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DATA TO THE CRANIAL AND TOOTH DEVELOPMENT OF GLIS GLIS ORIENTALIS NEHRING, 1903 (RODENTIA: GLIRIDAE)

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Thirty specimens of *Glis glis orientalis* born in captivity were used in this study. In captivity, animals were fed on hazelnuts, chestnut, apple, biscuit, acorn and sunflower seeds under uncontrolled conditions. Cranial and dentition features were examined from 45 days to 1824 days. At the age of 45 days, teeth were not worn, the cusp pattern of P^4 was not recognisable, and the cusps of M^3 and M_3 had not erupted from dentary. In 126 days old, cusp line of M^3 and M_3 reached M^2 and M_2, and the cusp of P^4 had developed. In 186 days old, tooth had started to wear.

Key words: *Glis glis orientalis*, Cranial, Teeth, Turkey

INTRODUCTION

The edible dormouse, *Glis glis* (Linneaus, 1758) is distributed in Palaearctic region (ELLERMAN & MORRISON-SCOTT 1951, CORBET 1978). This species has two subspecies; *Glis glis pindicus* in Thace and *Glis glis orientalis* in northern Anatolia. *G. g. orientalis* lives in mixed forests, and feeds on hazelnut, acorn, chestnut, apple and dark grape. ÇOLAK *et al*. (1994), KIVANÇ (1995) and YİĞİT *et al.* (2001) investigated the biology of *G. g. orientalis* in captivity. This study was aimed at determining the skull and tooth development of *G. g. orientalis* in eastern Black Sea Region.

METHODS

Thirty animals born in captivity at the beginning of August 1990, from parents captured in Çayeli (Rize) in the eastern Black Sea region, were used in this study. They were maintained in variable conditions in captivity. These animals fed on hazelnuts, chestnut, apple, biscuit, acorn and sunflower seeds during the study. When animals were three months old, they were transferred to three cages. Skull of animals that died in laboratory were removed and cleaned then individually examined and measured. Abrasion patterns and tooth development were also determined in each individual.

Table 1. Teeth wearing status in *Glis glis orientalis* based on the age

Age (days)	Sex	P^4	M^1	M^2	M^3	P_4	M_1	M_2	M_3
45	Male	–	–	–	–	–	–	–	–
50	Male	–	–	–	–	–	–	–	–
126	Male	–	+ –	+ –	+ –	–	–	–	–
220	Male	+	+	+	++	+ –	+ –	+ –	+ –
240	Male	–	+	+	++	+ –	+ –	+ –	+
495	Male	–	+	++	++	–	+	++	++
535	Male	+ –	+	+	++	+ –	+	+	++
537	Male	+ –	+	+	++	+ –	+	+	++
547	Male	+ –	+	+	++	+ –	+	+	++
547	Female	+ –	+	+	+	+ –	+	+	++
590	Male	–	+	+	++	+	+	+ –	++
620	Male	–	+	+	+	–	+	+	+
620	Male	+	+	+	+	+	+	+	++
620	?	–	+	+	++	+	+	+	++
625	?	+	++	++	++	+	++	++	++
625	?	+ –	+	+	++	+ –	+	+	+
655	Female	+	++	++	++	+	+	+	++
680	Female	+	+	+	+	+	+	+	+
700	Male	+	+	+	+	+	+	+	+
1065	Female	+	+	+	++	+	+	+	++
1108	Female	++	++		+++				
1145	Female	+	++	++	+++	+	++	++	+++
1440	Male	+	+	++	–	+	+		
1540	Female	+	+	++	+++	+	+	++	+++
1580	Male		++	++	+++	+	+	++	++
1700	Male	+	++	++	+++	+	++	++	+++
1824	Female	+	++	++	++	++	++	++	+++

RESULTS AND DISCUSSION

According to OGNEV (1948), in very old specimens, elevations may fuse to form slightly protrusive crest in interorbital region. At the age of 45 days old animals, skull is rounded. After 120 days old, skull became more angular. Two parallel crests, extending from the posterior end of nasals to the anterior end of parietals, in interorbital region were observed on the skulls of animals 240 days old.

