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Castleman disease of the parotid gland (hyaline vascular type): A case report

Parotis bezinin castleman hastalığı (Hiyalin VaskülerTip): Vaka sunumu

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Parotid Gland (Hyaline Vasculer Type)
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ABTSTRACT

Castleman Disease (CD) is a rare lymphoproliferative disease characterized by painless lymph node involvement. It is infrequent in the extrathoracic area. One of the areas where it is rarely seen is the salivary glands. In this study, the diagnosis and treatment of a 38-year-old patient with localized parotid CD were presented. The patient had a mass in the left parotid gland for about 6 years. Surgery was planned after the evaluation. Left superficial parotidectomy and left second zone neck exploration was performed. Macroscopic examination of the patient's pathology sample revealed several nodular gray tissue pieces and a large solid-looking, yellow and pink tissue piece. In the microscopic examination, in addition to the reactive lymph nodes in the left zone 2 of the neck, paracortical expansion clearly separated from the parotid gland structures in the main parotid mass, prominence in the mantle zone, follicular hyperplasia, fused germinal center structures (twinning) in some of the follicles, hyalinized sclerosis with transverse entry into some germinal centers. Vascular sections (lollipop image and twinning), vascular proliferation in the interfollicular area, significant hyalinization in the vessel walls, and lymphoid proliferation with increased plasma cells were observed. The described features were reported as compatible with "Hyaline vascular type Castleman Disease". There was no recurrence during the patient's 2.5-year follow-up period. CD is a disease diagnosed by histopathological examination. Surgical treatment is sufficient in patients with localized involvement. Patients with residual disease or multicentric cases may require more aggressive treatment.

KEYWORDS

Castleman disease, parotidectomy, salivary glands.

ÖZ

Castleman Hastalığı (CH), ağrısız lenf nodu tutulumu ile karakterize nadir bir lenfoproliferatif hastalıktır. Ekstratorasik bölgede nadirdir. Nadir görüldüğü alanlardan biri de tükürük bezleridir. Bu çalışmada, lokalize parotis CH'si olan 38 yaşındaki bir hastanın tanı ve tedavisi sunulmuştur. Hastanın yaklaşık 6 yıldır sol parotiste kitlesi vardı. Değerlendirme sonrasında cerrahi planlandı. Sol süperfisyal parotidektomi ve sol ikinci zon boyun eksplorasyonu yapıldı. Hastanın patoloji örneğinin makroskobik incelemesinde birkaç nodüler gri doku parçası ve solid görünümlü, sarı ve pembe renklerde büyük bir doku parçası gözlendi. Mikroskobik incelemede boynun sol 2. bölgesinde reaktif lenf nodlarına ek olarak ana parotis kitlesinde parotis bezi yapılarından belirgin olarak ayrılmış parakortikal genişleme, manto bölgesinde belirginleşme, foliküler hiperplazi, bazı foliküllerde kaynaşmış germinal merkez yapıları (ikizleşme), bazı germinal merkezlere transvers girişli hiyalinleşmiş skleroz görüldü. Vasküler kesitler (lolipop görüntüsü ve ikizleşme), interfoliküler alanda vasküler proliferasyon, damar duvarlarında belirgin hiyalinleşme ve plazma hücre artışı ile lenfoid proliferasyon gözlendi. Histopatolojik inceleme "Hiyalin vasküler tip Castleman Hastalığı" ile uyumlu olarak raporlandı. Hastanın 2,5 yıllık takibinde nüks gözlenmedi. Lokalize tutulumu olan hastalarda cerrahi tedavi yeterlidir. Rezidüel hastalığı olan veya multisentrik olgular daha agresif tedaviye ihtiyaç duyabilir.

ANAHTAR KELİMELER

Castleman hastalığı, parotidektomi, tükürük bezleri.

