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ANOMALIES OF A MEDIEVAL SCAPHOCEPHALIC SKULL

A skeleton of about 45 years old female with abnormally lengthened and slightly asymmetric skull has been excavated in 1967 at Czarna Wielka (district Grodzisk) on a cemetery dated at 11th - 13th centuries A.D. In *norma verticalis* the skull resembles a narrow ellipse. Sagittal suture, in contrast to other sutures, is completely obliterated. *Os bregmaticum* is present in the coronal suture (fig. 1). In *norma frontalis* skull vault has a keel-shaped elevation. Canine fossae (suborbital fosse) are of medium depth (fig. 2). In *norma lateralis* high, rounded, frontally protruding forehead, backwardly protruding, elongated occiput, very steeply inclined from the *Bregma* point outline of the vault and well marked flattening of the base are noticeable (fig. 3). In *norma occipitalis* the skull is almost circular, though keel-shaped outline of parietal bones is clearly marked (lambdoid suture is open and full of Wormian bones) — fig. 4. In *norma basilaris* asymmetry is most conspicuous — right side of the skull is shorter than the left one. This is well reflected in the asymmetry of the *foramen magnum* (fig. 5).

Due to premature obliteration of the sagittal suture considerable changes occurred endocranially (fig. 6). The cribriform lamina is strongly repressed, optic canal flattened (fig. 6a), digital impressions and sulci of sinuses enlarged while minor wings of the sphenoid bone are placed obliquely (at an angle of about 130°). Of particular interest are following numerous anomalies: almost complete lack of foramina in the posterior part of cribriform lamina (fig. 6b), osseous bridges connecting clinoid processes (fig. 6c), accessory foramina penetrating from the *sella turcica* to the nasal cavity (*canalis craniopharyngeus*, *sphenopharyngeus*, fig. 6) and accessory processes on the *dorsum sellae* and on the anterior margin of the *foramen magnum*. X-ray examination showed total aplasia of frontal sinuses. Furthermore, on the left humerus a supracondylar process is present (fig. 7). Occurrence of this process is rare (1 - 2.5%).

Anthropometric measurements (taken according to Martin's technique) and indices, as well as above mentioned traits are typical for a cranial deformation called scaphocephaly.

There are only a few publications referring to scaphocephalic skulls excavated at earlier cemeteries [Backmann 1908, Bennett 1967,