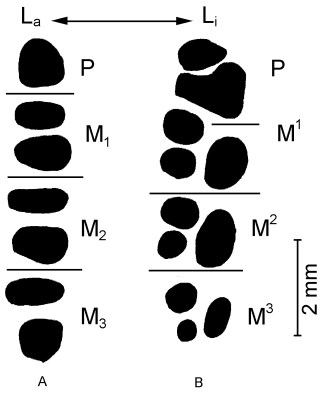

Fig. 1. Upper and lower molar alveoli in *Glis glis orientalis*

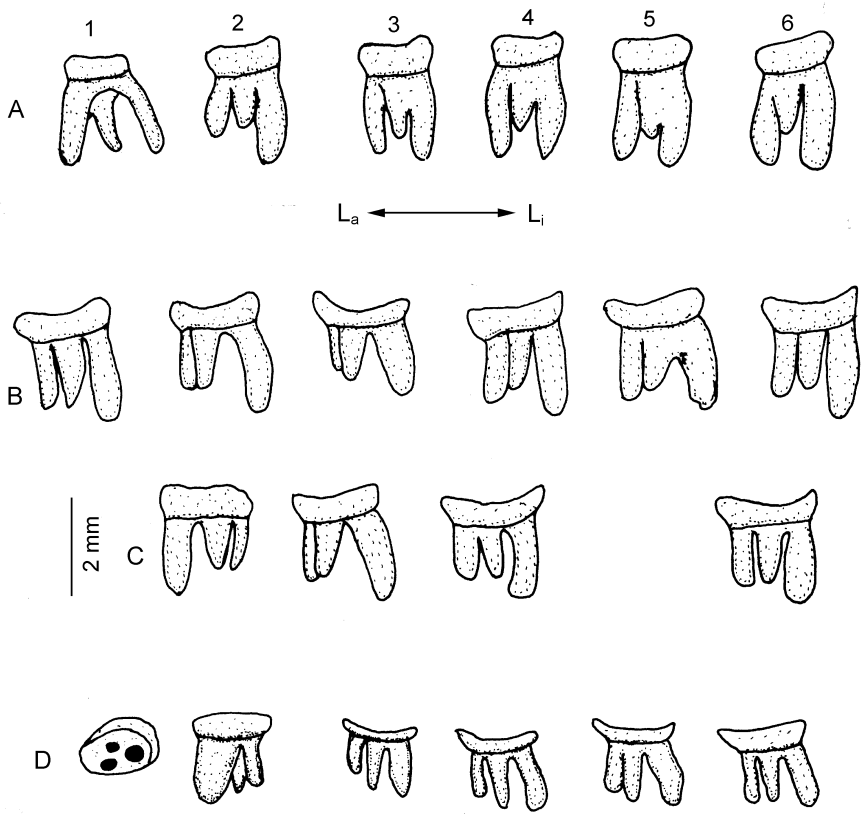

Fig. 2. P^4 (A), M^1 (B), M^2 (C) and M^3 (D) in *Glis glis orientalis*. 1(45 days old), 2 (50 days old), 3 (186 days old), 4 (535 days old), 5 (655 days old), 6 (1700 days old). La: labial, Li: lingual

Figures of the alveoli upper and lower molar tooth rows given by STORCH (1978) for *G. glis* are consistent with those in present study. There was no variation in the number of tooth roots according to age. P^4, M^1, M^2 , and M^3 each had three roots. Two parts of these roots are located on labial side, and are longer than one on

