

HISTIOCYTOSIS WITH LANGERHANS CELLS - CASE PRESENTATION -

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Abstract

The authors present the case of a 9 month old male nursling, hospitalized in the clinic for unilateral installed othorragia. The clinical exam corroborated with the radiological exam (skull, thorax, limbs) established the histiocytosis diagnosis with Langerhans cells. The final diagnosis is the histopathological and imunohistochemical one of the biopsied material from the tumoural bleeding system of the external auditory conduct.

Key words: histiocytosis, diagnosis, nursling.

Presentation of the case

We present the case of a 9 month old male nursling, from the rural environment, hospitalized in the Second Pediatric Clinic of the Districtual Craiova Hospital (OS 29954/2007) for abrupt installed othorragia (24 h before coming to the hospital)

The heredocollateral antecedents are insignificant. From the personal physiological antecedents: first child, born at term, W=3000 g, unknown Apgar score, naturally alimented at the hospitalization time, incorrectly diversified at 6 months of age, properly vaccinated and vitaminised. Pathological personal antecedents: a respiratory intercurance, ambulatory treated.

The hospitalization objective exam shows a 9 month old male nursling, in good nutrition state, afeverish,

with intensely pale teguments and mucous, facies suffering, excited, with subangulomandibular adenopathy with mobile 0.5 – 1 cm ganglions, right othorragia, normal appearance mouth cavity, pulmonary without pathological alteration, AV = 132/min, systolic breath of second degree on the whole cardiac area, liver with the inferior edge 1 cm under the rim, impalpable splen, diminished whimsical appetite, normal intestinal transit, spontaneous, physiological mictions, irritability, agitation.

The laboratory exams and the paraclinical exploration have shown: Hb=9.03 g/dl, T=500000/mmc, L=14200/mmc, NN=4%, NS=37%, Lf=40%, M=8%, anisocytosis, hipocromia,

During the hospitalization, the anemia has accentuated Hb=8,30 g/dl, T=460000/mmc, L=6000/mmc (NS=38%, E=8%, Lf=51%, M=3%), anisocytosis +++ , poikilocytosis+++ , hipocromia+++ (ovalocyte, skizocyte, anulocyte) sideremia = 13µg/dl, =52/98mm →61/80mm →70/115, after 1 and 2 hours. The rest of the biological investigations had normal limits.

The ORL exam: bleeding tumoral formation of the external right conduct.

The skull x-ray: at the level of the cranial calotte several round ovalar zones of osteolysis can be observed with dimensions between 4 – 14 mm diameter, with a thin line [fig. 1].



Fig. 1. The skull x-ray.

The pulmonary x-ray: without modifications of pulmonary transparency, heart with the accentuation of the inferior left arc. Bone structure modification of the left scapula, left C II and C V, C V arc given by the resorption

through the osteolysis of the exostosis at the level of the ribs, the density grows of the collateral soft parts left C II.

Global T10 sag [fig. 2]. Osteolysis zones have been radiological traced also at the level of the left humerus and at the level of bilateral femur.



Fig. 2. The pulmonary x-ray.

Abdominal ultrasound offers normal data.

The performed paraclinical exploration, together with the clinical exam and the laboratory exams, establish the histiocytosis diagnosis with multiple bone determinations. The diagnosis is sustained by the histopathological and immunohistochemical exam from the biopsied material from the level of the tumoral system of the right external auditory conduct (which continued to bleed during the entire period of hospitalization). Histopathological study - the morphological picture is dominated by the Langerhans cells proliferation, which are a particular type of histiocytes. The cells have an abundant

acidophilic cytoplasm, are generally multinucleated and present multiple vesicular nucleus with small nucleolus. Together with the multinucleated histiocytes, granulocytes can also be observed. The multinucleated histiocytes are found on the squamous epithelium ulceration and subjacent to the ulceration. The cells have an acidophilic cytoplasm, irregular multiple nucleuses, with small nucleus. At the immunohistochemistry there is a positive marking for CD15, S100 and CD68 protein:

- the CD15 is positive granulocytes and negative in histocytes [fig. 3 si 4].

