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A Rare Disease in the Differential Diagnosis of Chylothorax: Waldenström's Macroglobulinaemia

Şilotoraks Ayırıcı Tanısında Nadir Bir Hastalık: Waldenström Makroglobulinemisi

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ABSTRACT

Waldenström's macroglobulinaemia is a disease in the B lymphoproliferative diseases group with immunoglobin M monoclonality and may present with different clinical manifestations. A 52-year-old male patient presented with complaints of weight loss and shortness of breath. Computed tomography (CT) results revealed a mass with a malignant soft tissue density in the abdomen. In the thoracic images, free fluid of up to 130 mm was found between the pleural leaves on both sides. His biopsies from the abdominal mass and bone marrow were reported to be compatible with a lymphoplasmocytic lymphoma in the presence of plasmoid differentiation B cell neoplasia and a Waldenström clinic. Cyclophosphamide -adriamycin -vincristine -prednisolone regimen was used in the first cycle chemotherapy. Positron emission tomography/CT imaging, which was performed on the 15th day after the second cycle of chemotherapy, showed that the patient's tumour was stable in size, but metabolic partial regression was observed. Bortezomib-dexamethasone-rituximab regimen was planned because of the resistant chylothorax. The patient had a dramatic clinical response and the chylothorax regressed completely after the first cure treatment. Chylothorax is a rare clinical presentation with chyle in the pleural area. It has traumatic and non-traumatic causes. Non-traumatic causes are most frequently seen due to malignancies. Waldenström's macroglobulinaemia has a very rare incidence, and the clinical association between Waldenström's macroglobulinaemia and chylothorax is very interesting. Standard treatment regimens vary, but the response to treatment also varies. Our case was resistant to the first line treatment, but had a dramatic response to the bortezomib and rituximab-based treatment.

Keywords: Waldenström's macroglobulinaemia, chylothorax, bortezomib, hyperviscosity

ÖZ

Waldenström makroglobulinemisi, immünoglobulin M monoklonalitesi gösteren B lenfoproliferatif hastalıklar grubunda bulunan bir malignitedir ve farklı klinik belirtilerle ortaya çıkabilir. Elli iki yaşında erkek hasta, kilo kaybı ve nefes darlığı yakınmalarıyla kliniğimize başvurdu. Bilgisayarlı tomografi (BT) ile yapılan görüntülemelerinde; batında geniş yer kaplayan malign görünümlü bir kitle tespit edilirken, toraks görüntülerinde, bilateral plevral yapraklar arasında 130 mm'ye varan serbest sıvı saptandı. Abdominal kitle ve kemik iliğinden alınan biyopsilerinin, plazmoid farklılaşma gösteren B hücre neoplazisi ve Waldenström kliniği ile birlikte değerlendirildiğinde lenfoplazmositik lenfoma ile uyumlu olduğu bildirildi. İlk kürde siklofosfamid -adriamisin-vinkristin -prednizolon rejimi tercih edildi. İkinci siklus kemoterapi sonrasındaki 15. günde yapılan pozitron emisyon tomografisi/BT görüntülemesinde, hastanın tümör boyutu stabil iken metabolik olarak parsiyal regresyon gözlendi. Dirençli silotoraks kliniği nedeniyle bortezomib-deksametazon-rituksimab rejimi planlandı. İkinci seri bu tedavi ile dramatik klinik yanıt elde edildi ve ilk tedavi sonrası şilotoraks tamamen geriledi. Şilotoraks, plevra yaprakları arasında şilöz materyalin birikimi ile görülen nadir bir klinik tablodur. Travmatik ve travmatik olmayan nedenleri vardır. Travmatik olmayan nedenleri en sık malignitelerin oluşturduğunu görmekteyiz. İki ayrı nadir antite olarak, şilotoraks ve Waldenström makroglobulinemisinin görülmesi oldukça ilgi çekicidir. Standart tedavi rejimleri değiştiği gibi, alınan yanıtların da farklı olduğu gözlenmektedir. Olgumuzda birinci basamak tedaviye direnç gözlenmiş olup, bortezomib ve rituksimab bazlı tedaviden ise dramatik yanıt alındı.

