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RESPIRATORY CASE REPORTS

# A Rare Cause of Mediastinal Lymphadenomegaly: Rosai-Dorfman-Destombes Disease

## Mediastinal Lenfadenomegalinin Nadir Bir Nedeni: Rosai-Dorfman-Destombes Hastalığı

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### Abstract

Rosai-Dorfman-Destombes disease (RDD) is a rare condition that typically presents with cervical lymphadenopathy. The disease usually follows a benign clinical course, and its occurrence in mediastinal lymph nodes is extremely rare. We present here a 48-year-old female patient with Rosai-Dorfman-Destombes disease that manifested as mediastinal lymphadenomegaly, and who was diagnosed by mediastinoscopy.


**Keywords:** *Mediastinal lymphadenomegaly, mediastinoscopy, Rosai-Dorfman-Destombes disease.*


### Öz

Rosai-Dorfman-Destombes hastalığı (RDDH), tipik olarak servikal lenfadenopati ile kendini gösteren nadir bir hastalıktır. Hastalık genellikle iyi huylu bir klinik seyir gösterir. Mediastinal lenf nodlarında görülmesi son derece nadirdir. Bu yazıda 48 yaşında kadın hastada mediastinal lenfadenomegali şeklinde ortaya çıkan ve mediastinoskopi ile tanısı konulan Rosai-Dorfman-Destombes hastalığı olgusunu sunuyoruz.


**Anahtar Kelimeler:** *Mediastinal lenfadenomegali, mediastinoskopi, Rosai-Dorfman-Destombes hastalığı.*

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Mediastinal lymphadenopathies may be encountered in such benign diseases as sarcoidosis and tuberculosis, or for reasons such as malignancies (1). Various interventional methods can be applied for diagnosis. A needle biopsy can be performed during endobronchial ultrasonography while larger biopsy specimens can be obtained with mediastinoscopy.

Rosai-Dorfman-Destombes Disease (RDD) is characterized by painless massive lymphadenopathy, leukocytosis and a high erythrocyte sedimentation rate, and follows a benign clinical course. It may occur in all lymph nodes in the body, but it is more common in those in the cervical region, while extranodal involvement can develop in approximately 25% of cases (2). It is rare in mediastinal lymph nodes. We present here a case with Rosai-Dorfman-Destombes disease, which in rare cases causes mediastinal lymphadenomegaly, in the light of literature.

## CASE

A 48-year-old female patient presented with a complaint of dyspnea, but no obvious pathology was detected in a physical examination. Blood tests pointed to anemia, with Hgb: 11.3 g/dl (min:12-max:15,5), Hct: 34.3%, MCV: 71fL, MCH: 23.6pg, iron: 15 μg/dl and iron binding capacity: 402 μg/dl, while the patient's sedimentation rate was determined as 35 mm/h. Immunoglobulin G was 17.9 g/L, and β2-microglobulin was 2.78 mg/L. Upon the detection of mediastinal enlargement on a chest X-ray, a computed tomography (CT) of the thorax was performed revealing paratracheal, subcarinal and bilateral hilar multiple lymphadenopathies (Figure 1).

Due to the possibility of malignancy of the detected mediastinal lymph nodes, positron emission tomography/CT (PET/CT) imaging was performed, during which the fluoro-2-deoxy-glucose (FDG) standardized maximum uptake (SuvMax) value of the lymph nodes was identified as 15.85 (Figure 2).

No tissue diagnosis could be obtained from the paratracheal lymph node through endobronchial ultrasound (EBUS) performed in the chest diseases clinic. Mediastinoscopy was performed for lymph node sampling, which was referred to at our clinic. Multiple biopsies were taken from the right paratracheal and subcarinal lymph nodes, and the patient was discharged without any complications on the first postoperative day.

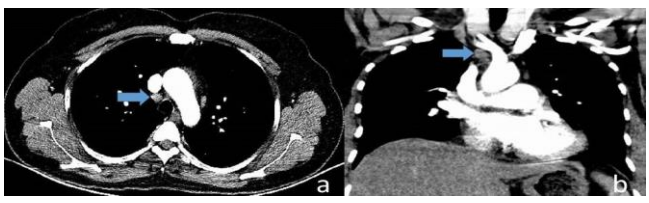


*Figure 1: Enlarged lymphadenopathies observed in the right paratracheal area in the axial (a) and coronal sections of the computed tomography (b)*

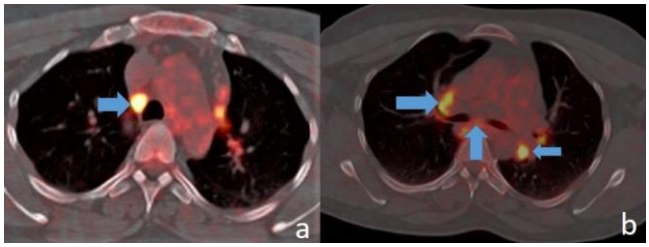


*Figure 2: PETCT imaging showing an increased FDG uptake (SUVmax: 15,85) in the right paratracheal (a) and subcarinal and left hilar lymph nodes (b)*