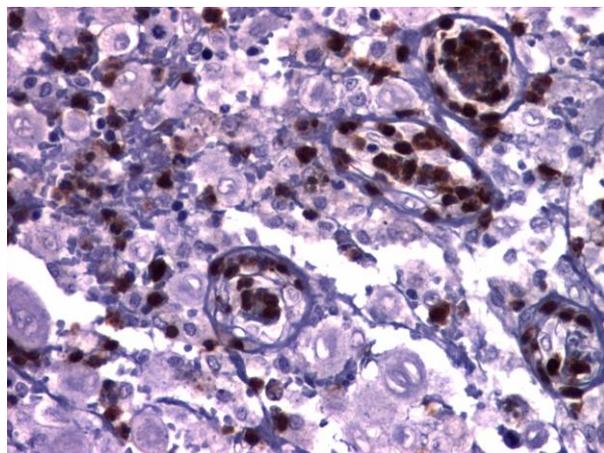
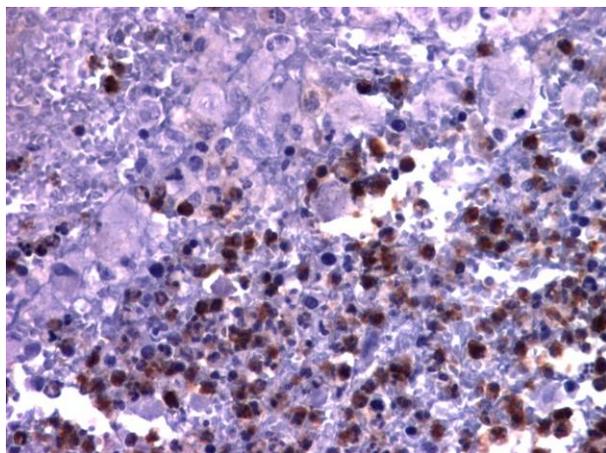


Fig. 3 si 4 - The CD15 is positive granulocytes and negative in histocytes.

- the S100 protein is a marker for histiocytes (the positivation for S100 have been obtained) [fig.5].

- the positivation for CD68 has been obtained in numerous multinucleated histiocytes [fig. 6] and CD68 is negative in the intravasclar granulocytes [fig.7].

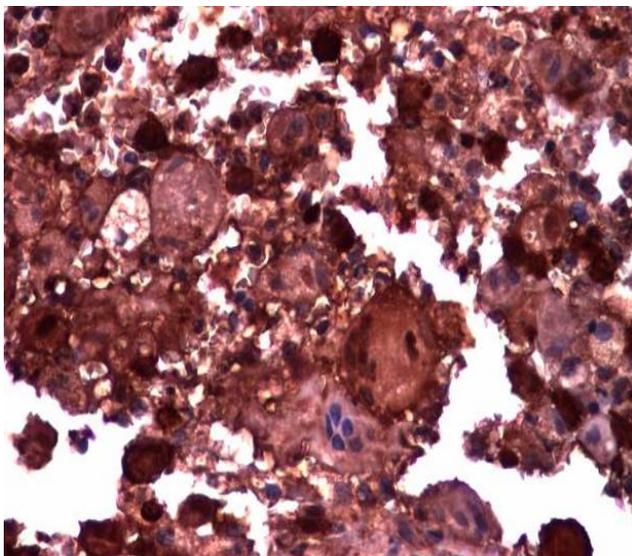


Fig.5. - The S100 protein is a marker for histiocytes (the positivation for S100 have been obtained).

