Castleman's disease at parotid gland – case report

Choroba Castlemana zlokalizowana w śliniance przyusznej – opis przypadku

Authors' Contribution:
A – Study Design
B – Data Collection
C – Statistical Analysis
D – Manuscript Preparation
E – Literature Search
F – Funds Collection

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ABSTRACT:

Introduction: Castleman disease is a rare lymphoproliferative condition that is most common in the thoracic lymph nodes located. The extranodal form concerns 25% of diagnosed cases of this disease entity.

Case report: We present the case of Castleman disease localized in the parotid gland in a 15-year-old boy, confirmed by histopathological examination, clinically progressing as a right parotid gland tumor.

KEYWORDS: Castleman disease, parotid tumor

STRESZCZENIE:

Wstęp: Choroba Castlemana jest rzadką chorobą limfoproliferacyjną występującą najczęściej w węzłach chłonnych zlokalizowanych w klatce piersiowej. Postać pozawęzłowa dotyczy 25% rozpoznawanych przypadków tej jednostki chorobowej.

Opis przypadku: Przedstawiamy przypadek choroby Castelmana zlokalizowanej w śliniance przyusznej u 15-letniego chłopca, potwierdzonej badaniem histopatologicznym, przebiegającej klinicznie jako guz ślinianki przyusznej prawej.

SŁOWA KLUCZOWE: choroba Castlemana, guz ślinianki przyusznej

ABBREVIATIONS

CD – Castleman disease
CMV – Cytomegalovirus
CT – computed tomography
EBV – Epstein-Barr Virus
HBV – Hepatitis B virus
HCV – Hepatitis C Virus
HIV – Human immunodeficiency virus
MRI – Magnetic Resonance Imaging
PET – positron emission tomography
USG – ultrasound

INTRODUCTION

Castleman disease (CD) is a group of rare lymphoproliferative disorders. The essence of this condition is non-cancerous cell proliferation of the lymphatic system, which usually occurs in the lymph nodes or less often extends beyond them. The disease entity was initially described in 1954 by the team of Dr. Benjamin Castleman as a thymus-like mediastinal tumor [1].

CD epidemiology is difficult to be established due to its rarity and diverse clinical course. The incidence is estimated at 21–25/1 million inhabitants/year. This disease can occur at any age, equally often in both sexes [2]. CD can affect any area in the lymphatic system. The disease generally occurs in the lymph nodes – 75% of cases (in the chest – 30%, the neck – 23%, the abdomen – 20% and in the retroperitoneal space – 17%). The extranodal form applies to 25% of cases. Previously published locations include: lungs, larynx, parotid, pancreas, meninges and muscles [3–5]. CD is not a homogeneous syndrome. The clinical division distinguishes between localized and multifocal (generalized) forms (Tab. I.). There are three histological types of CDs: the most common vitreous vascular (90% of all cases), plasmacellular and mixed [6]. CD located in the head and neck region is often a diagnostic challenge for the ENT specialist, because the symptoms are non-specific and the course of the disease tends to mimic the tumor. The final diagnosis is based on histopathological examination.

CASE REPORT

A 15-year-old boy was admitted to the Otolaryngology Clinic at the Medical University of Gdansk due to a retromandibular

Tab. I. Comparison of localized and generalized forms.

CHARACTERISTIC FEATURE	LOCALIZED FORM	GENERALIZED FORM
Prevalence	75–80% of cases	20–25% of cases
Course	Benign	aggressive (possible transformation into lymphoma)
The most common age at diagnosis	3rd–4th decade of life	5th–6th decade of life
Histological type	80% vitreous vascular type	plasmacellular type
Extent of lymph node involvement	monofocal	multifocal
Clinical symptoms	single tumor often detected accidentally	fever, fatigue, drowsiness, excessive sweating, weight loss, rash, hepatosplenomegaly, hemolytic anemia, hypergammaglobulinemia
Preferred treatment	complete surgical excision of tumor	systemic treatment
Prognosis	95–100% survive 5 years	65% survive 5 years

