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CASE REPORT

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A rare multifocal juvenile xanthogranuloma sought between the lines

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ABSTRACT

Juvenile xanthogranuloma (JXG) is a rare disease but the most common non-Langerhans cell histiocytosis. It usually presents as a solitary yellowish nodule located on the head or neck or fewer, as multiple disseminated nodules. Extracutaneous inclusions are rare. Pinkish or yellowish papules in a child might be misleading and extend the right diagnosis. Although rare, JXG should be included in the differential diagnosis. Given that JXG has many faces and extracutaneous involvement is possible, patients should be subjected to in-depth diagnostics. Systemic multifocal involvement in JXG is potentially fatal and the course of the disease depends on the location of lesions. A multidisciplinary approach within chemotherapy, surgical or immunosuppressive treatment is recommended.

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Keywords: multifocal, juvenile, xanthogranuloma, rare, dermoscopy

CASE DESCRIPTION

A 5-year-old patient showed up to the dermatologist with a five-week history of numerous small, pinkish and yellowish papules and nodules on his whole body (Fig. 1). That appointment was preceded by three independent consultations with equal diagnosis of molluscum contagiosum (MC). The treatment with a 10% potassium peroxide solution didn't improve the condition. Further newer lesions have been observed. Finally, the last dermatologist challenged the prior diagnosis. Dermoscopy showed a setting sun pattern and the child was urgently referred to the Paediatric Hospital with suspicion of juvenile xanthogranuloma (JXG). Multiple consultations and investigations were made. Infectious disease specialists excluded the contagious background of the disease. The skin biopsy was performed. The first result came with an imprecise picture of histiocytosis. While waiting for a second opinion, a rapid progression continued with mucous membranes and eye involvement. Laryngologists' fiberscope examination revealed small lesions of two to three millimetres on the mucous membranes of the soft palate and the middle throat. Ophthalmologists discovered nodules near the external angle on the skin of the lower right eyelid, on the skin of the upper and lower left eyelid and the conjunctiva of the left eye. All lesions had a morphology similar to the ones described on the skin. A positron emission tomography (PET) scan showed a metabolically active osteolytic lesion in the right pubic bone, in the skin and numerous small non-active lung nodules. Laboratory tests did not reveal any abnormalities. Ultimately histopathological reassessment by another pathomorphologist exposed histiocytic cell infiltration with foamy cytoplasm, single giant cells (Fig. 2). Cells were presenting infiltration of a cluster of differentiation 163 (CD163) and factor XIII (Fig. 2). They had a weak reactivity to S-100 protein, and were negative for the cluster of differentiation 1a (CD1a), Langerin, c-kit, anaplastic lymphoma kinase 1 (ALK-1). Thereupon juvenile xanthogranuloma was uncovered.

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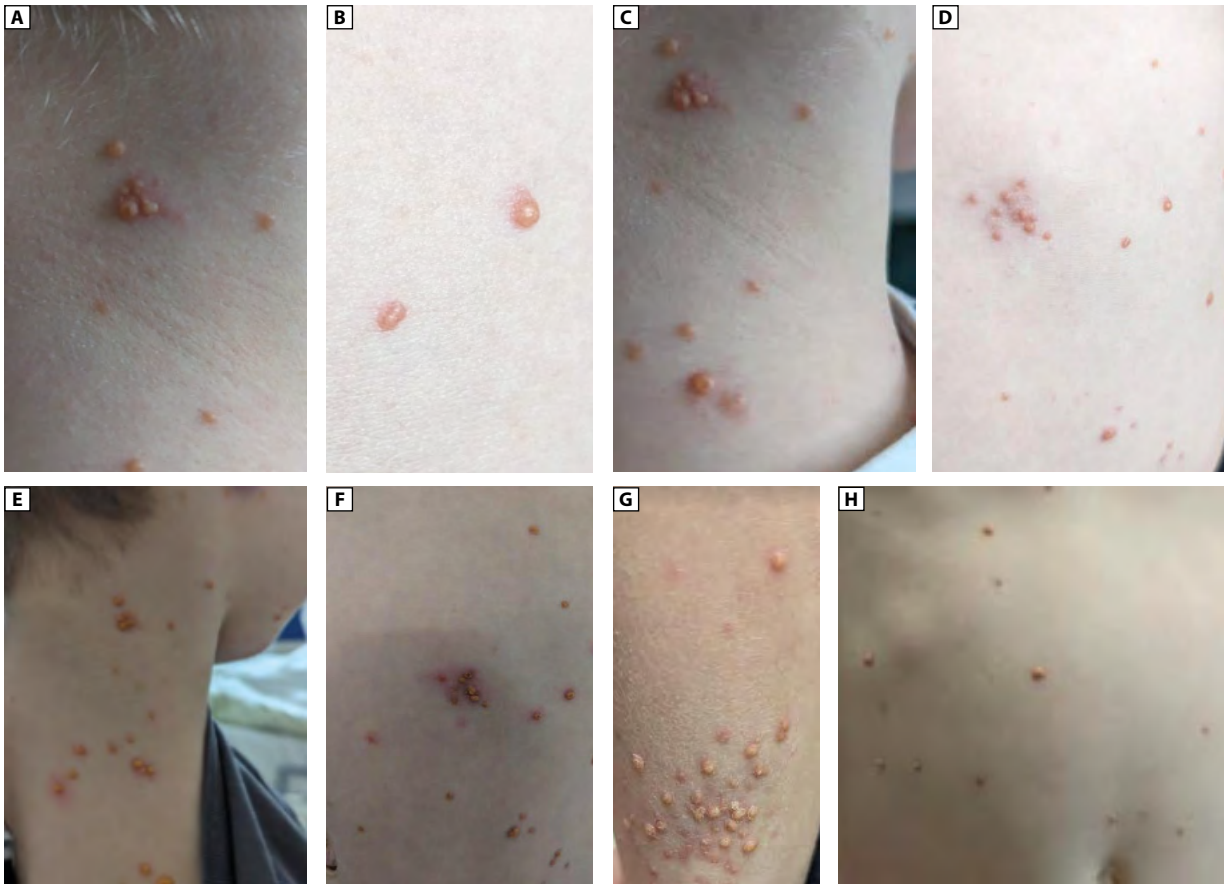