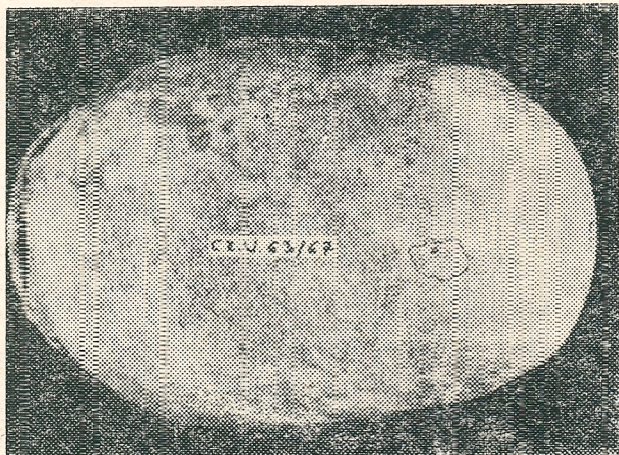


Fig. 1. *Norma verticalis*, with *os bregmaticum*



Fig. 2. *Norma frontalis*

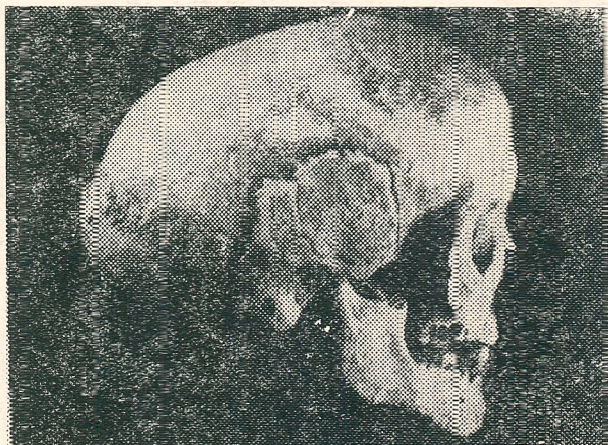


Fig. 3. *Norma lateralis*

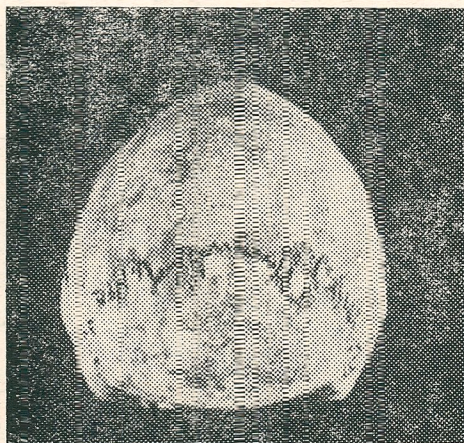


Fig. 4. *Norma occipitalis*

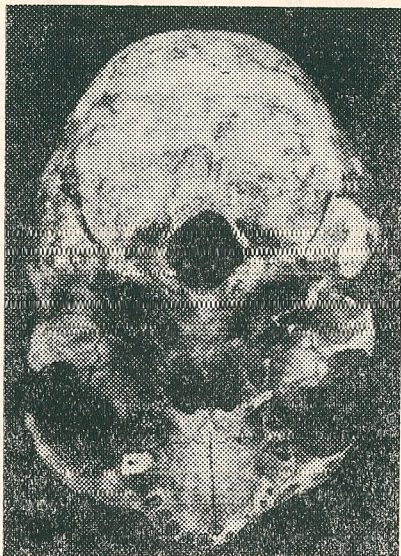


Fig. 5. *Norma basilaris*

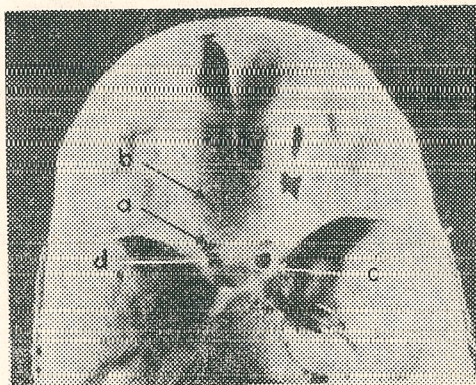


Fig. 6. The anterior and medial cranial fossa

a — flattened optic canal, *b* — no olfactory foramina, *c* — connection between the clinoid processes, *d* — additional foramina penetrating from sella turcica to the nasal cavity

Comas 1965, Eisely and Asling 1944, Hodačova 1972, Honenthal and Brooks 1960, Kunter 1971, Müller 1976a, 1976b, Szombaty 1934]. From the quoted literature it results that scaphocephalic specimens were observed in all races. This deformation was relatively frequently observed in America and Finland. In materials excavated in Europe (with exception for Finland — Backmann [1908]) scaphocephaly is, as for now, still a great rarity.