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Castleman Disease, also known as giant lymph node hyperplasia, angiofollicular hyperplasia, or lymphoid hamartoma, is a rare lymphoprolipherative disorder. There have been limited reported cases globally. Initially delineated in 1956 by Castleman, it manifests as a benign localized lymph node enlargement predominantly found in the mediastinum of asymptomatic individuals. The most commonly affected area is the mediastinum, it is infrequent in the extrathoracic area. One of the areas where it is rarely seen is the salivary glands (1).

Additional types have subsequently been identified that expand the spectrum of this heterogeneous group of diseases (1-2). There are two main pathological variations of CD. The hyaline-vascular variant is the most common (> 90%). It is characterized by small hyaline-vascular follicles and capillary proliferation. Another is the plasma cell variant (10%), in which large lymphoid follicles are separated by plasma cell sheets. Hyaline-vascular cases are usually asymptomatic. The plasma cell variant presents with polyclonal hypergamma-globulinemia as well as fever, anemia, weight loss, and night sweats. CD is most commonly seen (60%) in the mediastinum. It can also be foundseen in extrathoracic areas, such as the neck, armpits, mesentery, pelvis, pancreas, adrenal glands, and retroperitoneum. In 14% of cases, involvement in the head and neck region is observed, with 85% of these occurrences specifically localized to the neck region. Establishing a preoperative diagnosis is often extremely challenging and with research endeavours frequently yielding inconclusive results (2-6).

Case Presentation

A 38-year-old female presented with a painless swelling located on the left side of her face. The patient reported no other complaints or medical conditions aside from the swelling, which had persisted for approximately 6 years. On physical examination, a palpable, partially mobile, well-defined mass measuring approximately 4 cm was detected in the left parotid gland region. No additional palpable lymph nodes were noted in the neck. Facial nerve examination was normal. The patient underwent a comprehensive series of blood tests, including complete blood count, biochemistry panel, prothrombin time, partial thromboplastin time, and serological analysis,; all of the results were within the normal range.

Additionally, chest radiography and electrocardiography yielded normal findings. Subsequently, ultrasonography (USG) and computed tomography (CT) imaging were conducted. The USG and CT scans revealed a space-occupying lesion measuring 28 × 16 × 40 mm with hyperechoic foci located in the posterior region of the left parotid gland. There was also a 16x8 mm hypoechoic thick lymph node in the left level 2 of the neck. A 3 cm hyperdense mass was seen in the left parotid in the contrast-enhanced CT. In the retrospective examination of the patient, it was observed that the mass was 34x14 mm in size in the USG performed approximately 3 years ago. The fine needle aspiration biopsy (FNAB) performed at an external center reported no neoplasia. It was learned that the patient had been offered surgery at that time, but had declined.

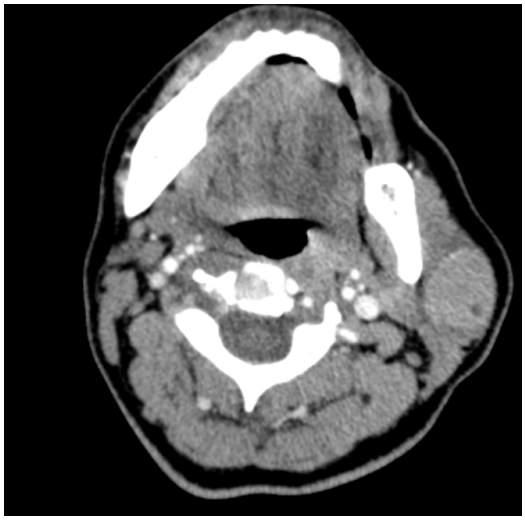

Figure 1. CT image of the mass in the left parotid

The patient was informed about the operation and agreed to undergo surgery. Left superficial parotidectomy and left second zone neck exploration was performed. It started with a Lazy S incision. Once the main trunk of the facial nerve had been located, the parotid gland mass was removed by tracing the branches of the nerve. Additionally, the left 2nd region of the neck was explored. A lymph node thought to be reactive was removed and included in the specimen.