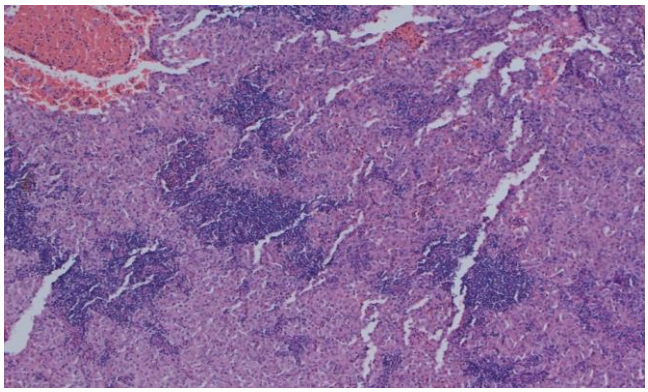

*Figure 3: Lesion with a prominent histiocytic infiltration on a background of predominant lymphocytes (HE, X100)*

The pathology examination revealed a proliferation of CD68 (KP1) positive and CD1a immunonegative histiocytes that had destroyed the follicle structures of the lymph node. No significant atypia or mitotic activity were observed in the histiocytes, and the findings were consistent with RDD (Figures 3-4-5). The patient was followed up without treatment, and a decrease in the size and SuvMax values of the mediastinal lymph nodes was noted on PET/CT imaging 18 months later (Figure 6). The patient's consent was obtained for this study.

## DISCUSSION

RDD, first described by Rosai and Dorfman in 1969, is a rare idiopathic histiocytic proliferative disease that mostly affects children and adolescents. It is known also as sinus histiocytosis with massive lymphadenopathy (2). RDD has a prevalence of 1 case per 200,000 people, with a mean age of onset of 20.6 years, a greater prevalence in African patients and a slight preponderance in males (male/female ratio of 1:4) (3-5). It is a rare disease that tends to occur in the first or second decades of life. Although its etiology has not been clearly determined, it has been reported to be associated with disorders in the immune system, Epstein-Barr virus and human herpes virus 6 (6). Although it is usually seen in the early stages of life, it can also be detected in advanced ages due to its benign nature.

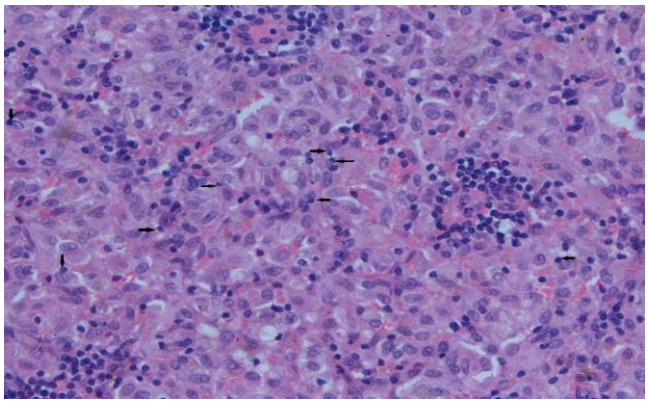

*Figure 4: Histiocytes characterized by round to oval nuclei with a centrally located single nucleolus and abundant eosinophilic cytoplasm, containing enveloped inflammatory cells (emperipolesis), as indicated by arrows (HE, X400)*

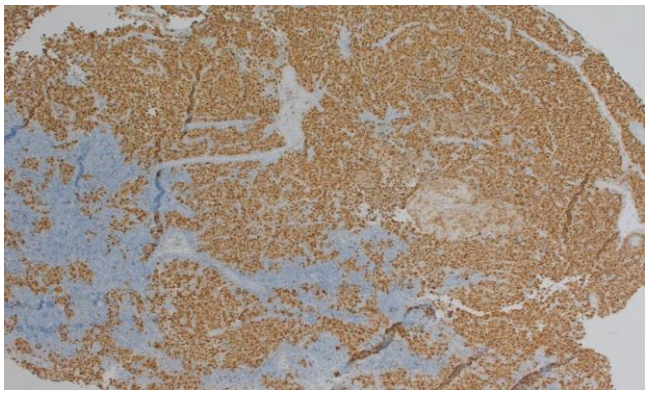

*Figure 5: Positive staining for CD68 in the lesional histiocytes (CD68X50)*

The disease most commonly presents as painless massive cervical lymphadenopathy, although its incidence is low. Extranodal involvement can occur as an isolated finding or with lymphadenopathy in the skin, soft tissue, upper respiratory tract, multifocal bone, eye and retro-orbital tissue areas (7). Rare cases of RDD occurring in mediastinal lymph nodes have been reported.