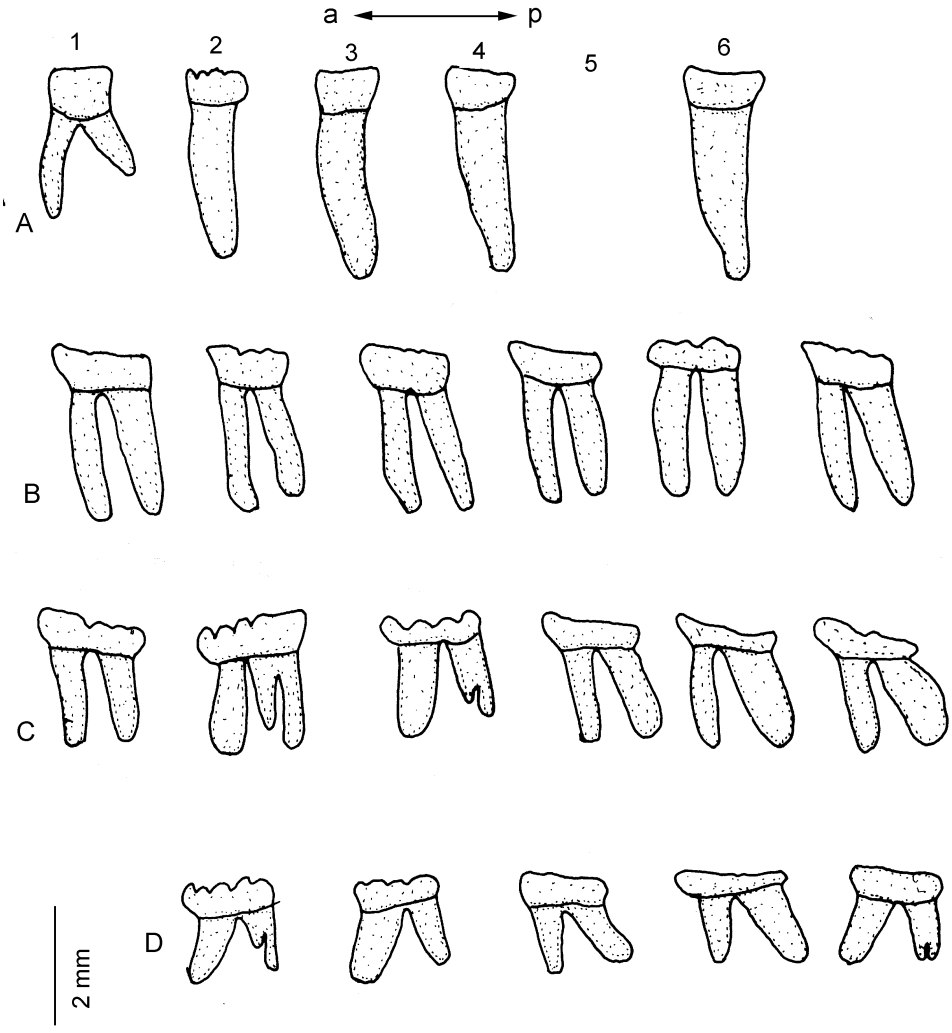

Fig. 3. Patterns of P_4 (A), M_1 (B), M_2 (C) and M_3 (D) in *Glis glis orientalis*. 1(45 days old), 2 (50 days old), 3 (186 days old), 4 (535 days old), 5 (655 days old), 6 (1700 days old). La: labial, Li: lingual

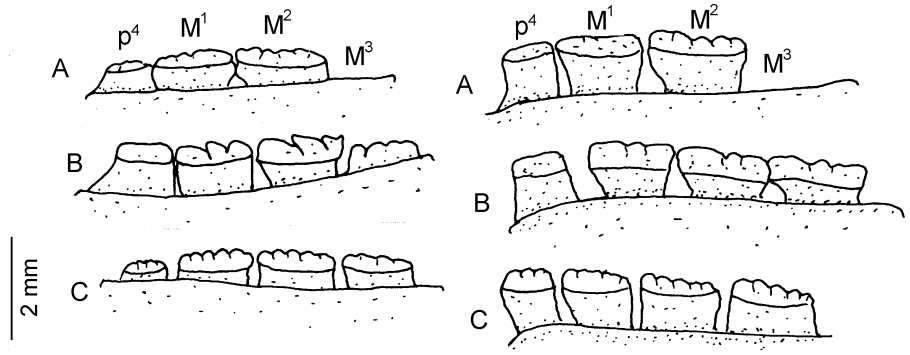

Fig. 4. Right Upper and Lower toothrow of *Glis glis orientalis* in lateral view. A (45 days old), B (50 days old), C (126 days old)

