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SYMPOSIUM

Paleopathological research in Hungary

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ABSTRACT In Hungary, the study of pathological alterations on skeletal remains of various archaeological ages can be traced back to almost a century. The very first period is from the beginnings to the 1960s. In this phase, pathological characteristics and series were described from pathological aspects. Later, description was supported by analysing activities as well, then systematisation was performed and paleo-epidemiological research started. From the 90s, studies became more and more interdisciplinary and this tendency has been going on up to this moment.
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In Hungary, the study of pathological alterations on skeletal remains of various archaeological ages can be traced back to almost a century. From that time up to present years, the scope of paleopathology became manifold. To give a better overview, it is reasonable to manage the topic in sections: one bigger section for the beginnings, then sections according to decades of the 20th Century. Of course, the presentation of results cannot be complete.

From the beginnings to 1960

The very first period spans from the beginnings to 1960 when certain pathological alterations, then series were described for the first time.

This research – although not yet part of genuine pathology – begun with the study of artificially deformed (macrocephal) skulls by doctors József Lenhossék (1878) and Aurél Török (1884, 1907). Later on, Lenhossék (1886) also studied other skull types – scaphocephal, narrow, hyperlow – found in the region of Szeged - Öthalom and Ó-Szőny. Deformed skulls were systematically analysed by Bartucz (1936). He found artificial deformation on 21 skeletons excavated from a Gepidian cemetery near to Kiszombor. Nemeskéri described deformations of a Hun skull in 1944/45, whereas Regöly-Mérei analysed a Goth macrocephal skull from Domolospuszta from a pathological aspect and identified differences of naturally and artificially deformed skulls, in 1959. (From the 60s up to this moment, there are quite a few studies on deformed skulls, however, we do not mention more of them in this article.)

Similar to artificially deformed skulls, symbolic trephinations do not belong to the field of paleopathology either. However, if we consider trephination a phenomenon caused by traumatic effect and think about it as a type of surgery, we must mention that at this place. The first person to describe trephinations was Bartucz (1950) who wrote about the connection between trephination and bregma wounds in his report. In his work Anda (1951), deals with different trepans, surgery trephinations and symbolic trephinations from the Conquering period. Nemeskéri and colleagues also analysed this phenomenon in 1960. (From the 60s up to this moment, there are quite a few studies both on symbolic and surgery trephinations, however, we do not mention more of them in this article.)

The physician Béla Entz was the first who examined real pathologic cases. Between 1939 and 1957 he intensively performed sawing and X-ray paleopathological research on the majority of the anthropological material of the County of Baranya, from the Avar and Árpád periods. After 1957, this activity was continued by physician Gyula Regöly-Mérei with material from the Aeneolithic and Roman period. As a result, he significantly enriched the database of pathological cases (Tóth 1961).

A detailed pathological examination (description, analysis) of skeleton series dated to various archaeological periods occurred at the end of the 50s, for instance the Roman period (Gáspárdy 1956), the 9th-10th, 10th-11th and 11th-12th centuries (Nemeskéri and Harsányi 1959), the Copper age (Gáspárdy and Nemeskéri 1960), Aneolithic period (Regöly-Mérei 1960). Osteological symptoms of joint diseases were also published (Gáspárdy 1959). In addition to the analysis of pathological alterations of the bones, Regöly-Mérei and Nemeskéri extended the research onto mummies from the ancient Egypt (1958, 1959). Nemeskéri and Deák (1956) gave a diagnosis of pathological cases when analysing the population of Mohács-Csele from the 14th-15th century.

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1960-1970

From the 60s, the description and analysis of paleopathological findings of different series continued as earlier. Bones from the 11th century (Nemeskéri et al. 1961), the 12th century (Regöly-Mérei 1968a) and the 10th-13th century (Bugyi 1962), the population of the early Árpád period (Nemeskéri et al. 1966), were researched, but bones from Mongolia before Christ were also described (Regöly-Mérei 1967). In his detailed anthropologic research of 1963, Dezső et al. presented pathologic alterations as well.

The research of the origins of a very characteristic disease, the syphilis, was started in this decade (Regöly-Mérei 1962a). In this context, a comparative and patogenetic (hyperostosis) research was performed (Grynaeus 1965). Decalcified segments of pathologic bones were analysed (Regöly-Mérei 1964) and the skeleton of King Béla III and Queen Anna was pathologically examined (Regöly-Mérei 1968b).

