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Olgu Sunumu

A Rare Cause of Chest Pain Mimicking Coronary Artery Disease

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Chest pain accounts for 6% of emergency room presentations [(1)]. Differential diagnosis of chest pain ranges from benign pain arising from musculoskeletal system to the malignant reasons that may be fatal unless diagnosed and treated promptly such as myocardial infarction and aortic dissection. It is difficult to exclude cardiovascular causes of chest pain in the patients with atherosclerotic risk factors even chest pain is atypical, and coronary angiography may become obligatory to exclude myocardial ischemia. Herein, we present seven patients, who presented to the cardiology clinic of our hospital with chest pain, in whom coronary angiography has become obligatory for the exclusion of myocardial ischemia, and of whom further examinations after exclusion of myocardial ischemia revealed thoracic schwannoma.

Keywords: Schwannoma, coronary artery disease, neurosurgery

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Koroner Arter Hastalığını Taklit Eden Ender Bir Göğüs Ağrısı Nedeni

Acil ervis başvurularının % 6'sından göğüs ağrısı sorumludur [(1)]. Göğüs ağrısının ayırıcı tanısı kas-iskelet sisteminden kaynaklanan benign ağrıyla tanı konup, hemen tedavi edilmediği takdirde ölümcül olabilen miyokart enfarktüsü ve aort diseksiyonu gibi malign nedenler arasında yapılabilir. Göğüs ağrısı atipik olsa bile aterosklerotik risk faktörleri olan hastalarda göğüs ağrısının kardiyovasküler nedenlerini ekarte etmek zordur. Miyokart iskemisini dışlamak için koroner anjiyografi gerekli olabilir. Burada, hastanemizin kardiyoloji kliniğine göğüs ağrısıyla gelen ve miyokart iskemisini ekarte etmekiçin koroner anjiyografinin gerekli olduğu ve miyokart iskemisini dışladıktan sonra yapılan ileri incelemelerin toraks şıvannomunu ortaya çıkardığı yedi hastayı sunduk.

Anahtar kelimeler: Şıvannom, koroner arter hastalığı, nörocerrahi

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In a study, myocardial infarction was determined in 4% of stable, and 7.5 % of unstable angina pectoris patients, while pulmonary embolus and aortic dissection were determined in less than 1% of the patients that presented to the emergency room with non-traumatic chest pain [(1)]. Another study determined cardiac pathology in 16%, musculoskeletal pathology in 36%, GI pathology in 19%, pulmonary pathology in 5%, and psychiatric pathology in 8% of the patients that presented with chest pain, while no etiological factor was detected in 16% of them [(2)]. Prompt diagnosis and effective treatment of the diseases that have catastrophic consequences are lifesaving in a patient who presents with chest pain. Acute coronary syndrome (ACS) ranks

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first among such diseases. Ninety- eight percent of the patients can be diagnosed and treated at an early stage based on typical chest pain, presence of risk factors, dynamic ECG changes and elevated cardiac enzymes, however, patients with unstable angina and atypical symptoms without dynamic ECG changes and elevation in cardiac enzymes can be missed out. Coronary angiography is indicated in the patients raising high clinical suspicion, and coronary CT angiography can be considered in such cases [3]. Musculoskeletal pain is the leading cause of chest pain [2]. The etiologies of this type of pain include primarily benign diseases such as regional pain syndromes, fibromyalgia, inflammatory joint diseases, cervical and thoracic disc hernias[4]. Tumors of the spinal cord are less common, however chest pain is one of the major symptoms.

Herein, we present 7 cases with thoracic schwannoma, which caused chest pain that mimicked coronary artery disease.

CASE REPORT

The patients applied to the cardiology clinic between 2012 and 2014 with chest pain. In the emergency room, consultancy of the cardiology clinic was requested for two patients and these patients were hospitalized with initial diagnoses of ACS. Other five patients applied directly to the cardiology policlinic.

