Cardiac Tamponade, as Initial Manifestation of Empty Sella Syndrome: Case Report

Kardiyak Tamponatla Başvuran Boş Sella Sendromu

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ABSTRACT A 58-year-old female was admitted to our emergency department with the complaint of dyspnea. She had tachycardia and hypotension. ECG showed low voltage in all derivations. Chest-x-ray revealed cardiomegaly. Echocardiographic examination showed massive pericardial fluid with the collapse of right atrium and right ventricle. The patient was undergone to urgent pericardiocentesis. An approximately 2000 cc of clear, yellow pericardial fluid was drained totally. After the procedure, her clinical condition improved dramatically. The laboratory examination of pericardial fluid excluded the presence of any infectious or malignant disease. The thyroid function test showed hypothyroidism with normal TSH levels. Auto antibodies to thyroid gland were negative and thyroid USG revealed a normal gland. Further analysis of the hormonal status detected the presence of hypopituitarism and we reached the diagnosis of empty sella syndrome with magnetic resonance imaging of cranium. Here, we discussed the cardiac tamponade as initial presentation of empty sella syndrome.

Key Words: Empty sella syndrome, cardiac tamponade

ÖZET 58 yaşında bayan hasta, acil servise nefes darlığı yakınmasıyla başvurdu. Fizik muayenesi taşikardi ve hipotansiyon ile uyumluydu. EKG'de tüm derivasyonlarda düşük voltaj mevcuttu. Telekardiyografide kardiyomegali vardı. Ekokardiyografik incelemede sağ atriyum ve sağ ventrikülde çökmeye neden olan ileri derecede perikardiyal sıvı saptandı. Hastaya acil perikardiyosentez yapıldı. 2000 cc berrak, sarı renkte perikardiyal sıvı boşaltıldı. Hastanın vital bulguları işlem sonunda normale geldi. Perikardiyal sıvı incelemesinde enfeksiyonu veya malignensiyi gösteren herhangi bir bulguya rastlanmadı. Tiroid fonksiyon testi; normal TSH seviyeli hipotiroidi ile uyumluydu. Tiroid otoantikorları negatifti ve tiroid USG'de tiroid bezi normal görüntülendi. Hormon seviyelerinin ayrıntılı incelemesi sonucu hastada hipopitüitarizm tespit edildi ve kranial manyetik rezonans görüntüleme sonucunda boş sella sendromu tanısına ulaşıldı. Bu yazıda, kardiyak tamponat kliniği ile kendini gösteren bir boş sella sendromlu olgunun tartışılması amaçlanmıştır.

Anahtar Kelimeler: Boş Sella Sendromu, kardiyak tamponat

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A 58-year-old female presented with clinical signs of cardiac tamponade. Echocardiographic examination demonstrated massive pericardial fluid with collapse of right atrium and ventricle. She was treated by emergent pericardiocentesis. Blood and pericardial fluid examination didn't reveal any infectious or malignant disease. Her hormonal analysis detected a state of hypopituitarism and cranial MRI demonstrated empty sella syndrome in the patient. Here, we report an unusual and unex-

pected presentation of empty sella syndrome as 'Cardiac tamponade'.

CASE REPORT

A 58-year-old female was admitted to our emergency department with the complaint of dyspnea. She had a previous history of exertional dyspnea started 6 months ago and gradually progressed over time. On physical examination, she was pale and ortopneic. Her facial expression was dull. Cold extremities and a depigmented skin were prominent. She had a blood pressure of 75/40 mmHg with a pulse rate of 115 beats /min. The jugular venous pressure was 18 cm H_2O, and heart sounds were distant. ECG showed low voltage in all derivations (Figure 1). Chest-x-ray revealed cardiomegaly. With the suspicion of cardiac tamponade, emergent echocardiographic examination was performed and a massive pericardial fluid with right atrial and right ventricular collapse were seen. The patient was undergone to immediate pericardiocentesis. An approximately 2000 cc of clear, yellow fluid with a protein content of 0.8 g/dl was drained totally. During pericardiocentesis, her blood pressure raised to 90/60 mmHg and she improved dramatically at the end of the procedure with a blood pressure of 110/70 mmHg and a pulse rate of 70/min. (Figure 2 A-B).