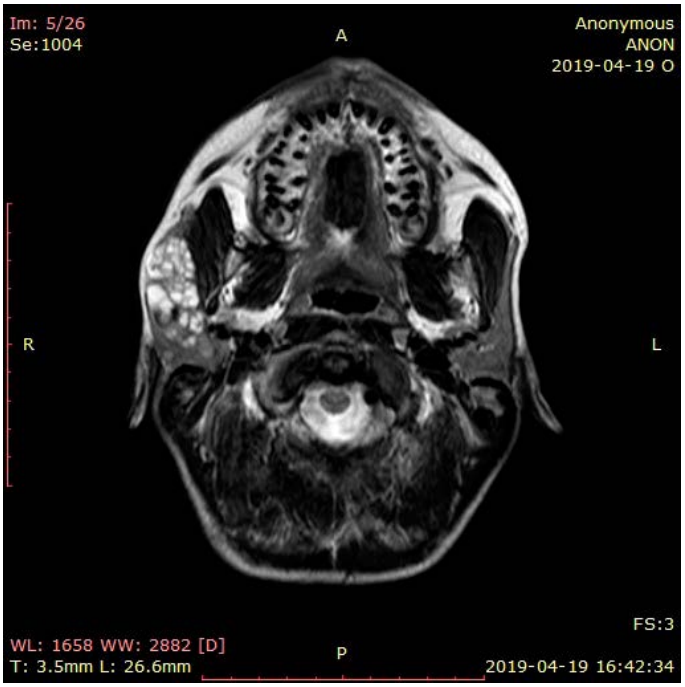

Fig. 1. T2 weighted image, axial plane.

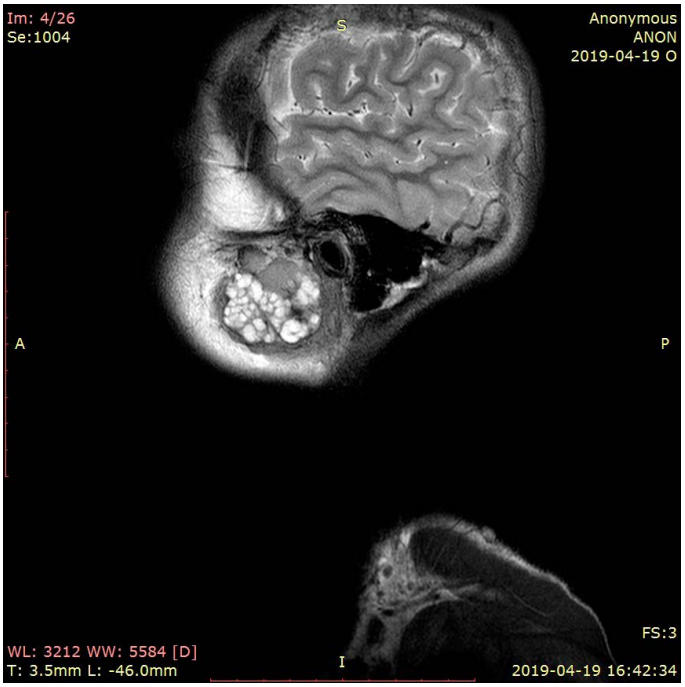

Fig. 2. T2 weighted image, sagittal plane.

tumor on the right side. The lesion had been observed for about 2 years, non-enlarging, without health problems, without general symptoms, with normal facial nerve function. Physical examination revealed a movable tumor behind the mandibular angle of about 2–3 cm, cohesive, painless, with a smooth surface. The skin over the tumor was unchanged.

Apart from that, the ENT and basic laboratory tests revealed no abnormalities. Ultrasound described a pathological change in the right parotid gland, a partially fluid-filled, partially solid nodule of 40 x 18 x 34 mm, with the predominance of the liquid portion with very rich vascularization in the septum and in the solid portion. Due to the high probability of the proliferative process, the need for histopathological evaluation was suggested.

An ultrasound-guided fine-needle aspiration biopsy was performed twice. In both cases there were: lymphoid cells, single macrophages and hemosyderophages, which suggested a benign lesion. Based on the result of the second biopsy, a reactively changed intrasalivary lymph node was suspected. Results of serodiagnostic tests TORCH – negative. Diagnostic imaging also embraced magnetic resonance imaging (MRI) (Fig. 1.–3.). Magnetic resonance imaging revealed a nodule with solid and fluid parts with a smooth contour of 16 x 40 x 30 mm in the superficial lobe of the right parotid, with characteristics of diffusion restriction in DWI, showing strong contrast in the solid fraction. The MRI and the nature of contrast enhancement suggested a Warthin tumor. Several lymph nodes adjoining the upper pole of the parotid gland.