Clinical and laboratory parameters of the patients are summarized in Table 1. The median age of the patients (male, n=4, and female, n=3) was 49.5 years. Two patients applied to the emergency room and the remaining five patients to the outpatient clinic. The patients twho applied to the emergency room were hospitalized with initial diagnosis of acute coronary syndrome. The patients had chest pain with accompanying back

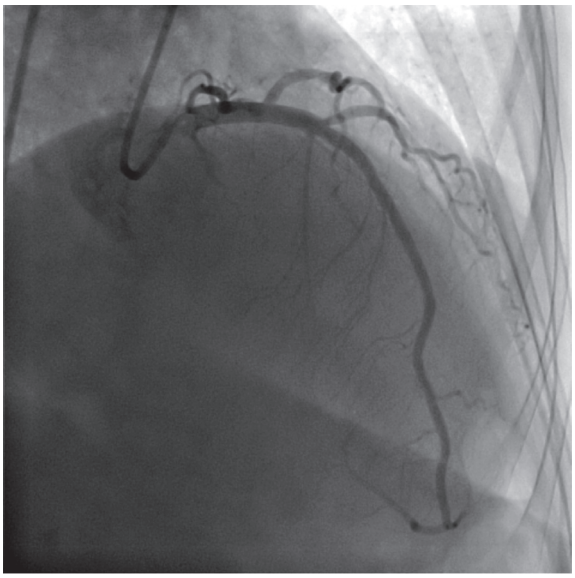

Figure 2. Coronary angiogram; right anterior oblique cranial view. Nonciritical lesions at left anterior desending and diagonal artery.

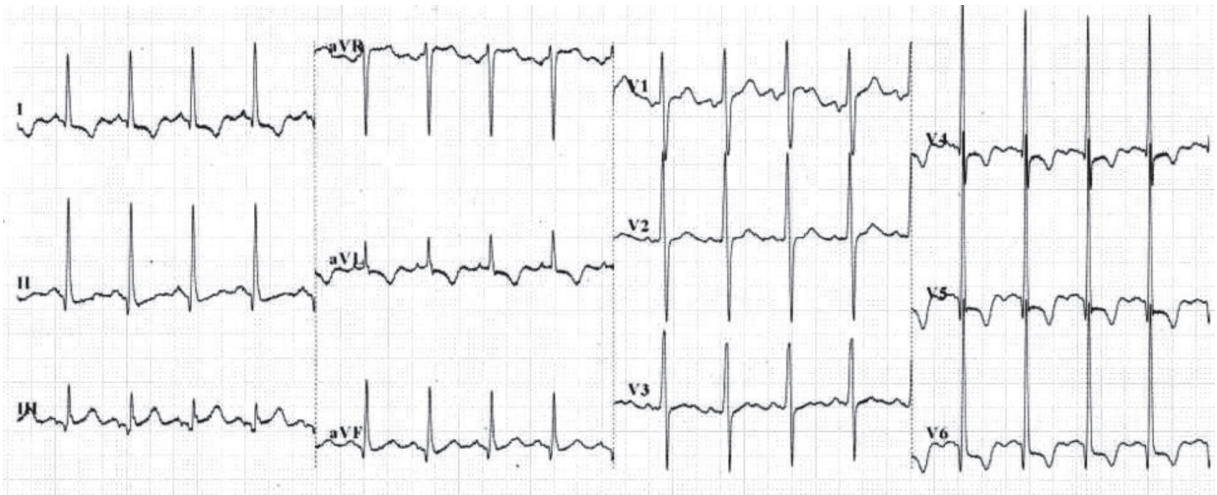

Figure 1. ECG showed LVH, ST segment depression an T wave inversion in lead V4-6.