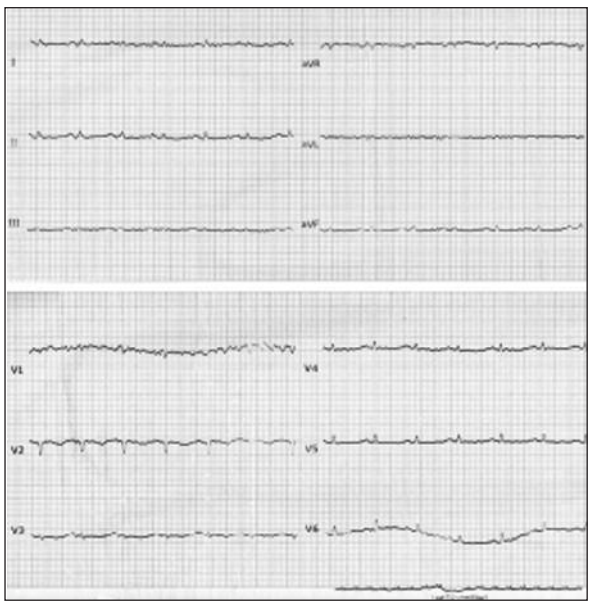

FIGURE 1: ECG showing low voltage in all derivations.

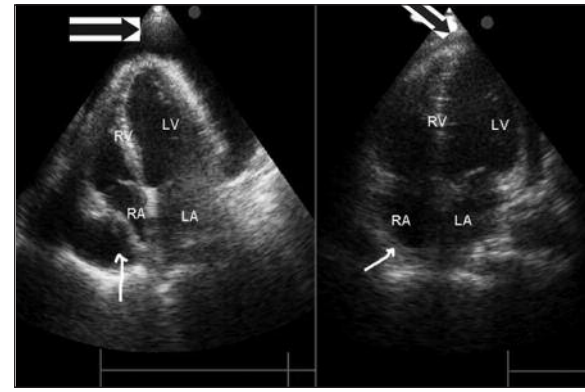

FIGURE 2: (A) The arrows showing massive pericardial effusion causing collapse of right atrium and right ventricle. (B) Successfully disappearing of pericardial fluid after pericardial drainage.

She didn't have any known disease and there wasn't a history of previous infection. The pericardial fluid examination results showed no evidence of any infectious or malignant disease. (ARB: (-), cultures for bacteria and M. tuberculosis were negative, adenosin deaminase : 23.9 U/L (0.0-40.0), M.tuberculosis DNA: (-) cytology: normal). White blood cell count and sedimentation rate was normal. The laboratory findings revealed normocytic anemia, hypoglycemia, hyponatremia and elevated CRP levels. Serum iron concentration was decreased with an increase in ferritin levels. The blood immunological serology and tumor markers revealed no abnormality. The thyroid function test showed hypothyroidism with normal TSH levels. (Free T3: 1.44 pg/ml (1.8-4.2), free T4: 0.645 ng/ml (0.8-1.9) and TSH: 1.29 uIU/L (0.4-4)). Autoantibodies to thyroid gland were negative and thyroid USG revealed a normal gland.

The signs and laboratory findings showed that the patient was in a hypothyroid state; however normal (not elevated) TSH levels and normal results of thyroid ultrasonography confirmed the presence of a secondary hypothyroid state rather than primary hypothyroidism. The presence of depigmentation, hypoglycemia and hyponatremia increased the possibility of a coexisting hormonal deficiency, like hypoadrenalism.

So, we analysed her hormonal status. The laboratory results were consistent with hypoadrenalism and hypogonadism. The existing chronic