The patient was qualified for elective surgery. Precervical incision was performed similar to parotidectomy. During the procedure, wedge resection was performed for intraoperative histopathological examination. In the initial examination, the pathologist determined the incurred material as lymphoid tissue which did not raise oncological suspicion. He excluded the Warthin tumor and lymphoproliferative proliferation. Conservative parotidectomy was performed, and the superficial lobe of the parotid gland with the tumor was excised. Its essential mass was accompanied by numerous intravitreal enlarged lymph nodes. The upper pole of the tumor extended above the zygomatic arch. The postoperative course was uneventful, and facial

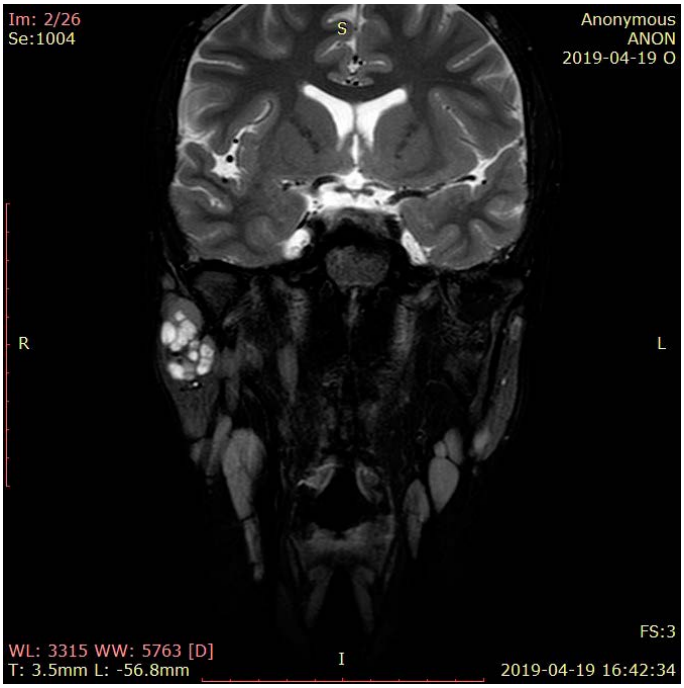

Fig. 3. T2 weighted image, coronal plane.

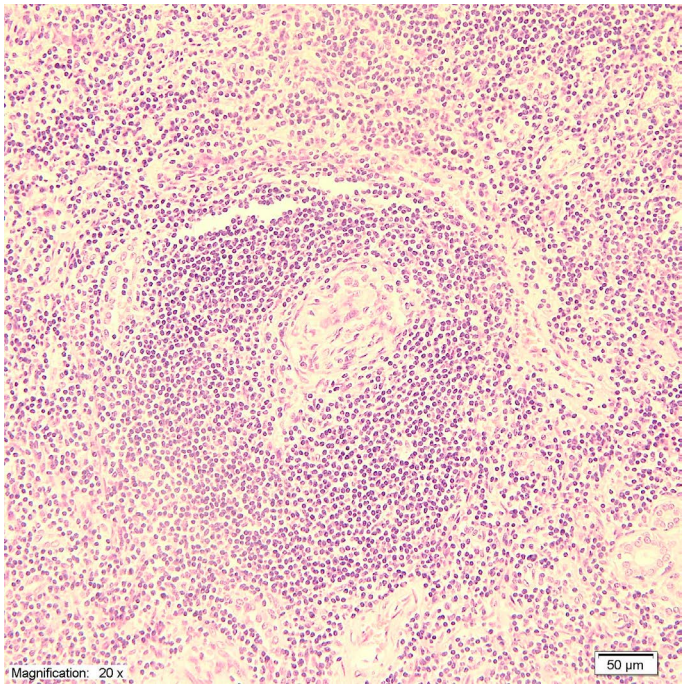

Fig. 4. Atrophic lymphatic nodule with the presence of vessels with central hyalinization surrounded by concentric layers of small lymphocytes (an onion-skin pattern).

nerve function was preserved. The final result of histopathological examination of the surgical material: Castleman disease – vitreous vascular form with lymphoepithelial cysts (Fig. 4., 5.). The structure of the salivary gland is obliterated by lymphoid hyperplasia with features of CD. One of the surrounding lymph nodes also has a type CD lesion.

In the postoperative period, a generalized CD was excluded based on:

- the absence of general symptoms;
- the absence of changes in imaging tests (USG, MRI, PET) in the following areas: other salivary glands, thyroid gland, mediastinum, lungs and abdominal cavity;
- the type of lesions observed in the histopathological (vitreous vascular) examination;
- no deviation in laboratory analysis, including immunological tests;
- excluded: viral infection: HIV, EBV, CMV, HBV, HCV, infection with the tubercle bacillus, immunodeficiency, autoimmune diseases.