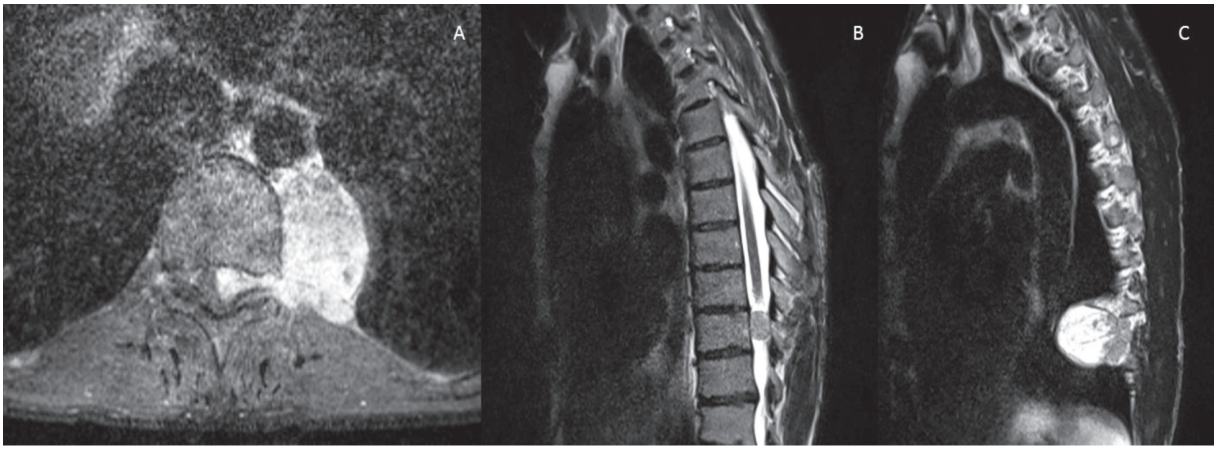

Figure 3. Preoperative MRI of the thoracal vertebra. The radiological imaging modality of choice was MRI of the thoracic vertebra and enhancing cystic tumoral lesions arising from the relevant neural foramen were observed (Figures 3A, 3B, 3C).

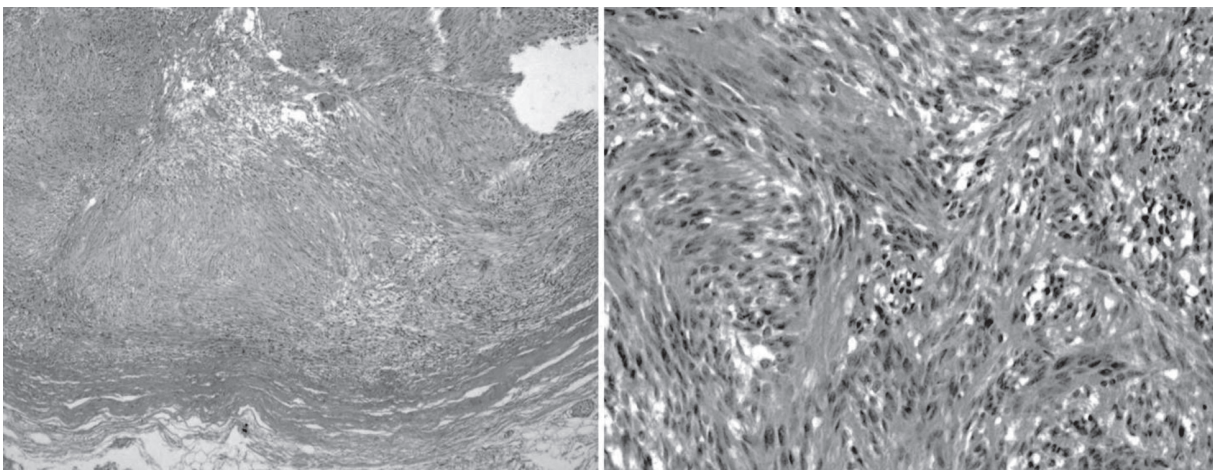

Figure 4. Microscopic exemination of cystic tumoral mass showed.

(n=2) or arm (n=3) pain. Two patients who were admitted to the emergency room had burning sensation in the chest. The median time interval between the onset of symptoms and diagnosis was 23.1 months. The patients had hypertension (n=5), diabetes (n=5), dyslipidemia (n=7), family history of early coronary artery disease (CAD) (n=3), and three patients were smokers. The median BMI was 27.8 kg/m2. ECGs of two patients in the emergency room revealed left ventricular hypertrophy (LVH), ST depression and T-wave alterations (Figure 1). Exercise ECG was positive in five outpatients. None of the patients had left ventricular systolic dysfunction or segmental wall motion abnormalities. Average EF was 64.8%. Coronary angiograms did not reveal coronary artery disease (Figure 2). Consultancy of the internal medicine and physical therapy and rehabilitation (PTR) clinics was asked for the differential diagnosis of the chest pain in patients in whom CAD was excluded. Based on the evaluation of PTR specialists, the patients were prediagnosed with radicular pain and underwent thoracic and cervical MRI. A cystic tumoral mass arising from the neural foramen of relevant thoracic level (Figure 3 A, B, C) was detected and the patients were transferred to the neurosurgery department. The tumoral mass was excised by microsurgical approach. Pathological examination revealed schwannoma (Figure 4). All patients were discharged from the hospital without complication. Recurrence was not de-

