HISTIOCYTOSIS X — A TIME-OVERLAPPING SKELETAL DISEASE. REPORT ON A RECENT CASE OF POLYOSTOTIC MANIFESTATION.*

ABSTRACT: With regard to the literature on the paleopathological findings, a report on an actual clinical case of slowly progredient histiocytosis X in a 16-year-old male individual is given. In 1978 the first site (left femur) was treated surgically, in 1983 a further one in the dorsopatellar region. Since then a combined cytostatic therapy and telecobalt radiation were applied. The process nevertheless remained progressive: until 1987 eosinophilic granulomata were seen in 10 resp. 11 different locations.

KEY WORDS: Histiocytosis X — Osteopathy — Eosinophilic granuloma.

Beyond the osteolytic processes with sharply limited, sometimes like punched defects, not seldom in a circular form, the eosinophilic granuloma earns special attention. Not only radiographically but also in paleopathological view it is the classical differential diagnosis of all destructive bone processes (e.g. multiple myeloma, bone sarcoma, Burkitt-tumor, metastases, osteomyelitis, syphils etc.). The eosinophilic granuloma is classified as a nonneoplastic osteomyelitic process of the reticular bone-marrow cells. It generally occurs as a benign disease of unknown etiology.

The first definite description of eosinophilic granuloma was given by T. Smith in 1865 (quoted from Slater and Swarm 1980). The term „eosinophilic granuloma“ is connected with Lichtenstein and Jaffé (1940); independently the disease was described by Ottani and Ehrlich (1940).

After the attention has been drawn to this entity, numerous casuistic reports followed. The diversity of information allowed a synopsis of primarily separately described syndroms of Abs-Letterer-Siwe and Hand-Schüller-Christian type, which together with the eosinophilic bone-granuloma were taken into the superior entity of histiocytosis X in one nosologic conception (Lichtenstein 1953).

Possibly the proposed different types represent different sequels of the disease: while the eosinophilic granuloma of the bone represents the easier running, limited form, the Letter-Siwe type means an acute severe form and the Schüller-Christian type a chronically disseminated form of great clinical variability (Jaffé 1972).

In the survey of literature published in 1980 by Slater and Swarm 686 cases were recorded between 1940—1974, world-wide yearly about 20 cases. In solitary location the diagnosis is evidently more complicated than in multiple appearance, which is the case in about 50% (Heilner and Bartolomaeus 1981).

* Dedicated to Prof. Dr. med. W. Bernhard, director of the Institute of Anthropology and Human Genetics, on the occasion of his 60th birthday.
The development of the disease can run over years, or in pushwise repetitions, or quickly prograde or up to fulminant. Transition to neoplastic growth of the Langerhans-cells in foudroyant processes are discussed, especially since long-term observation seems to prove a tendency towards malignancy (Lipton 1983). A reactive proliferation on the basis of a disturbed immunoregulation is discussed. Defects in suppressor-T-cells may give a hint in this direction (Groopmann and Goldie 1981, Olsberg et al. 1981). Generally multifactorial pathomechanisms are considered, including genetic disposition, viral factors and autoimmune processes (Lipton 1983, Gög et al. 1985). HLA-specificity (BW 61 and CW 7) could be associated statistically significantly with histiocytosis X (Tomooka et al. 1986).

The preferred localization of eosinophilic granuloma is the calvarium („Lückenschädel“ = gap skull, Heitner and Bartholomaeus 1981), occurring in about 1/2 to 2/3 of all cases (Burkhardt 1970, Bartholdy and Thommesen 1985), the tabula externa being involved more extensively than the tabula interna, with funnel-shaped pictures resulting (Dominok and Knoch 1977). The osa frontalia and parietalia are the most preferred sites in the calvarium. One of the main foci of localization is also the vertebral column. Calvé’s flat-vertebra (vertebra plana Calvé), formerly described as a separate symptom, today is classified as histiocytosis X (Dihlmann 1982). Basically any bone of the body can be affected — solitary or multiple — hands and feet are however an exception. The mean age of affection is the 1st and 2nd decennium, 80% occur in this period (Ferguson and Shapiro 1979), the masculine sex prevails.

The histological cell picture is a granulomatous, tissue destructing growth of histiocytic cells in locations of the reticuloendothelial system (Freyfischmidt 1988).

Radiologically the process of granuloma restoration is a complete one; in a pathologic-anatomic view the bone structure, however, is only incompletely restored. Spontaneous reparation of vertebral lesions with wafer-like bone destruction is frequently seen, with complete consolidation (Brocher 1966, Green et al. 1980, Seimón 1981). Beside osseous manifestation organic manifestations of eosinophilic granuloma may occur — of course not belonging to the term „eosinophilic granuloma of the bone“ (e.g. skin, mucous membranes, eyes, dura, brain, lung, liver, vulva, vagina, gingiva etc.). A clear definition is complicated anew, insular definite extraosseous manifestations cannot be filed in this frame, but combinations of osseous and soft tissue forms due to infiltration may occur, which then — senes latoer — are to be considered.