Anahtar Kelimeler: Waldenström makroglobulinemisi, şilotoraks, bortezomib, hiperviskozite

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Introduction

Chylothorax is the accumulation of chyle in the pleural area. While short and medium chain fatty acids are converted to free fatty acids by intestinal lipases and absorbed into the portal circulation, larger molecules are absorbed into the thoracic duct system in the form of chylomicrons together with the lower limb lymphatic drainage. Traumatic or non-traumatic damage of this lymphatic system results in the accumulation of chylous material in the pleural cavity. Traumatic damage is most frequently caused by surgery, while non-traumatic damage is most frequently caused by malignancies (1).

Waldenström's macroglobulinemia is a disease in the B lymphoproliferative diseases group with immunoglobin M (IgM) monoclonality and the production of IgM heavy chain and light chain (2). The clinical presentation of the disease varies, including fever, weight loss-like constitutional symptoms, symptomatic anaemia, thrombocytopenia, amyloidosis and related organ involvement symptoms, hyperviscosity, lymphadenopathy, organomegaly, etc, it may present with different clinical manifestations. The cure expectancy for Waldenström's macroglobulinaemia is still not expectable (2). In this case report, we present a patient with a clinic of Waldenström macroglobulinaemia who presented with an aggressive lymphoblastic lymphoma associated with an aggressive and refractory clinic of a chylothorax.

Case Report

A 52-year-old male patient applied to the general surgery outpatient clinic in June 2019 with complaints of weight loss and shortness of breath. Computed tomography (CT) results revealed a mass with a malignant soft tissue density, extending from the thoracic level along the paravertebral area to the inferior area, surrounding the aorta and its branches in the retroperitoneum and also surrounding the iliac arteries. In the upper abdomen, a mass lesion extending towards the portal hilar area and along the superior mesenteric artery axis was extended to the midline of the abdomen. In the thoracic images, a free fluid of up to 130 mm was found between the pleural leaves on both sides, and a view of atelectasis was observed at the level of the adjacent lower lobe segment.

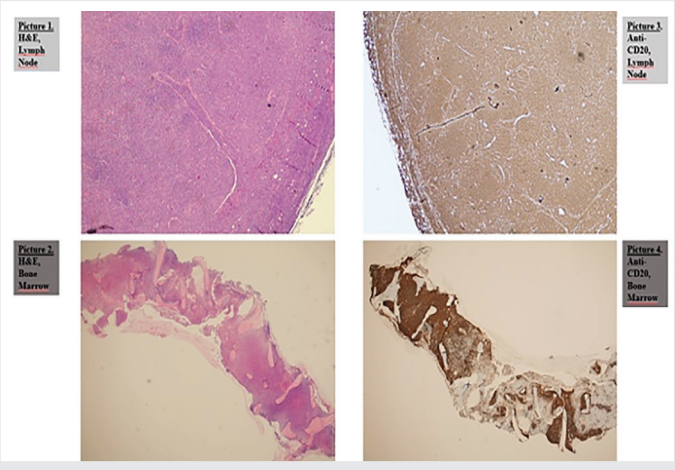

Figure 1. Images of lymph node and bone marrow biopsy sections with hematoxylin-eosin and CD20 with immunochemistry