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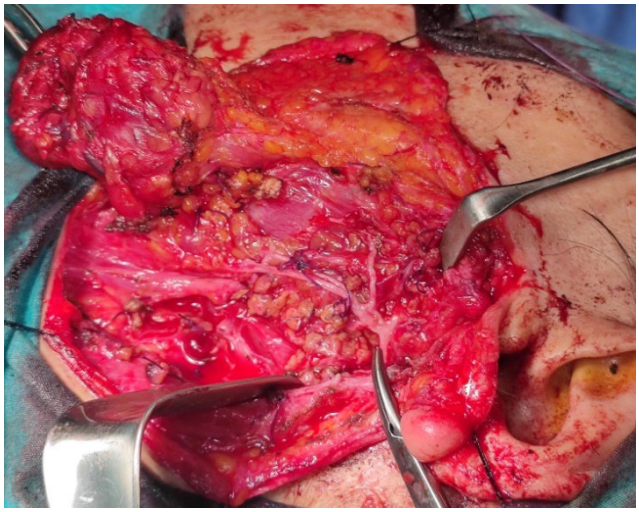

Figure 2. Mass in the left parotid and facial nerve branches

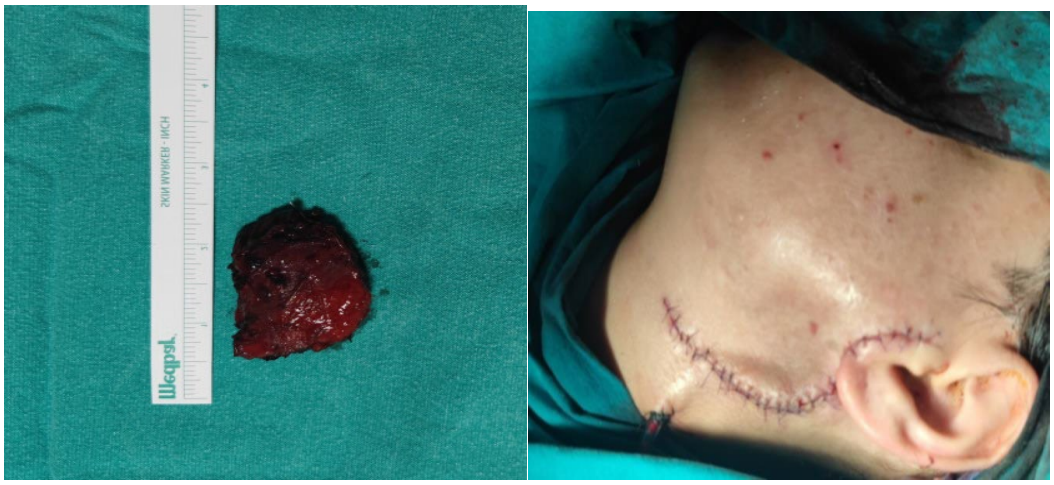

Figure 3. Mass image after removal and Lazy S incision—post-operative skin closure

In our case, the macroscopic examination of the patient's pathology specimen, revealed a few nodular grayish tissue pieces, as well as a large tissue piece with a solid appearance and yellow and pink colors, when a section of 4.5x4x1.7 cm in size was made. In the microscopic examination, in addition to the reactive lymph nodes in the left zone 2 of the neck, paracortical expansion clearly separated from the parotid gland structures in the main parotid mass (Figure 4), prominence in the mantle zone, follicular hyperplasia, fused germinal center structures (twinning) in some of the follicles, and hyalinized sclerosis with transverse entry into some germinal centers were demonstrated.