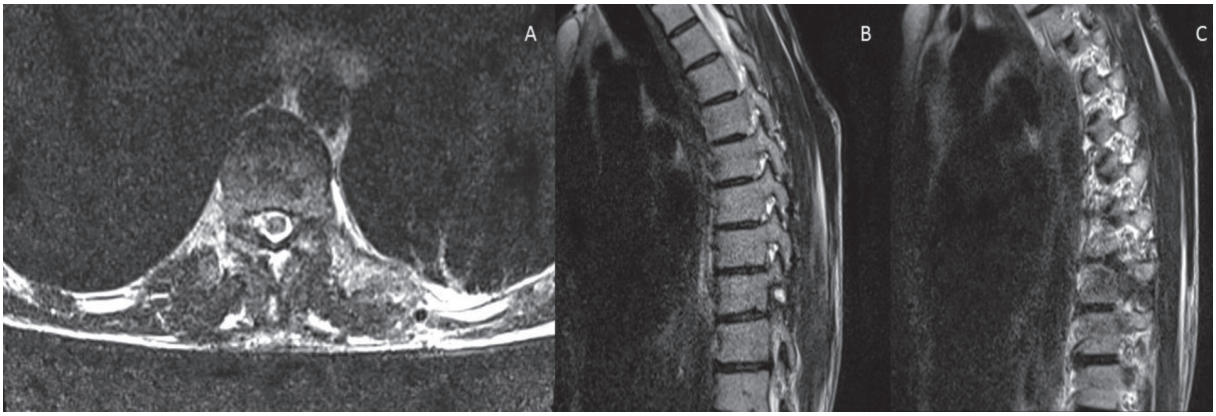

Figure 5. Postoperative MRI of the thoracal vertebra. Figures 5A, 5B and 5C demonstrate that no obvious residual or recurrent disease exists after complete excision of the tumor.

termined during one-year follow-up period and control MRI demonstrated no relapse (Figure 5 A, B, C).

DISCUSSION

Myocardial ischemia-related chest pain, which is called as typical angina, requires prompt diagnosis and treatment as it may have fatal consequences. Typical angina is generally defined as the pain which is induced by exercise, spreads over shoulder, chin and internal aspect of the arm, and relieves within 10 minutes of resting or nitroglycerin. Myocardial infarction-related pain continues longer than 20 minutes. Atypical chest pain is a stabbing-like chest pain that onsets with coughing and respiration which radiates to the middle and lower abdominal quadrant. It can be localized with fingertip over the left ventricular apex, worsens with palpation or thoracic movement, and persists as sharp pain for hours or seconds and radiates to the lower extremities [4]. An atypical chest pain reduces but not eliminates the likelihood of ACS. The classical presentation of angina is generally encountered in the middle-aged males who have atherosclerotic risk factors. Atypical presentation is not less common among females, as well as elderly and diabetic subjects. Atypical presentation is particularly more common in females than males and these patients have higher rates of in-hospital mortality [5]. Ninety- eight percent of the patients are diagnosed and treated at an early stage based on the presence of typical chest pain, risk factors, dynamic ECG changes, and elevated cardiac enzymes, whereas patients with unstable angina and atypical symptoms without dynamic ECG changes and elevated cardiac enzymes may be missed out. Coronary angiography is indicated in the patients raising high clinical suspicion; coronary CT angiography may be an alternative imaging modality [3]. Hence, persistent chest pain and presence of risk factors have made the coronary imaging obligatory in two patients who were admitted to the emergency room despite the absence of dynamic ECG changes and elevated cardiac enzymes. Coronary angiography was performed also in the patients who were admitted to the outpatient polyclinic because of gradually increasing chest pain existing for at least one year, presence of risk factors, and positive exercise test.

Musculoskeletal pain is the leading cause of chest pain [2]. The etiology of such pain usually includes benign disorders such as regional pain syndromes, fibromyalgia, inflammatory joint diseases, cervical, and rarely thoracic disc hernias [4]. Chest pain is a frequent symptom of inferior CDH and superior TDH. A specific clinical entity called as cervical angina, which is characterized by a sharp, tingling or crushing chest pain