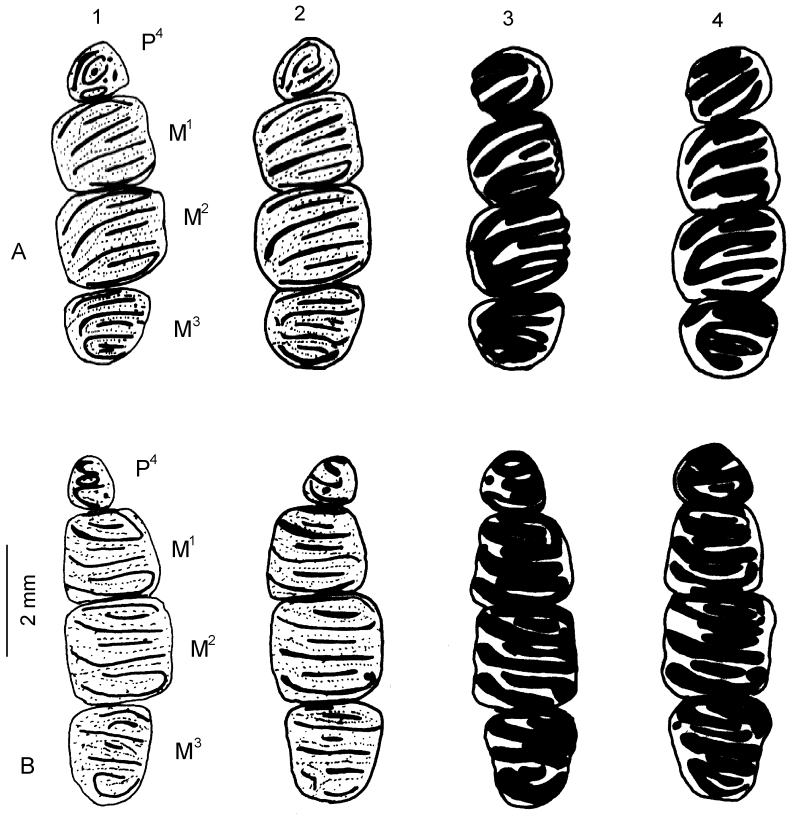

Fig. 5. Tooth wearing status of *Glis glis orientalis* in the different age groups. 1. 45 days old, 2. 126 days old, 3. Adult, 4. 1700 days old

lingual side (Figs 1 & 2). At the age of 45 days, the roots of M^3 had not developed. In some animals, three roots were the same length, in others they varied. In lower tooth row, there is no variation based on age. P_4 has one root, exception to animal of 45 days old which has P_4 with two roots. M_1 has two roots, posterior root being longer than anterior. M_2 generally has two roots. In some animals, M_2 had three roots, one of which was anterior, and two were formed by partly division of posterior roots (Figs 1 & 3). M_3 had two roots. Five animals had a partly-divided root in M_3. OGNEV (1948) found that the lower incisors were already erupted in the naked and blind newborn pups. We examined teeth of the naked and blind young, and found the lower incisors in these animals were erupting. These findings are consistent with OGNEV (1948), who reported that the third molars have erupted by about the sixtieth day. We examined tooth patterns of *G. glis orientalis* after 45 days old, and determined that M^3 and M_3 had not erupted from dentary, but at 50 days old, M^3 and M_3 are somewhat lower than the other molars. In animals of 70 days old, M^3 and M_3 had attained the same cusp level as the other molars (Fig. 4). Abrasion was first observed on M^3 and M_3 about 70 days old. In non-hibernating animals of 126 days old, lower and upper molars had started to wear (Table 1). After hibernation, we examined teeth of a hibernating animal that died in its second year, on 14 December, and observed abrasion. We determined that abrasion was different in young of same age group, even if they were fed on same food material (Fig. 5).

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