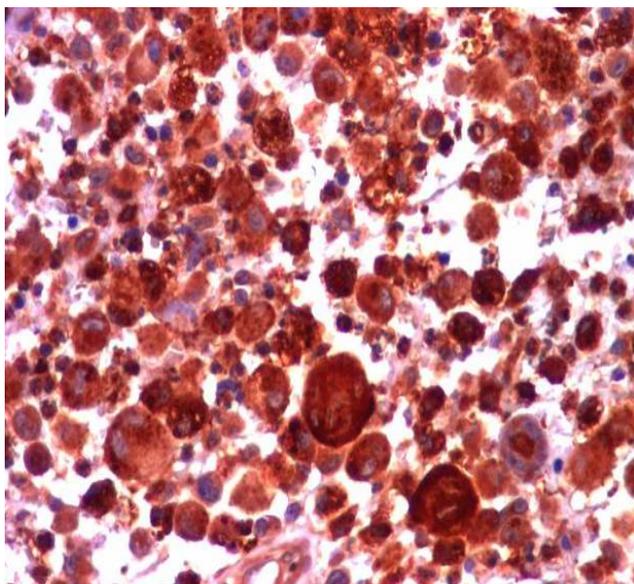


Fig.6. - The positivation for CD68 has been obtained in numerous multinucleated histiocytes.

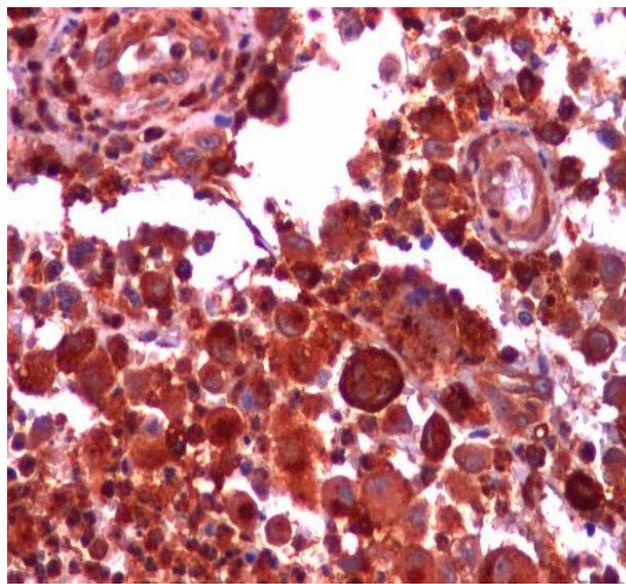


Fig.7. - CD68 is negative in the intravasclar granulocytes.

The nursling has been transferred in the Marie S. Curie Hospital where the medicamentous treatment according to the LCH III °C protocole: Vinblastime and Prednisone induction.

General Data

Langerhans cells histiocytosis (HCL) is a disease which is a part of the histiocytary syndroms which include: reactive histiocytosis (secondary to some

immunodeficiencies and infections) and malignant histiocytosis.

In HCL takes place the uncontrolled proliferation of some cells belonging to the fagitomonucleous and which lead to the infiltration and distruction of the normal surrounding tissues. HCL reunites in only one entity the following syndromes:

- the Letterer Siwe disease (for children under 2 years old)

- the Hand Schuller Christian syndrome (characteristic to the preschool child)
- the eosinophilic granuloma (for the big child and adult)
- spontaneous resolute congenital histiocytosis (Hashimoto Pritzker syndrome)
- pure cutaneous histiocytosis.

Until 1985, HCL, reunited under the name of histiocytosis X the first three entities (different according to the premises and extension of the lesions) the distinction between them being difficult.

The actual data show that the incidence of the disease is reduced (4-5.4 cases/million/year), the medium debut age being 2-3 year of age and mainly affecting the male sex. It is considered that under the age of 5 half of the cases with bone lesions appear.

The clinic picture of the disease: the skeleton and the skin are the most often interested. The bone lesions can be localized at the level of the skull, the long bones, the vertebrae, the renal pelvis and the ribs and can be unique or multiple.

The symptomatology consists in pain, fracture, soft parts tumefaction (in the mastoidian localisation). The bone affection can be latent, asymptomatic, the x-ray identifies different size osteolysis hotbeds clearly delimited. The mandibular localisations produces pain, tumefaction and reactive adenopathy, even teeth fall. The superior jaw is rarely affected. When affected the vertebral corps, appear the effect of plane vertebra. Signs of mandibular compression appear with the extension of the granulome in the medular space. The invasion of the bone marrow is more frequent with the nursing and is manifested by anemia, thrombocytopenia, neutropenia. Typically, the invasion of the turkish saddle leads to insipid diabetes, and the retroorbital granulome to exophthalmia. The squamous eruption is described in the cutaneous localization (like the seboreic dermatitis), some time with a purple eczema like, ulcerative appearance. The exclusively cutaneous localisation has a good prognosis. The adenomegaly, the organomegaly are present in all disseminated forms (with a bad prognosis when the hepatic functions are affected). The pulmonary localization is rare, the growth delay is given by the anterior hypophysis affection. The general manifestations (fever, appetite loss, apathy) appear in 30% of children, especially in the multisystemic forms in small ages.

