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ANOMALIES OF THE TEETH AND ASYMMETRY OF THE SKULL  
IN *ERINACEUS EUROPAEUS* LINNAEUS, 1758

ANOMALIE ZĘBÓW I ASYMETRIE CZASZKI U *ERINACEUS EUROPAEUS*  
LINNAEUS, 1758

A total of 26 cases of anomalies were described in *E. europaeus*. Asymmetry of the skull (5 cases), supernumerary teeth (10 cases), fused teeth (2 cases), and retention of teeth (9 cases) were observed. It seems that anomalies are fairly frequently encountered in the hedgehog (12.8% of all individuals examined).

The phenomenon of anomaly is in every instance remarkable. Such phenomena are most often encountered during preparation or work on scientific material. The kinds of anomaly of the skull can be divided into the following groups, depending on the place in which they occur:

1. Anomalies of the cranium
  - 1.1. Curvatures, bony growths
2. Anomalies of the viscerocranium (*intermaxillare*, *maxilla*, *mandibula*)
  - 2.1. Supernumerary teeth
  - 2.2. Fused teeth
  - 2.3. Retention of teeth.

Anomalies of the teeth in *Erinaceidae* have frequently been described. E h i k, (1928) describes a case of the occurrence of a supernumerary molar in *Erinaceus europaeus roumanicus* Barret-Hamilton, 1900. Brockie (1964) found cases in *E. europaeus* from Great Britain and New Zealand of retention of teeth, abnormal growth of teeth and supernumerary teeth. He considers teeth  $I_2$  and  $Pm^2$  as subject to the greatest variation and explains the genesis of deviations in the cases described by insular isolation.

A total of 26 cases of anomalies were encountered (12.8%) in the collections of hedgehog skulls in the Institute of Zoology, Polish Academy of Sciences in Warsaw, the British Museum in London, the Institute of Zoology of the Soviet Academy of Sciences in Leningrad, the Zoological Museum of the Humboldt University in Berlin, and the Zoological Museum of the Lomonosov State University in Moscow ( $n = 202$  specimens). A larger series of skulls, composed of 36 specimens, came from Mokuszyn (Byelorussia) where they were collected from 1936—1938 by Professor August D e h n e l. Twenty one of the cases were those of anomalies of the teeth, and the remaining five deformation of the skull (Table 1). A short description of these cases is given below.

1.1. A s y m m e t r y o f t h e s k u l l. Twisting of skulls in the sagittal plane was observed in 5 specimens (2.5%). Three skulls of hedgehogs came from the Soviet Union, and two from Poland. An extreme case is that of a skull from the Wrocław district (coll. no. 15/989), strongly twisted to the left in the sagittal plane (Fig. 1). The curvature includes the frontal bone, both parietals and the sphenoid and occipital bones. The right occipital condyle is markedly longer than the left. The length of

*fossa temporalis* is distinctly different (right — 29.5 mm, left — 27.0 mm). *For. occipitale magnum* is shifted to the left.

2.1. Supernumerary teeth occurred in a total of 10 cases in respect of the following teeth:  $I^1$ ,  $I^2$ ,  $I_1$ ,  $I_2$ ,  $Pm^1$  and  $Pm_2$  (4.9%). Additional incisors were found in two specimens from the Soviet Union, one from

**Table 1.**

Occurrence of different anomalies in the skull of *E. europaeus*.

Locality	Germany	Great Britain	Poland	Switzerland	U. S. S. R.	Europe*)	Total	%
n	31	15	13	3	119	21	202	100
Asymmetry of the skull	—	—	2	—	3	—	5	2.5
Supernumerary teeth	2	—	—	1	7	—	10	4.9
Fused teeth	—	—	—	—	2	—	2	1.0
Retention of teeth	1	5	—	1	1	1	9	4.4
Total	3	5	2	2	13	1	26	12.8

\* — remaining European countries

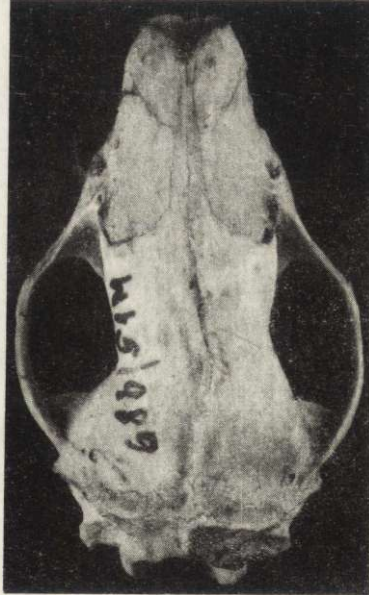


Fig. 1. Lateral twisting of the skull of a hedgehog (coll. no. 15/989).

Switzerland and one from Germany. Supernumerary teeth  $Pm^1$  were found in five specimens from the Soviet Union, and an additional tooth  $Pm_2$  in a specimen from Germany.

2.2. Fused teeth were found in two specimens (1.0%) from the Soviet Union. Both cases were those of bicuspid teeth Pm<sup>1</sup>. These teeth had the following number of cones: paraconus — 1, protoconus — 2, metaconus — 1. The protoconi are uniformly prominent and below the neck of the tooth there is a distinct groove indicating the place in which the two teeth had coalesced (Fig. 2).

2.3. Retention of teeth. Retention was found in 9 specimens (4.4%) in respect of the following teeth: I<sub>2</sub>, Pm<sup>1</sup>, and M<sup>3</sup>. Retention of incisors was found in 4 specimens from Great Britain. The absence of teeth Pm<sup>1</sup> occurred in four specimens from Germany, Switzerland, the Soviet Union and an unnamed European state. Retention of tooth M<sup>3</sup> was found in a specimen from Great Britain.

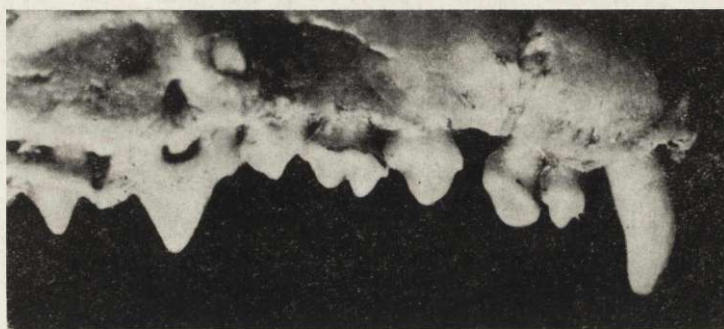


Fig. 2. Fused tooth Pm<sup>1</sup> of a hedgehog (coll. no. 29/1564).

The cases described above show that anomalies are fairly frequently encountered in the hedgehog and take various forms. Pucek, (1962) states, for instance, that in this same series of skulls of *E. europaeus* from Poland and Byelorussia, *ossicula wormiana* occurred in 58.0% of the specimens.

I am inclined to think that the causes of formation of cranial asymmetry in the hedgehog lie in the different degree to which the muscles included in the maxillar apparatus are developed, which in turn causes antagonism between left and right side and *vice versa*. In addition it is possible that *musculus orbicularis*, which has its insertions in the frontal and nasal bones, may play a certain role here.

Cases of supernumerary teeth, or either fused or retained teeth, most certainly have their foundations in embryonic development, and may also be due to disturbances in the course taken by changes in different generations of teeth.

#### REFERENCES

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