Neither the radiographic nor the scintigraphic representation can give a prognostic statement relative to the speed of the process (Benz-Bohm and Georgi 1981, Sugiyauma 1981).

Between the therapeutic concept of the radiation therapy, chemotherapy or no therapy at all no statistically significant differences are noticeable, especially since spontaneous remissions are not uncommon (Sartoris and Parker 1984). The remission rate is given with 95% (Slater and Warwick 1980), referring to 686 cases from literature. In about 5% follows direct transition to the Schüller-Christian-form (Uchlinger 1981).

During surgical therapy new sites may develop („Heridagen“ = site-rush), out of this reason a covering cortisone therapy is usual. Also in paleopathology histiocytosis X is the object of referring examinations and differential diagnostic considerations. Morse 1969 (quoted from Steinbock 1976) describes a possible case of eosinophilic granuloma in a skeletal find of the Mississippian Culture of Illinois (1000 — 1600 AD) in a 2 1/2 years old child. Lytic defects in two vertebrae and the left os ilium are to be seen. Another similar case of histiocytosis X in a 10-year-old child from New York State, dated about 1200 AD, had originally been interpreted as multiple myeloma (Williams 1941, cited in Steinbock 1976), which, however, occurs in higher ages. The multilocular appearance of punched-out lesions seems plausible for the diagnosis of histiocytosis X (Steinbock 1976).
with peripheral sclerosed parts in the neighbouring as osteitica (Figures 2, 3).

A combined cytostatic therapy is initiated with Viablastin 6 mg every second week (once per week in the first 4 weeks) and prednisone (14 mg/m²) daily, in monthly alternating cyclic therapy and pause.

There occurred no visible improvement of the multicellular bone affections, the process developed instead noticeably: a compression-fracture of the 3th lumbar vertebra occurred, in the 12th thoracic vertebra a new punched defect could be proved close to the spinal channel, and a further osteostatic site could be seen in the 9th left rib.

In the beginning of 1984 a telecobalt-radiation therapy of the spine and the mastoid started. In 1987 a new locality of the cosinophilic granuloma was diagnosed in the backbone of the left pelvis bone.

Other pathologic findings such as recurrent duodenal ulcer, rectal condensation in both upper parts of the lungs and hypoglycemia were not seen in connection to histiocytosis X. Summing up, a male of 16 is presented, in whom during the course of 9 years multiple lesions in the skeleton and skull occurred — in the osa plana as well as in the osa longa — with 10 or even 11 sites (if the double appearance of cosinophilic granuloma in the 12th thoracic vertebra is considered separately).

In correspondence with the hitherto published comparable findings, we can confirm the condition of the juvenile age of the affection, the site pattern of the skeleton, as well as the not time-period-related character of histiocytosis X.

The reported case has occurred singularly until now; a familiar involvement is not given.

REFERENCES

BENZ-BOHM G., GEORGI P., 1981: Säuglings- und ra-

diologische Behandlung bei eosinophilen Granulomen. Radio-

lug 12. 895—196.


nologie Bd. III. Georg Thieme Stuttgart.

BURKHARDT L., 1970: Pathologische Anatomie des Schädelns, part VI: In: E. Uhlinger (Ed.): Bd IX, "Bewegungsappara-


FREYCHMUT J., 1980: Knochenaffektionen im Erschwer-


GREEN N. E., ROBERTSON W. W., KILROY R., 1981: Eosi-


berg Munich.

LIECHTENSTEIN L., JAPPE H. L., 1940: Eosinophile granu-


SELMON I., 1981: Eosinophilic granuloma of the spine. J. Pa-


STEINBOCK R. T., 1976: Pathological diagnosis and in-


SUIGYAMA H., NAKASHIMA Y., TAKAHASHI S., OYAMA T., KANAYA H., 1981: A case of eosinophilic granuloma in the calvarium, and the diagnostic value of bone scin-


THILLAUD P. L., 1982: L'histiocytose au pellagrique (sujet n° 1 du Cerc Magno). Problematique diagnostique osteo-


tologique. L'Ambroise 50: 219—239.


FIGURE 4. Sketch of the radiographically proved skeletal sites of histiocytosis X in the referred case.

1. parieto-occipital (right)
2. mastoid (right)
3. 9th left (left)
4. 5th, 7th, and 12th thoracic vertebrae
5. 5th lumbar vertebra
6. the lowest end of the os sacrum
7. soka osseous pelvis (left)
8. upper parts of the right (collum femoris) (left)

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