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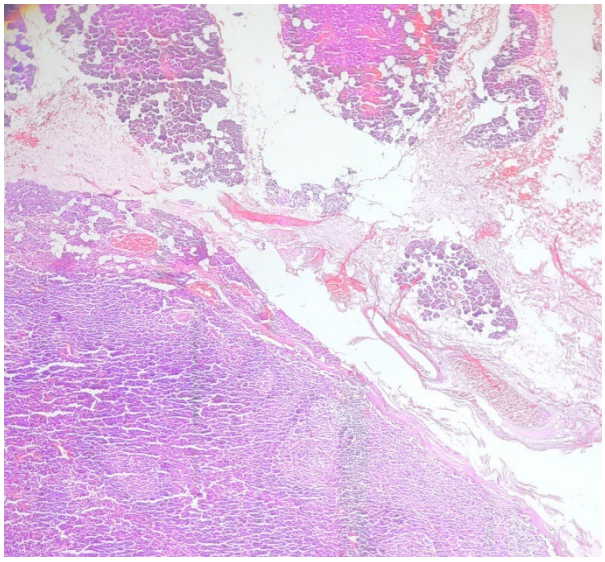

Figure 4. Preserved salivary gland structures are observed at the top, and lymphoid tissue related to the disease is observed at the bottom. H&E, x40

Vascular sections (Figure 5 - lollipop image and twinning), vascular proliferation in the interfollicular area, significant hyalinization in the vessel walls, and lymphoid proliferation were observed. In immunohistochemical study; positive staining was observed in the follicular dendritic network with CD21 and CD23. CD38 and CD138 staining revealed rare plasma cells in the germinal centers and interfollicular areas. Kappa and lambda light chains were positive in some of the plasma cells (polytypic). Diffuse plasma cell proliferation was not observed. Follicular lymphoma (CD10, BCL6, and BCL2) and mantle cell lymphoma (CD5 and Cyclin D1) were excluded based on immunohistochemical staining. The described features were reported as compatible with "Hyaline vascular type Castleman Disease".

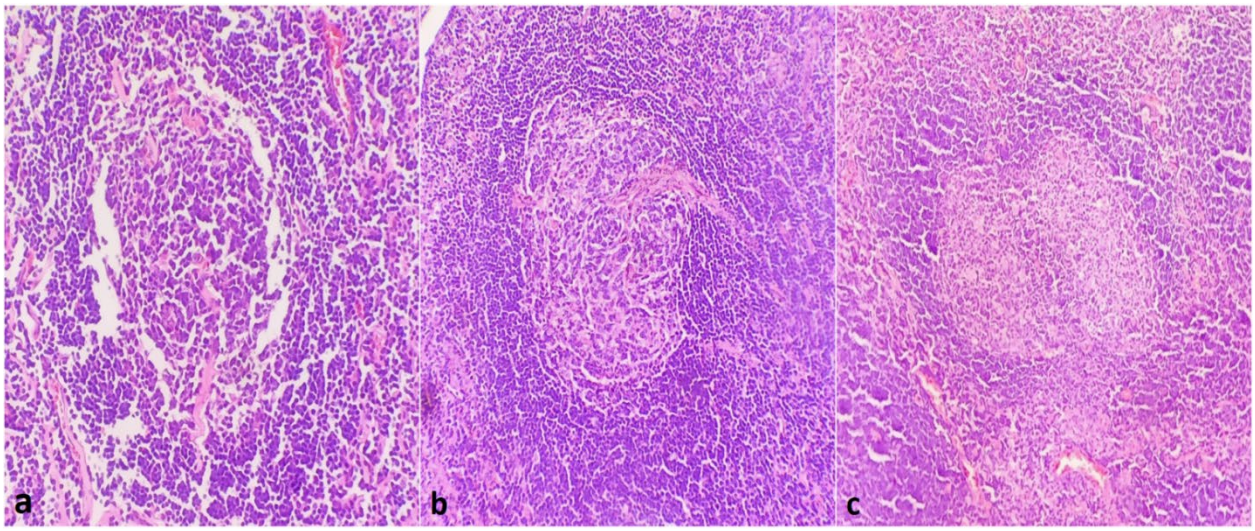

Figure 5. a,b. Lollipop follicle. Hyalinized sclerosing vessel sections with transverse entrance to the germinal center. c. Germinal center structures fused in follicles (twinning).