on the anterior chest wall due to suppression of cervical root which worsens with exercise and rarely relieves with nitrates, has been defined [10]. Autonomous symptoms (vertigo, nausea, vomiting, etc.) are encountered in 50-60% of such patients [11]. These patients undergo detailed cardiologic examination before establishment of diagnosis because of similar symptomatology to that of CAD. Primary spinal cord tumors, which share the symptoms of cervical and thoracic disc hernia, are quite rare causes of chest pain. Of the SCT, 2/3 is extramedullary and 1/3 is intramedullary. Nerve sheath tumors (schwannoma, neurofibroma) and meningioma are the most frequently encountered extramedullary tumors. Most of schwannomas emerge from dorsal root and are usually intradural; whereas 30% of them passes through dural root and shows extradural growth and become dumbbell-shaped. They are usually benign [7]. Schwannomas are mostly localized in the dorsolateral region at thoracic level. Clinical presentation of schwannomas is nonspecific and consists of blunt back-neck pain and compression symptoms including radicular and myelopathic signs. Pain is the most intense at night and in the morning. Radicular sensory impairment is usually the initial symptom followed by pain. Pain is inevitable as it emerges from dorsal sensory roots. Back pain due to local compression and dermatomal pain due to root compression may be seen. Radicular motor deficit together with radicular pain is not less common. Myelopathic motor signs due to spinal cord compression are seen when tumor size exceeds the critical level (8). Chest pain was the major symptom in the present cases. In addition to chest pain, the patients had back pain (n=2), arm pain (n=3), burning sensation in the chest (n=4) and nausea (n=1). Detailed neurological examination of the patients, for whom consultancy of PTR was requested after excluding CAD, revealed sensory deficit together with dermatomal pain in all. Motor deficit or myelopathic symptom was not determined in any of the patients.

MRI is the best diagnostic imaging method. It gives valuable information about localization and extension of neurogenic tumors. The ideal method of treatment is complete microsurgical excision [9]. All patients underwent microsurgical tumor excision after detecting the lesion on MRI. Pathological examination revealed the presence of schwannoma. The patients were discharged from the hospital without complication. Complaints did not recur during one-year follow-up period and control MRI did not reveal any evidence of relapse.

CONCLUSION

The diagnosis of coronary artery disease, which has catastrophic consequences, may make the coronary imaging obligatory for the patients having chest pain together with risk factors. It will shorten the time to diagnosis together with detailed anamnesis and physical examination in the patients presenting with chest pain and will prevent unnecessary analysis and treatment.

REFERENCES

1. Kohn MA, Kwan E, Gupta M, et al. **Prevalence of acute** myocardial infarction and other serious diagnoses in patients presenting to an urban emergency department with chest pain. *J Emerg Med* 2005;29:383-90.
   http://dx.doi.org/10.1016/j.jemermed.2005.04.010
2. **Klinkman MS, Stevens D, Gorenflo DW.** Episodes of care for chest pain: a preliminary report from MIRNET. Michigan Research Network. *J Fam Pract* 1994;38(4):345.
3. 2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation. First published online: 29 August 2015.
4. **How J, Volz G, Doe S, Heycock C, Hamilton J, Kelly C.** The causes of musculoskeletal chest pain in patients admitted to hospital with suspected myocardial infarction. *Eur J Intern Med* 2005;16(6):432.
   http://dx.doi.org/10.1016/j.ejim.2005.07.002
5. **Anderson JL, Adams CD, Antman EM, et al.** ACC/AHA 2007 guidelines for the management of patients with unstable angina/non ST-elevation myocardial infarction: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients with Unsta-

ble Angina/non ST-Elevation Myocardial Infarction): Developed in collaboration with the American College of Emergency Physicians, the Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons: Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine. *Circulation* 2007116:e148.
http://dx.doi.org/10.1161/CIRCULATIONAHA. 107.181940

6. **Canto JG, Rogers WJ, Goldberg RJ, et al.** Association of age and sex with myocardial infarction symptom presentation and in-hospital mortality. *JAMA* 2012; 307:813
http://dx.doi.org/10.1001/jama.2012.199
7. **Seppala MT, Haltia MJ, Sankila RJ, et al.** Long-term outcome after removal of spinal schwannoma: a clinicopathological study of 187 cases. *J Neurosurg* 1995; 83:621-6.
http://dx.doi.org/10.3171/jns.1995.83.4.0621
8. **Slinko EI and Al-Qashqish.** Intradural ventral and ventrolateral tumors of the spinal cord: surgical treatment and results. Neurosurg Focus 2004; 17: pp. ECP2
9. Textbook of the Cervical Spine Shen, Francis H., MD Copyright 2015 by Saunders. Chapter 22 Primary Tumors of the Spinal Cord
10. **Jacobs B.** Cervical angina. *N Y State J Med* 1990;90 (1):8-11.
11. **Brodsky AE.** Cervical angina: a correlative study with emphasis on the use of coronary arteriography. *Spine* 1985;10 (8):700-9.
http://dx.doi.org/10.1097/00007632-198510000-00003