Hematological disorders include microcytic or normocytic anemia, thrombocytopenia or increased erythrocyte sedimentation rate (ESR), and in some cases, autoimmune hemolytic anemia may also occur. An increased erythrocyte sedimentation rate and polyclonal hypergammaglobulinemia are detected in the majority of patients, although increased neutrophil levels and leukocytosis have also been reported (8,9).

A definitive diagnosis of RDD can be made based on a pathological examination. The detection of emperipolesis, defined as the engulfment of lymphocytes and erythrocytes by histiocyte-like cells expressing S-100, indicates an RDD diagnosis. Although positive for CD68, CD163, α1-antichymotrypsin, α1-antitrypsin, fascin and HAM-56 are detected with S-100 antigen positive, CD1a negative is detected (10,11).

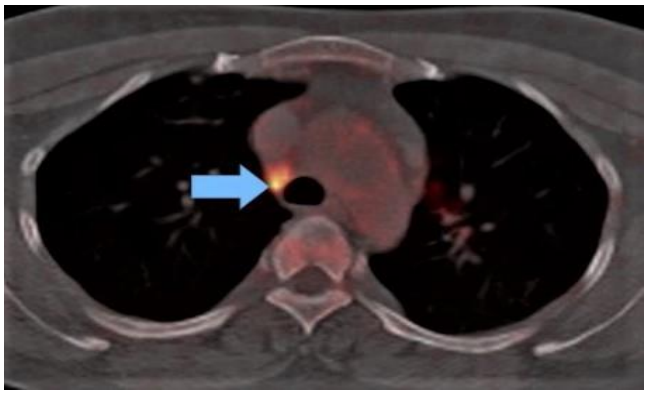

*Figure 6: Control PETCT image of the right paratracheal lymph node with spontaneous regression in SUVmax value and dimensions (SUVmax: 7.6)*

In the case presented here, the pathology sample revealed a proliferation of CD68 (KP1) positive, CD1a immunonegative histiocytes that had destroyed the follicle structures in sections of the lymph node. No significant atypia or mitotic activity were observed in the histiocytes, while lymphocyte infiltration surrounding the histiocytes and locally observed intracytoplasmic were observed. All of these pathological findings supported the diagnosis of RDD.

RDD may so closely resemble leukemia or lymphoma that it is clinically considered a pseudo-lymphomatous disorder. The disease is mostly benign and the enlarged lymph nodes regress spontaneously in the long term, although some mortal cases have also been reported. The emperipolesis typically observed in RDD in pathology specimens may also be seen in autoimmune hemolytic anemia, myelosclerosis, carcinoma, neuroblastoma, multiple myeloma, leukemia and malignant lymphomas, although only rarely (12).

The differential diagnosis of RDD is broad and similar to other benign or malignant lymphadenopathy etiologies. The benign causes include other histiocytic disorders such as tuberculosis, Wegener's granulomatosis, Castleman disease, sarcoidosis and IgG4-related disease, while malignant etiologies include Hodgkin and Non-Hodgkin lymphoma, melanoma, leukemia and Langerhans cell sarcoma (8).

There are two methods used widely today for the obtaining of biopsies from mediastinal lymphadenopathies: endobronchial ultrasound-guided transbronchial needle biopsy (EBUS-TBNA) and classical cervical mediastinoscopy. EBUS-TBNA has gained popularity in recent years but is known to give false negative results in benign or malignant diseases with low FDG affinity in preoperative imaging. Furthermore, if it is performed under general anesthesia, it is not a minimally invasive procedure (13), while experienced centers can achieve successful results with high diagnosis and low complication rates through mediastinoscopy.

## CONCLUSION

Since benign or malignant diseases occurring in mediastinal lymph nodes have similar radiological images, diagnosis should be based on tissue sampling when detected. Mediastinoscopy maintains a role in the current approach as it allows the direct visualization of the mediastinal structures and the taking of large biopsies. Although rare in patients with mediastinal lymphadenomegaly, RDD should be kept in mind in suspected cases.

## CONFLICTS OF INTEREST

None declared.

## AUTHOR CONTRIBUTIONS

Concept - A.C., H.Y., H.Ş., G.S.S., P.K.; Planning and Design - A.C., H.Y., H.Ş., G.S.S., P.K.; Supervision - A.C., H.Y., H.Ş., G.S.S., P.K.; Funding - A.C., H.Y., H.Ş., G.S.S., P.K.; Materials - A.C., H.Y., H.Ş., G.S.S., P.K.; Data Collection and/or Processing - A.C., H.Y., H.Ş., G.S.S., P.K.; Analysis and/or Interpretation - A.C., H.Y., H.Ş., G.S.S., P.K.; Literature Review - A.C., H.Y., H.Ş., G.S.S., P.K.; Writing - A.C., H.Y., H.Ş., G.S.S., P.K.; Critical Review - A.C., H.Y., H.Ş., G.S.S., P.K.

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