The boy has remained under continuous observation for three years, without signs of recurrence.

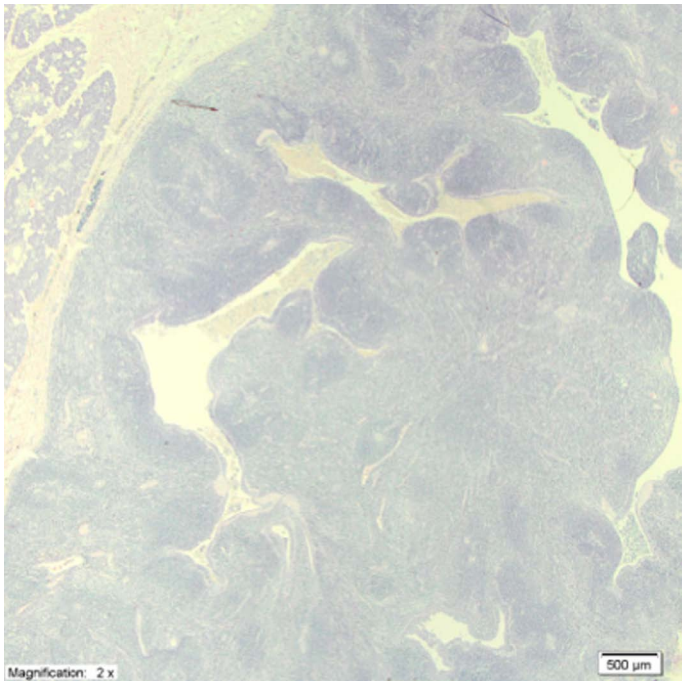

Fig. 5. The presence of numerous cysts lined with epithelium. The wavy appearance of their lumen is the result of an impression of lymphatic nodules.

DISCUSSION

Castleman disease is benign hyperplasia of the lymphatic system, most often located in the lymph nodes. It can assume the following form: (1) localized (unifocal) if it concerns one lymph node or one nodal group, or (2) generalized (multifocal). The unifocal form is also called Castleman tumor. Most often, the disease is located in the mediastinum, less often in the head and neck. Localization of Castleman tumor in the parotid gland is very rare – so far, about 30 such cases have been described. Diagnosis is established on the basis of histopathological examination. The clinical picture is characterized by a course typical for benign tumors of the parotid gland. In differential diagnosis, in addition to benign tumors of the salivary gland, lymphomas, autoimmune diseases, immunodeficiency syndromes, lymphadenopathy (inflammatory, infectious, cancerous) should also be taken into account. There are no characteristic features in imaging examinations (MRI, CT, ultrasound) that would allow a univocal diagnosis of CD [4]. The diagnostic value of fine-needle biopsy for lymphoproliferative

diseases, including CD, is considerably limited. The scanty material obtained in this study does not allow for performance of immunohistochemistry, which to a large extent forms the basis for diagnosis. The ambiguous histopathological picture of lymph nodes in various types of this disease means that final diagnosis is possible only after careful evaluation of extensive specimens or surgical excision of the entire lesion. Treatment of Castleman disease depends on the clinical form. In the case of limited form, the conduct of choice is surgical excision of the tumor. The results of treatment are good and usually adjuvant treatment is not required. Surgery may not be available when the mass involves vital structures. In such cases, neo-adjuvant therapy or embolization may be attempted. Local radiation therapy can be applied as an alternative therapeutic option in the case of an inoperable tumor or in patients who have undergone incomplete resection of the lesion [7, 8]. There is currently no unambiguous pattern for the generalized form of Castleman disease. First-line treatment in disseminated form most often involves corticosteroids. High-dose steroid therapy causes remission of discomfort in patients, and a reduction of lymphadenopathy. There have been reports of complete disease remission in the case of steroid monotherapy [9]. However, most patients require doses of steroids that are too high to be tolerated for a long time, and relapse is practically unavoidable upon a reduction of doses. Therefore, steroids are most often used in combination with alkylating agents such as cyclophosphamide and chlorambucil, or with immunotherapy [10]. Very encouraging are reports on immunotherapy for generalized CD using monoclonal antibodies directed at IL6 or IL6R (tocilizumab and siltuximab). It is expected that treatment with these antibodies will become more widespread in the next few years [11, 12].

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