The patient was referred to the haematology clinic after a biopsy of the abdominal mass and bone marrow was performed. Biopsy from the mass was reported to be compatible with a lymphoplasmocytic lymphoma in the presence of plasmoid differentiation B cell neoplasia and Waldenström clinic. Bone marrow biopsy showed a low-grade CD20 (+) lymphoid infiltration in the bone marrow and was reported to be in favour of Waldenström's macroglobulinaemia involvement (Figure 1). In addition to anaemia and the sedimentation rate, the serum IgM level was 11 g/L and the free kappa level was 137 mg/L. Furthermore, total protein was 9.2 g/dL, albumin was 3.5 g/dL, globulin was measured as 5.7 g/dL and aBeta 2 microglobulin was 8.8 mg/L. Bilateral evacuating thoracentesis was performed because of the bilateral massive pleural effusion causing respiratory distress and desaturation (Figure 2). A catheter was inserted and the pleural effusion was evaluated to be compatible with a chylothorax (Figure 3). A nephrostomy catheter was inserted because of bilateral grade 3 hydronephrosis, predominantly on the left side due to compression from the abdominal mass.

Cyclophosphamide -adriamycin -vincristine -prednisolone (CHOP) regimen (cyclophosphamide 750 mg/m²/day intravenous (iv). 1st day, adriamycin 50 mg/m²/day iv.1st day, vincristine 1.4 mg/m² /day iv. 1st day (maximum 2 mg) prednisolone 100 mg/day iv (days 1, 2, 3, 4, 5) was used in the first cycle. Positron emission tomography (PET)/CT imaging, which was performed on the 15th day after the second cycle of chemotherapy, showed that the patient's tumour was stable in size, but metabolic partial regression was observed. Bortezomib-dexamethasone-rituximab (BDR) regimen (bortezomib 1.3 mg/m², dexamethasone 40 mg iv day 1, 4, 8 and 11; rituximab 375 mg/m² iv day 11) was planned because of the therapy-resistant chylothorax originating from the thoracic tube. His mass was the only metabolic responsible and did not diminish in size. The patient had a dramatic clinical response with a complete regression of the chylothorax after the first cure treatment. Talc plorodesis was performed by pulling the chest tube, and the nephrostomy catheter was also removed. The patient was discharged to continue treatment as an outpatient. A written informed consent was obtained from our patient.

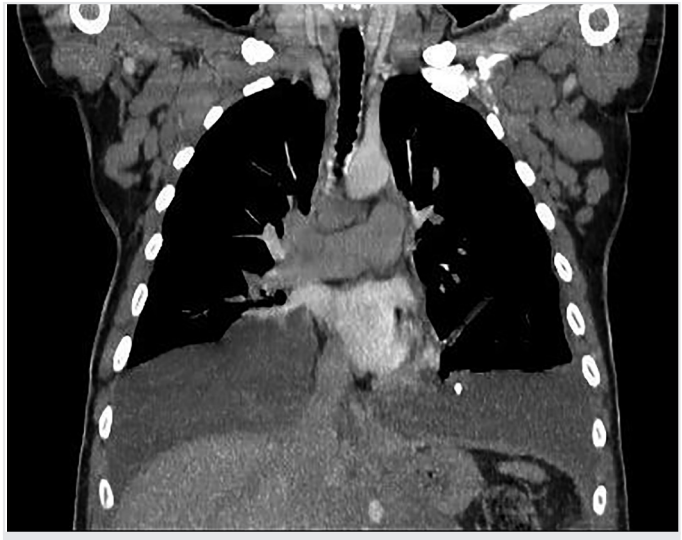

Figure 2. Computed tomography image during diagnosis: bilateral chylothorax

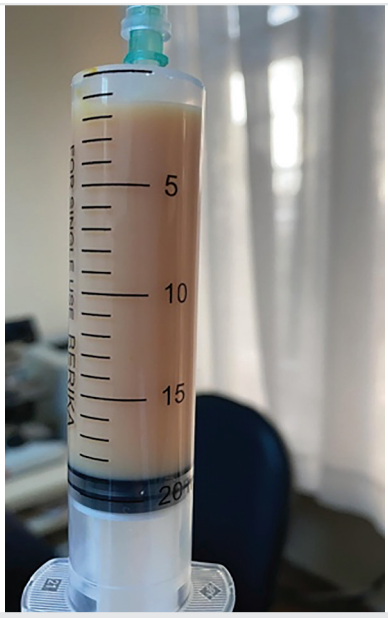

Figure 3. The appearance of chylothorax after a diagnostic percutaneous thoracic puncture