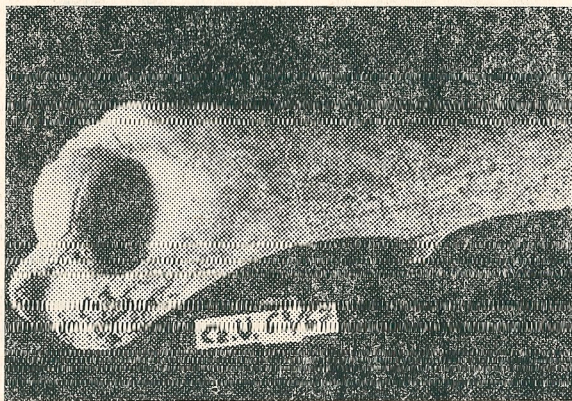


Fig. 7. Supracondylar process of the left humerus

Table 1. Measurements and indices

<i>g-op</i>	(1)*	195	<i>fmt</i>	(43)	107
<i>g-i</i>	(2)	176	<i>ek-ek</i>	(44)	98!
<i>n-i</i>	(2a)	177	<i>zy-zy</i>	(45)	129!
<i>g-l</i>	(3)	187	<i>zm-zm</i>	(46)	93!
<i>n-l</i>	(3a)	186	<i>n-gn</i>	(47)	109
<i>n-ba</i>	(5)	100	<i>n-pr</i>	(48)	62
<i>ba-o</i>	(7)	33	<i>la-la</i>	(49)	24
<i>eu-eu</i>	(8)	126	<i>mf-mf</i>	(50)	26
<i>ft-ft</i>	(9)	102	<i>mf-ek l.</i>	(51)	41
<i>co-co</i>	(10)	110	<i>orbit. high</i>	(52)	34
<i>au-au</i>	(11)	119	<i>ap. pirif.</i>	(54)	24!
<i>ast-ast</i>	(12)	107	<i>n-ns</i>	(55)	50
<i>ms-ms</i>	(13)	97	<i>nasal bone</i>	(57 ₁)	20
<i>f. mag</i>	(16)	26	<i>pr-alv</i>	(60)	46
<i>ba-b</i>	(17)	125	<i>ol-sta</i>	(62)	42
<i>po-b</i>	(20)	100	<i>enm-enm</i>	(63)	35!
<i>circumf.</i>	(23)	530	<i>ekm-ekm</i>	(64)	57!
<i>po~b~po</i>	(24)	286	<i>kdl-kdl</i>	(65)	117
<i>n~o</i>	(25)	393	<i>go-go</i>	(66)	101!
<i>n~b</i>	(26)	137	<i>id-gn</i>	(69)	27
<i>b~l</i>	(27)	145	<i>mand.</i>	(70)	52!
<i>l~o</i>	(28)	117	<i>mand.</i>	(71)	31
<i>l~i</i>	(28 ₁)	65	<i>b-i</i>	—	165
<i>n-b</i>	(29)	112	<i>i-o</i>	—	49
<i>b-l</i>	(30)	137	<i>l-ba</i>	—	111
<i>l-o</i>	(31)	88	<i>g~op</i>	—	275
<i>l-i</i>	(31 ₁)	60			
$\angle n-b$	(32 ₁)	46°	1. ultradolichokran		64,6
<i>volume</i>	(38)	1994,1 cm ³	2. chamaekran		64,1
<i>cr+mand.</i>	(39)	655,5 g	3. akrokran		99,2
<i>mand.</i>	(39 ₁)	90,0 g	4. ortometop		81,6
<i>pr-ba</i>	(40)	89	5. ultrahypermeg.		80,9
<i>gn-ba</i>	(42)	100	6. euryprosop		84,5
			7. euryen		48,1
			8. hypsikonch		82
			9. mesorrhin		48

* Measurement after Martin.

! Measurement is \pm

It is very difficult to unravel a cause for the type of skull deformation dealt with here. This difficulty reflects itself in a numerical abundance of hypotheses on genesis of the anomaly [Aubin 1967, Dzierżyński 1932, Imieliński et al. 1972, Kukulska 1964, Martin and Saller 1959, Virchow 1852 (and the authors quoted above)]. A suggestion by the 19th century authors [Backmann 1908] as to the causation of craniostenoses by inflammatory processes has been later supported to a large extent by clinical observations. However, there is no doubt that other factors are also contributing to craniostenosis. They may be, for instance, hormonal disturbances [Monie, after

Hohenthal and Brooks 1960] or genetic determination, since there is familial correlation in occurrence of craniostenoses. The case dealt with here seems to be caused by genetic disorders. A large number of abnormally formed anatomical details suggests occurrence of a heritable predisposition for deviations from a norm. Possibly, genetic disorders are typical for the whole of population from Czarna Wielka, since in a hitherto collected material comprising some 300 skeletons anomalies due to genetic deviations are relatively common. A detailed description of the skull dealt with here will be published in „Materiały i Prace Antropologiczne” in 1981.

translated by M. Henneberg

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ANOMALIE I SCIEŚNIENIE CZASZKI KOBIETY ZE ŚREDNIOWIECZA

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Autorka opisuje przypadek skafocefalii stwierdzony w materiale kostnym pochodzącym z omentarzyska w Czarnej Wielkiej, gm. Grodzisk (XI-XIII w.). Patologicznie zmieniona czaszka należała do kobiety w wieku około 45 lat. Poza opisem anomalii anatomicznych i podaniem informacji antropometrycznych autorka krótko omawia prawdopodobne przyczyny wystąpienia skafocefalii sugerując iż może mieć ona tło dziedziczne.