Figure 1. Disseminated yellowish papules and nodules at the beginning on the back of the neck (**A**) and on the trunk (**B**); development of lesions in time (**C**, **D**). Intensified lesions after first courses of chemotherapy (**E–H**). Intensified lesions — closer look to morphology — leg (**G**), wider perspective — trunk (**H**)

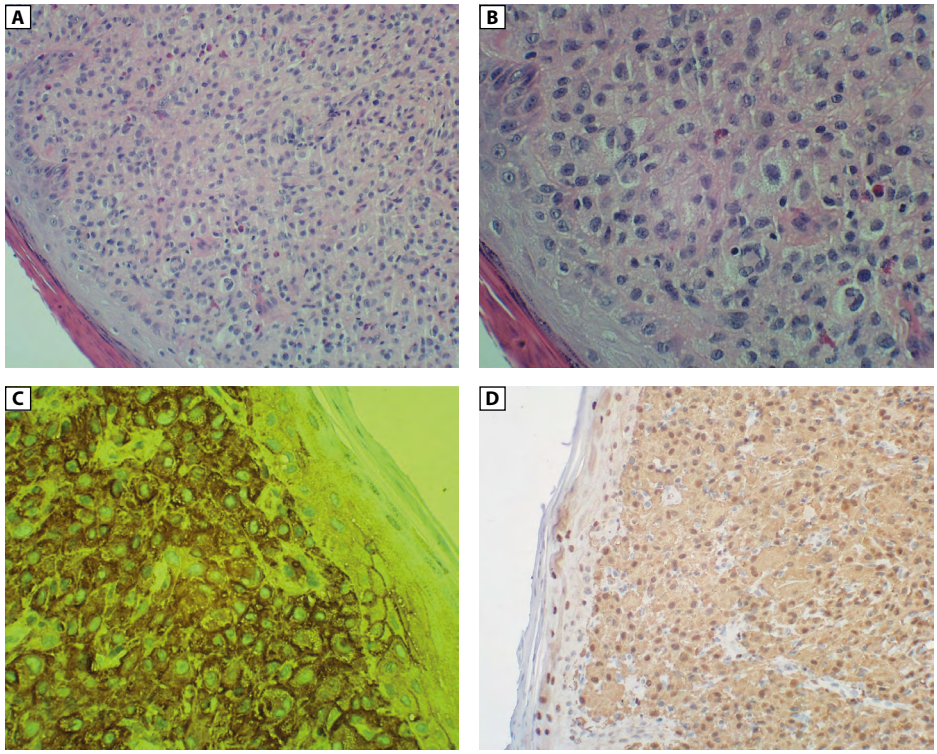

Figure 2. A piece of skin with histiocytic infiltration (**A**) and foam cells (**B**). Cells showing positivity for CD163 (**C**) and Factor XIII (**D**); [magnification A — × 200, B — × 400, C — × 400, D — × 200; **A** and **B** — haematoxylin and eosin (HE) stain]

Considering the disseminated course of the disease and, the danger of potential visceral occupancy, chemotherapy with prednisolone and vinblastine was introduced. Unfortunately, due to an exacerbation of lesions (Fig. 1) and electrolyte disturbances during the therapy, the patient had to be hospitalized again. He is still under the supervision of the Oncology Unit, continuing treatment with slight clinical improvement.

