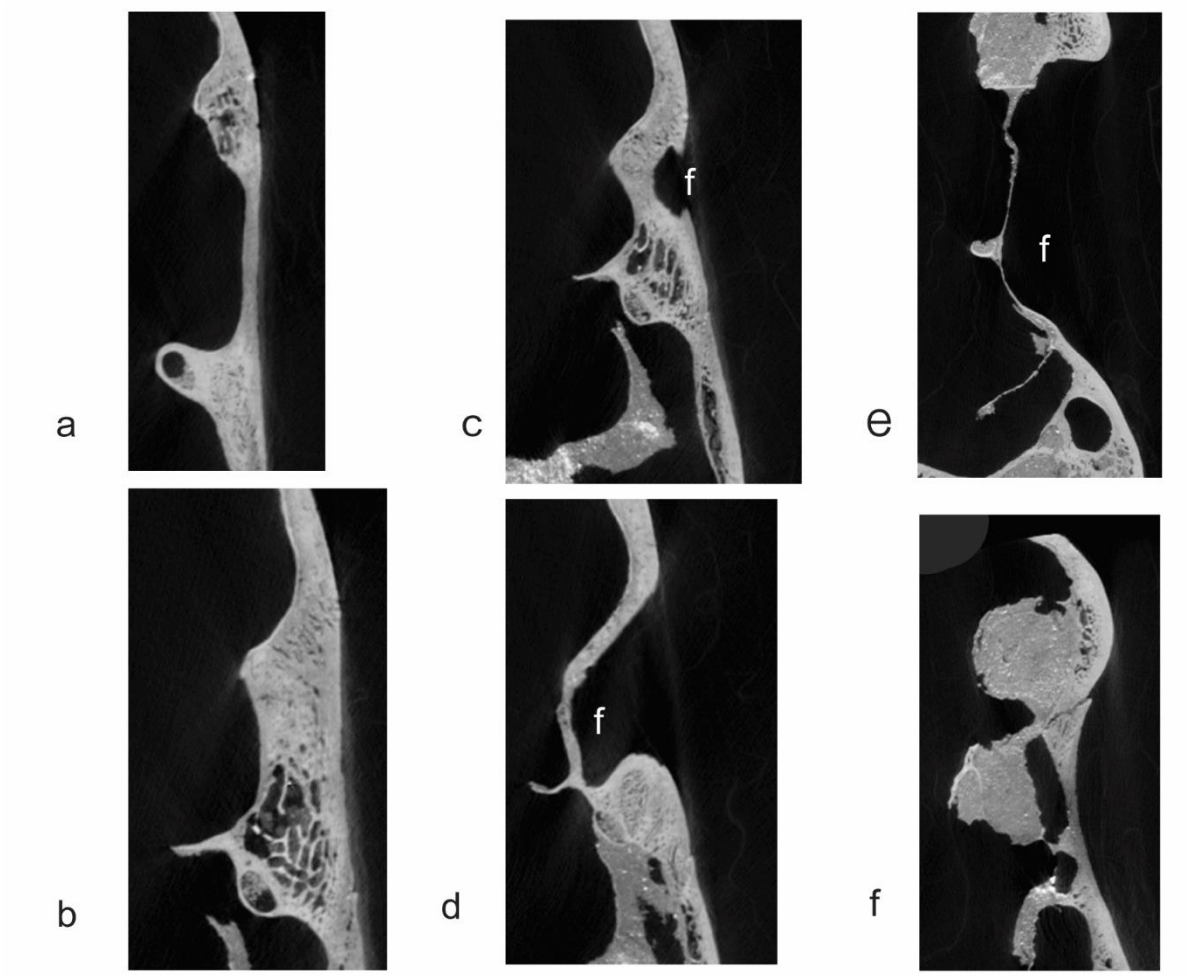

Fig. S6 - Micro-CT of *Merychippus* specimen AMNH 78002. A selected group of sections spanning the distance from the orbit to the rostrum are illustrated. a) The nasolacrimal duct and the V2 foramen with flat wall of bone expanding between the two, caudal to the fossa. The nasolacrimal duct approaching the fossa. b) Elaboration of bony trabeculae as duct is approaching the fossa. c) Deepest part (most caudal) of the POF. c) The nasolacrimal duct dissolves into the bony trabeculae of the fossa. d) The fossa enlarges and the nasolacrimal duct integrates into the bony ridge on the ventral side of the fossa. e) The bone in the fossa is extremely thin; the foramen for V2 is also visible. f) The anterior most part of the fossa where the bone starts to become thicker again.