CD is a rare disease that is called giant lymph node hyperplasia, angiofollicular lymph node hyperplasia, angiomatous lymphoid hamartoma, and Castleman's lymphoma (7). The most commonly affected area is the mediastinum, it is infrequent in the extrathoracic area. One of the areas where it is rarely seen is the salivary glands. In a study, it is mentioned that 112 cases were reported involving the neck area. It is mentioned that 22 of these cases, including their own, involved the parotid gland (7). Pathogenesis is not clearly understood. Some authors argue that it is lymphoid hyperplasia resulting from an immunological response, while others say that it is caused by a benign tumor or hamartoma (8-10). The hyaline vascular variant is the most common subtype of CD. The hyaline vascular type is characterized by small lymphocytes that are arranged concentrically around it. The most common finding is multiple small follicle-like structures with marked vascular proliferation and hyalinization. It is usually localized, and has a favourable clinical course. Another, less common variant, is the plasma cell variant. It is

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characterized by mature plasma cell sheets in the interfollicular spaces and larger hyperplastic follicles with less vascular proliferation. This type is often associated with constitutional symptoms such as fever, fatigue, weight loss, and erythrocytosis. Plasma cell type variant requires close monitoring after surgery, and systemic chemotherapy may be required (11-14)

This disease is difficult to diagnose because it is rare and has no typical signs or symptoms. There are few definitive radiological findings, and lesions tend to mimic other head and neck sites..FNAB is not diagnostic. Definitive diagnosis of CD depends on histopathological examination (5,8,14-17). Although CD has been diagnosed with fine needle aspiration cytology in a few publications, a reliable preoperative cytological diagnosis is generally not possible in routine practice (18,19) It can be confused with lymphoid malignancies, such as mantle cell lymphoma and follicular lymphoma, as well as lymphadenopathies caused by non-neoplastic conditions, including systemic lupus erythematosus, rheumatoid arthritis, and IgG4-related disease. The reliability of fine needle aspiration cytology in the initial diagnosis of lymphoma is controversial, and the diagnosis can be further supported by additional studies, such as flow cytometry (20, 21).

Immunohistochemical studies are crucial for distinguishing CD from low-grade lymphomas. While immunohistochemical stains can be applied to cell blocks obtained from cytological samples, histological sections provide more reliable results. In CD, CD20-positive atretic germinal centers are observed, while the interfollicular areas are rich in CD3- and CD5-positive T lymphocytes. Immunohistochemistry (IHC) can also be used to highlight residual germinal centers (BCL-6,CD10) and follicular dendritic cell networks (CD21). CD138-positive polytypic plasma cells in the interfollicular areas are used to distinguish between hyaline vascular and the plasma cell types of CD (22, 23).

In most patients with parotid gland CD, the lesions are localized (17). Patients with localized CD are treated with complete surgical excision, and recurrence is rare. Radiotherapy may be considered in patients with residual disease. Additionally, more aggressive treatment may be required in multicentric cases. Chemotherapy may be recommended in addition to surgery (5, 8, 11, 24-26). In our case, the patient was also referred to the hematology department after the operation. The patient's disease was accepted as localized parotid gland CD and follow-up was recommended by hematology. No recurrence was observed in the patient's follow-up neck and parotid gland ultrasounds, who was followed for approximately 2.5 years.

In conclusion, CD is a benign lymphoproliferative disease. It is not frequently located in the extrathoracic area. While its location in the head and neck region is rare, salivary gland involvement in this area is even rarer. CD should be kept in mind in the differential diagnosis of salivary gland tumors. While surgical excision is the preferred treatment for single-center CD, additional treatments are required for residual cases of multi-centre CD. Good cooperation between ENT, pathology, and haematology is essential for diagnosing, treating and monitoring this disease.

Author contribution

Gülten Benan Göçer, Mustafa Nacir, Ali Mızrak Data curation, Formal analysis, Methodology, Validation. Gülten Benan Göçer Writing: review & editing.

Declarations

The authors declare no conflict of interest.

Declaration of ethical code

The authors declares that the materials and methods used in this study do not require ethical committee approval or legal-specific permission

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