DISCUSSION

Juvenile xanthogranuloma is a rare disease, but most common non-Langerhans cell histiocytosis [1]. In most cases, it affects male children under the first year of life [2–5]. It might be already present at birth [2, 6, 7]. Although there are descriptions of adult patients [8]. Usually, it appears on the skin as a solitary yellowish nodule on the ventral sites of the trunk, head, lower extremities, upper extremities and neck [2, 6, 8]. Cutaneous, subcutaneous and soft-tissue courses tend to be asymptomatic and self-limiting over the years [9]. Nevertheless, disseminated skin lesions with extracutaneous inclusions occurrence is possible [3–5, 7]. Ocular involvement is the most common among the rarest extracutaneous processes [4]. Cases of JXG involving the central nervous system or vision system have been described [4, 10]. Disease courses including disseminated skin lesions with systemic findings portrayed in this case report seem to be uncommon. Only a few similar cases were published. Multiple, rapidly progressing lesions, skin biopsy results and systemic evaluation connect those similar cases [5, 7]. Eruption of skin lesions first brings to mind infectious factors [7]. The course of the disease depends on the location of lesions and systemic spread may be potentially fatal [10]. The causative agent of the disease is regarded to be unknown. In the diagnostic process, dermoscopy may be a useful guideline as in JXG it presents a characteristic "setting sun" pattern [8]. Skin biopsy typically shows histiocytic cell infiltration with foamy cytoplasm, foreign body giant cells and Touton giant cells [11]. In differential diagnosis, dermatofibroma, eruptive xanthomas, Langerhans cell histiocytosis, mastocytoma, papular xanthoma, Spitz nevus, tuberous xanthoma, xanthoma disseminatum should be considered [9]. There is no special protocol dedicated to JXG treatment, each case should be treated individually based on its course. Mostly due to benign course and tendency to self-limit over the years juvenile xanthogranuloma is left without any treatment [9]. If it presents as a solitary lesion, surgical intervention may be considered [8]. Systemic involvement may require using Langerhans cell histiocytosis chemotherapy with agents such as vinblastine, prednisone, and methotrexate [9]. Multiple visceral lesions might be treated with prednisone and vinblastine, but sometimes on continuation treatment new subcutaneous nodules start to develop, which demand the reintroduction of the therapy [5]. A continuous treatment course consisting of 6-mercaptopurine and prednisone might ensure a lack of progression [5]. Multiple juvenile xanthogranulomas of the skin and liver may even demand complicated actions such as organ transplantation [7].

This case shows how misleading pinkish or yellowish papules in a child might be. In the beginning, the patient's condition was believed to be molluscum contagiosum. There may be a few factors that mislead the primary diagnosis. Molluscum contagiosum stands for 1% of dermatological diagnoses worldwide [12]. The probability of occurrence of an infectious disease caused by poxvirus in a child is far higher than the appearance of a rare form of non-Langerhans histiocytosis the more diffused. Morphology, location and dissemination of lesions did not recall a solitary yellowish nodule — a common presence of juvenile xanthogranuloma. Despite these misleading factors, there is a useful and simple tool that could confirm MC if there is a doubt. Under a dermoscope, it presents as a central pore or umbilication, polylobular whitish or yellowish amorphous structures with peripheral crown vessels [13].

Due to the spread of lesions and atypical clinical picture, the contagious thesis was doubted. Dermoscopy showed characteristics for JXG setting sun pattern which differs from the mentioned molluscum contagiosum picture. It is important to outline how many specialists must have worked together to confirm this rare diagnosis with such rare systemic involvement.

CONCLUSIONS

Given that JXG has many faces and extracutaneous involvement is possible, patients should be subjected to in-depth diagnostics. Unusual systemic spread may require performing computed tomography of the brain and the abdomen, ultrasonography of the abdomen, magnetic resonance imaging of the brain, chest radiograph, skeletal survey or bone scan, ophthalmologic examination, and bone marrow biopsy [7]. Systemic multifocal involvement in JXG is potentially fatal and the course of the disease depends on the location of lesions. A multidisciplinary approach within chemotherapy, surgical or immunosuppressive treatment is recommended.

Article information and declarations

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Author contributions

Writing original draft, review and editing, conceptualization — AB; writing original draft, conceptualization, visualization — JK; writing original draft — MV; review and editing, supervision — MK, MP, MKR, JM, IF.

Conflict of interest

The authors declare no conflict of interest.

Ethics statement

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