Summaries and synthesising works were also published Regöly-Mérei (1962b), who classified diseases and portrayed the spread of these nosologic units (different disease groups) in time and space. A couple of years later, a larger systematising book was published (Bartucz 1966) providing detailed information about various pathologic cases of different archaeological periods and findings of medical history.

1970-1980

The research of pathologic cases intensified, partly in the field of general anthropologic analysis of series or pathologic examination, partly through the publication of interesting/significant cases. It is supported by etiologic, microscopic and X-ray examinations as well.

As a result, pathologic cases described by Regöly-Mérei (1970a) on the Roman period, Varga and Marcsik (1975) and Farkas and Marcsik (1979) on Avar skeletons. Parallel to that pathological research was done on burned bones (Nemeskéri and Lengyel 1973). Within the global anthropologic study of series, Éry (1971, 1979/80) and Kissné Korompai (1973-1974) performed pathological analysis, whereas Marcsik (1976) gave a complete anthropological and pathological description of findings from the Conquering period.

Regöly-Mérei completed the pathologic reconstruction of the diseases of Semmelweis in 1970 (1970b).

Among individual cases we can mention works as follows: a skeleton with achondroplasia from the Middle Ages (Farkas and Lengyel 1971), a generalised tuberculosis case (Marcsik 1972), the frequency of spondylolysis (Éry 1974), a possible aetiology of cribra orbitalia (cribra cranii) and the histological analysis of this alteration (Marcsik 1975; Marcsik and Kósa 1976), a detailed description of deformation observed on vertebrae (Farkas et al. 1976), a set of irregularities found on a skull from the Avar period (Kocsis and Marcsik 1979), the frequency of the Stafne defect (Finnegan and Marcsik 1980).

The research of syphilis also continued, extended to its so called "shift of panorama" (Regöly-Mérei 1972).

Among systematic works, the dissertation of Farkas (1975) should be mentioned. In his work, Farkas analysed paleopathological cases of the periods discussed and gave a general analysis on them, together with the anthropologic research of Neolithic material from the Great Hungarian Plain.

The pathological alterations are discussed in the study book of Lipták (1971) and in the notes of Farkas (Marcsik and Lengyel 1972). Both sources are part of the material of university courses.

1980-1990

This decade can be characterised rather by a wide range of analysis of pathological cases from etiologic and X-ray research aspects to complex or pathological description of series. Special emphasis was put on problems of differential diagnosis.

As a result, various traumatological cases (Marcsik and Kósa 1982; Pap 1984), periostitis (Marcsik et al. 1982), cribra orbitalia and cranii (poroticus hyperostosis) were researched where Marcsik and colleagues studied the connection in the severeness of the cases analysed by the electronic microscope in 1984, whereas Pálfi described a malignus tumour in 1989, Ferencz and Józsa described a very rare congenital syphilis and Éry wrote about the frequency of canalis intraclavicularis in 1990.

Józsa and Pap (1989) and Fóthi and Pap (1990) collected data on the indicators of stress in the population living in the 9th-10th and 6th-12th century, respectively. Pap and Józsa reported about disorders of hair development from the late Middle Ages (1989, 1990b). Józsa and Pap (1990a) examined alterations of otitis media, mastoidis and the bones of the middle ear.

In 1982, K. Zoffmann described cases of injury found during the anthropological analysis of a mass grave where the dead of the battle of Mohács in 1526 were buried. In 1987, Farkas and Marcsik characterized pathological cases of skeletons from the late Neolithic period found in South-Hungary (Gorzsa, Deszk).

Marcsik analysed the pathological status of the Avar population living in the Duna-Tisza Interfluvial in his dissertation of 1984.

1990 to present

After 1990, a significant dynamism can be observed in the field of paleopathological research. Parallel to that phenomenon, research became interdisciplinary. This yielded mostly in the field of paleo-epidemiological research, the DNA

detection of the *Mycobacterium tuberculosis, -leprae*, the examination of mummies, the analysis of entesopathia and osteoporosis as well the description of stress indicators. Of course, paleopathological work and the analysis of pathological phenomena on different series went on, and several summarising reports were also completed.

Avar spondyloarthopathia (Pálfi 1990), a severe osteomyelitis syndrome (Marcsik and Oláh 1991) and signs left by leper on bones (Pálfi 1991) were analysed, whereas Józsa and Pap (1990, 1991ab) examined morphological characteristics of iron deficient anaemia on bones, Pálfi et al. (1997) dealt with a possible treponematosis from the 17th century (Pálfi et al. 1992) and a joint tuberculosis on the lumbosacral region and the hip joints (Pálfi et al. 1992).