The diagnosis is established by joining the clinical end radiological data. The laboratory exams are not specific to the disease. The bone radiologic lesions have a great specificity for the HCL (especially the characteristic multifocal lesions – lacunary bone lesions, well delimited, round without any perilacunary condensed reactions). In some bone localization forms the exclusion of the Ewing sarcoma, of the hemangioma or of some osteomyelitic process is imposed.

The definitive diagnosis in HCL is the histopathological one completed by the immunohistochemistry. In the initial phases, the lesions are proliferative mostly formed from histiocytes (a part of them are abnormal Langerhans cells). Zones of necrosis appear in the evolution zones and infiltrated granulocitory dominated by the eosinophilic, in the ganglionic zones or at the bone level can be observed giant multinucleated cells. In the optical microscope, the pathological Langerhans cells are big mononucleated cells, weakly vacuolised (with small nucleus). In the immunohistochemistry, the S100 protein is evidenced through special colorations, and also the CD1a marker is evidenced (characteristic to the Langerhans cells), CD68 is present at the level of the multinucleated cells.

The HCL prognosis is different in function of the disease type, of its localization, the lesions extension and the dysfunction of the interested organs.

Discussions

In the presented case, the affection is of only one system (the bone system), but with numerous localizations (skull, thorax, backbone, limbs), the speciality literature showing a large frequency of the acute disseminated forms under the age of 3. The skeleton is the most frequently affected (in our case being the sole localization). The debut of the disease was particular othorrhagia which led to the taking of the skull x-ray (with the accentuation on the osteolysis zones HCL characteristic). The general state of the nursing was modified before the diminished appetite othorrhagia debut, irritability, the tegument and progressively accentuated mucous pallor (the hipochrome anemia being explained by the diminishing of the appetite, the sanguine loses, the alimentary deficiency). The positive diagnosis has been made by joining the clinical and radiologic data, but also the anatomopathological exam from the bleeding tumoral system from the auditive conduct has been imposed. In HCL exists a positive marking for the S100 protein, vimentin, CD1, CD14, CD15, CD68. In the presented case the positivation for the S100 protein and CD68 has been obtained; CD15 has been positive for granulocytes.

The specific treatment for the disease has been started, the prognosis is reserved in HCL with multifocal debut – chronic evolution with an unique or multiple relapse (especially under the age of 2 at the debut) like in the presented case.

Conclusions

The debut of the disease in the 9 month old nursing was particular: othorrhagia and irritability. The diagnosis was specified following the corroboration of the clinical data with the radiologic exam.

The histopathological exam and the immunohistochemic study established the final diagnosis.

References

1. Ardeleanu Carmen, Violeta Comanescu, Zaharia B-Imunohistochimie, Ed. Sitech 1999, pg.55,62.
2. Campbell A.G.M., Neil McIntosh- Textbook of Paediatrics Fourth Edition Churchill Livingstone 1992, pg. 1001-1003, 1726

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| <p>3. Ciofu E.P - Histiocitoza cu celule Langerhans in
Pediatria Tratat Editia I, Editura Medicala
Bucuresti, 2001, pg. 862-867.</p> <p>4. Moraru I - sub redactia- Anatomia patologica
vol.II, Ed. Medicala Bucuresti 1980, 361-363</p> | <p>5. Popescu V- sub redactia- Patologia aparatului
respirator la copil, Ed. Teora Bucuresti 1999,
pg.646-651.</p> <p>6. Turcanu L. Margit Serban - Hematologie pediatria
- Centrala Industriala de Medicamente si Cosmetice
Bucuresti, 1986, pg.568-576.</p> |
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