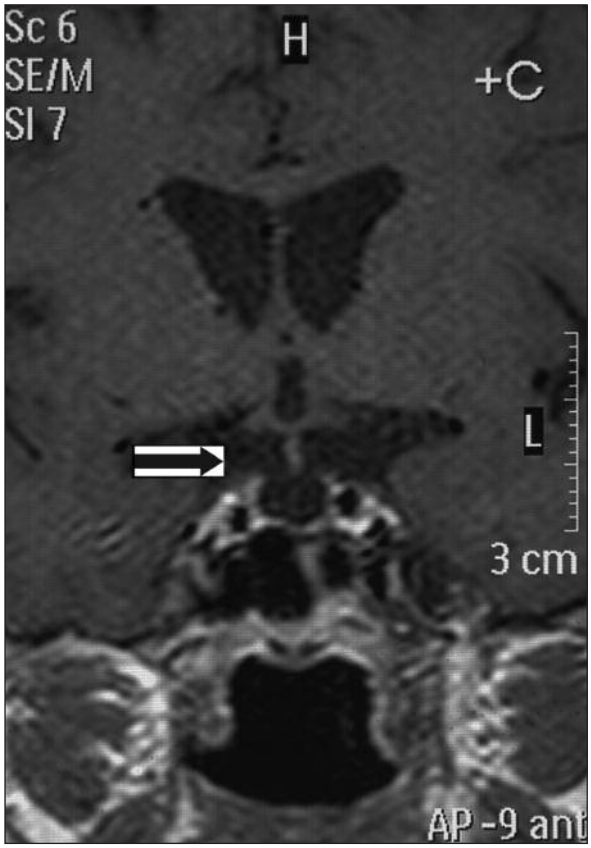

FIGURE 3: MRI of hypophysis showing enlarged sella with lack of a soft tissue and without any tumor in it.

disease anemia was also a relevant evidence for chronic hormonal disease. With the suspicion of hypopituitarism, further diagnostic laboratory tests (e.g. ACTH stimulation test) were performed and a diagnosis of pituitary failure was made. MRI of hypophysis showed an enlarged sella with lack of a soft tissue. An empty sella syndrome was diagnosed. (Figure 3). L-thyroxin and cortisol replacement therapy were started immediately. Over the next 4 months of follow up, she was totally asymptomatic without any sign of pericardial effusion. Control echocardiographic examinations revealed normal findings.

DISCUSSION

The cardiovascular system takes multiple endocrine stimuli that can regulate the normal physiology of heart. So alterations in endocrine signals can cause changes in hemodynamics by effecting the cardiac inotropy and chronotropy. Blood pressure, glucose metabolism and lipid profile are other changeable parameters during a hormonal disturbance. However, hemodynamic alterations usually occur in a slow and subtle manner. Acute, dramatic clinical deteriorations like development of cardiac tamponade is unusual and unexpected.[1]

There were only few patients in the literature that developed cardiac tamponade during the course of an endocrine disorder. Most of them were associated with primary hypothyroidism,[2-4] and remaining few cases occured in the setting of Sheehan's syndrome (attributed to secondary hypothyroidism)[5,6] or adrenal insufficiency.[7] Echocardiographic examinations demonstrate pericardial fluid in approximately 30% of overtly hypothyroid patients, however the development of cardiac tamponade is very rare due to the slow accumulation of fluid.[1] The same is somewhat true for hypoadrenalism. Cortisol maintains inotropy and regulates vascular response but development of cardiac tamponade in hypoadrenalism is unexpected and extremely rare.[5]

There was only 1 patient in the literature that developed tamponade on the follow up of empty sella syndrome which was accompanied with Hashimato's disease. Tamponade developed when the patient was euthyroid under thyroid replacement therapy, so reason of tamponade was attributed to the newly developed adrenal failure.[8] Our case is the first in means of development of cardiac tamponade as an initial and chief manifestation of empty sella syndrome before the diagnosis was made. There were (laboratory confirmed) both secondary hypothyroidism and secondary hypoadrenalism when the tamponade was diagnosed. Another distinct feature is the absence of any concomitant primary adrenal or thyroid disease. Thus, this makes our case the first also in means of reporting the development of cardiac tamponade as a complication of pure empty sella syndrome.

The underlying mechanism remains unclear. We thought that our patient had a sub-clinical pericardial effusion due to newly developed hypothyroidism. However, with the progression of disease, hypothyroidism got worse and hypoadre-

nalism developed, thereby intravascular volume decreased suddenly and limited the right ventricular filling causing tamponade.

As the etiology of empty sella syndrome, we couldn't find any secondary reason like radiation, surgery, trauma or tumor. The patient had a child of 17 years old and no history of postpartum hemorrhage. She was a healthy woman until 6 months ago when her dyspneic complaints started. So, we considered a primary empty sella syndrome in our patient.

In conclusion; cardiac tamponade isn't very infrequent as a complication of primary hypothyroidism, however it's extremely rare in secondary hypothyroidism and hypoadrenalism.[5] Here, we mentioned the unique features of our case with this unexpected presentation. From another point of view, this report highlights the possibility of empty sella syndrome and hormonal deficiency as a cause of unexplained cardiac tamponade cases. We must make further investigations especially in the presence of an abnormal thyroid function test. Hypoglycemia, hyponatremia and normocytic anemia can give extra clue for a preexisting chronic hormonal disturbance. CRP levels may be also helpful in the diagnosis as expected to be elevated in hypopituitary women.[9]

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