Marcsik et al. (1999) described assumed paraplegial consequences of a severe tuberculosis on vertebrae. Józsa et al. (1992b) reported on the frequency of spina bifida occulta, and about osteoporosis in the 10th-12th century (Józsa and Pap 1996bc; Józsa et al. 1997), whereas Józsa described its antiquity in 1997.

Marcsik and Szalai (1992) gave a general description of pathological alterations found on the anthropological material of the grave of an Avar sovereign (Kunbábony). Kustár and Pap wrote about the pathological analysis of the anthropological material excavated at a Neolithic site (1994).

The global research of human remains excavated at Békéscsaba, Szegvár, Karos, Ópusztaszer – of different periods – includes the analysis and comparison of pathological cases (Farkas et al. 1991, 1994; Kustár 1996; Marcsik 1999).

Among summarising works we would like to mention the general paleopathological examination of a series from the 10th century found at Sárrétudvar (Pálfi et al. 1996) that was the subject of a PhD dissertation on the comparison of that material with a French Gallic-Roman series. This dissertation was also published (Pálfi 1997). Molnár et al. (1996) gave a detailed pathological analysis on the series found at Szatymaz-Vasútállomás from the 10th-12th century.

In 1994/95, naturally mummified individuals were found in the church of Vác. Pap et al. elaborated on that topic in 1997 (Pap et al. 1997; Szikossy et al. 1997).

Within the scope of paleo-epidemiological research, skeletal tuberculosis (Marcsik and Pálfi 1993; Pálfi and Marcsik 1999), syphilis (Pálfi 1992; Marcsik 1994) and manifestations of leper on bones and related medical history (Pálfi et al. 1999) were described.

Mycobacterium tuberculosis, -leprae by DNA detection has also been studied in international cooperation on the example of Hungarian anthropological material (*Mycobacterium tuberculosis*: Haas et al. 1999). Pálfi et al. (1999) reported on the joint occurrence of tuberculosis and ankylosing spondylitis, while Pap et al. (1999) identified tuberculosis found on the mummies of Vác through DNA analysis. Spiegelman et al. (1999) performed DNA analysis of *Mycobacterium leprae* on a specimen from the 10th century.

The determination of dominant activity types (traces of chronic overstrain on skeletons) stands in the intersection of physical anthropology and paleopathology. Józsa et al. (1992a), Józsa and Pap (1996a) and Pálfi and Dutour (1996) collected data on activity-induced bone alterations in case of Hungarian population from the Conquering period.

Pais and Tóth (1991) performed nutrition-related biochemical research on the examples of skeletons from periods from the Neolithic to the Middle Ages, in the Carpathian Basin.

Pap et al. (1995) performed scanning electron microscopic investigations on tartar of Hungarian Neanderthal findings, whereas Török et al. (1999) analysed tartar of mummies from the 18th-19th century through microscope.

Józsa and Pap described pathological alterations found on artificially deformed skulls in 1992, and a hypophyseal tumour discovered on a skull from the 11th-13th century (1994). They published the results of their histochemical and immuno-histochemical research in 1995.

Ubelaker and Pap (1996, 1998) elaborated on the health and diseases of the population of the Bronze Age and the Iron Age.

Although it is not closely related to the scope of paleopathology, we want to mention the work of Grynaeus (1996) and Józsa (1998) on medical history. Józsa published a monograph on the health standards and diseases of the population living in the Conquering and the Árpád period (1996a).

After 1990, we find more and more conferences organised. See their list in Chapter "History of Hungarian Anthropological Research" by Gy. Farkas.

Paleopathological research became more and more intensified, interdisciplinary, and again, it plays pivotal role. Just to mention works of large volumes: microbiological research of the mummified individuals of Vác, DNA detection of *Mycobacterium tuberculosis* and the general anthropological and pathological analysis of individuals buried in the basilica of Székesfehérvár and its surroundings.

Surveying the literature on Hungarian paleopathology – although it includes several topics – we can state that the study of various pathological alterations give an excellent picture about the health conditions of populations of different periods, the major diseases (leaving traces on skeletons) as well as the dominant activity forms and the spread of certain epidemics in time and space. All these disciplines contribute to physical anthropological research and the biologic reconstruction of populations living in historic ages.

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