Discussion

Chylothorax with chyle in pleural area is a rare clinical presentation. It is also a rare cause of pleural effusion with chyle leakage into the pleural space. It has both traumatic and non-traumatic causes. Among surgical factors, thoracic surgical procedures are the most common traumatic factors (3,4). Non-traumatic causes are most frequently seen due to malignancies. Given that Waldenström's macroglobulinaemia also has a very rare incidence with 0.38/100,000 (5), the clinical association between Waldenström's macroglobulinaemia and chylothorax is very interesting.

The second important point to highlight in our case is the response to the preferred treatment regimen. For this case with Waldenström's macroglobulinaemia, CHOP therapy was chosen as the preferred treatment since it does not contain rituximab, due to the risk of developing hyperviscosity in line with the recommendations of current treatment guidelines, followed by rituximab CHOP in the second cure. Due to the persistence of the pleural effusion and chylothorax, the patient was started on a BDR chemotherapy regimen recommended as the second-line chemotherapy treatment (6-8). We had a good clinical response with the BDR regimen, which is consistent with the literature. In the literature, similar rare cases presenting with chylothorax have been. In these case reports, it is noted that regimens based on bortezomib and its combinations are recommended.

Chylothorax is a very rare clinical presentation, and traumatic factors play a major role in its aetiology. Although malignancies lead to non-traumatic causes, Waldenström's macroglobulinaemia is a rare cause. Standard treatment regimens vary, and responses to treatment also vary. Our case was resistant to the first line treatment, but showed a good clinical response with a bortezomib and rituximab-based treatment.

Ethics

Informed Consent: A written informed consent was obtained from our patient.

Peer-review: Internally peer-reviewed.

Authorship Contributions: Concept - İ.S., M.H.D., H.G., H.M., O.Y.; Design - İ.S., M.H.D., H.G., H.M.; Data Collection or Processing - İ.S., H.M.; Analysis or Interpretation - İ.S.; Literature Search - İ.S., H.M.; Writing - İ.S., M.H.D., H.G., H.M., O.Y.

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References

1. Schild HH, Pieper C. Chylothorax: Current Therapeutic Options. Zentralbl Chir 2019; 144: S24-30.
2. Gertz MA. Waldenström macroglobulinemia: 2019 update on diagnosis, risk stratification, and management. Am J Hematol 2019; 94: 266-76.
3. Otoupalova E, Meka SG, Dogra S, Dalal B. Recurrent chylothorax: a clinical mystery. BMJ Case Rep 2017; bcr-2017-220750.
4. McGrath EE, Blades Z, Anderson PB. Chylothorax: aetiology, diagnosis and therapeutic options. Respir Med 2010; 104: 1-8.
5. Rodriguez Botero N, Zerrate Misas A, Galvez Cardenas KM, Ramirez Quintero JD. Chylothorax as an Initial Manifestation of Waldenström macroglobulinemia. Cureus 2020; 12: e7566.
6. Kastritis E, Leblond V, Dimopoulos MA, Kimby E, Staber P, Kersten MJ, et al. Waldenström's macroglobulinaemia: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol 2018; 29(Suppl 4): iv41-50.
7. Dimopoulos MA, García-Sanz R, Gavriatopoulou M, Morel P, Kyrtsonis MC, Michalis E, et al. Primary therapy of Waldenström macroglobulinemia (WM) with weekly bortezomib, low-dose dexamethasone, and rituximab (BDR): long-term results of a phase 2 study of the European Myeloma Network (EMN). Blood 2013; 122: 3276-82.
8. Poisson J, Aregui A, Darnige L, Maley K, Gisselbrecht M. Association of chylothorax and direct pleura involvement in a case of Waldenström's macroglobulinaemia. Age Ageing 2014; 43: 581-3.