



Splenic artery thromboembolism causing atrial fibrillation after laparoscopic cholecystectomy

Laparoskopik kolesistektomi sonrası atrial fibrilasyona bağlı splenik arter tromboembolisi

Serdar Kirmizi, Huseyin Kerem Tolan, Cengiz Ara, Sezai Yilmaz

İnönü University, Faculty of Medicine, Department of Surgery, Malatya, Turkey

Abstract

Splenic artery thromboembolism is a rare condition that may lead to the splenic ischemia. It is mostly caused by cardiac thromboembolism and atrial fibrillation (AF)(1). Hyperthyroidism; can cause AF and predispose to hypercoagulability. Here we present a sixty year old male patient with a diagnosis of hyperthyroidism who quitted taking his anti-thyroid medications for over two months. Patient underwent an emergency laparoscopic cholecystectomy for acute cholecystitis. On the post-operative 10th day, he was complained about an abdominal pain and the interventions performed demonstrated a thromboembolism in the splenic artery; ischemia and infarction in the pancreas and spleen due to this thrombus. His hyperthyroidism treatment was started again and the splenic infarction was treated conservatively. As it is in our case the hyperthyroidism history should be questioned carefully in the emergency cases and the results of the thyroid function tests should be checked before the surgery.

Keywords: Atrial Fibrillation; Hyperthyroidism; Spleen Ischemia.

Öz

Splenik arter tromboembolisine bağlı dalak iskemisi nadir görülen bir durumdur. Tromboemboli çoğunlukla kardiyak kaynaklı olup, önemli bir kısmını atrial fibrilasyon (AF) oluşturmaktadır (1). Hipertiroidi; AF ve hiperkoagübiliteye neden olabilir. Hipertiroidi tanısı alan ancak son iki aydır antitiroid ilaçlarını kullanmayan altmış yaşında erkek hasta sunulmuştur. Olgumuza akut kolesistit nedeniyle acil laparoskopik kolesistektomi uygulandı. Ameliyat sonrası onuncu gününde gelişen karın ağrısı nedeniyle yapılan tetkiklerde splenik arterde tromboemboli, dalakta ve pankreasda iskemik alanlar saptandı. Hastanın hipertiroidi tedavisi tekrar düzenlendi ve dalaktaki iskemik alan konservatif yöntemlerle tedavi edildi. Olgumuzda da olduğu gibi acil girişimlerden önce hastalar dikkatlice hipertiroidi yönünden sorgulanmalı ve tiroid fonksiyon testleri kontrol edilmelidir.

Anahtar Kelimeler: Atrial Fibrilasyon; Hipertiroidi; Dalak İskemisi.

Received/Başvuru: 10.09.2015

Accepted/Kabul: 25.10.2015

Correspondence/İletişim

Serdar Kirmizi

Department of Surgery, Faculty of Medicine, İnönü University, Malatya, Turkey

E-mail: drserdarkirmizi@hotmail.com

For citing/Atıf için

Kirmizi S, Tolan K, Ara C, Yilmaz S. Splenic artery thromboembolism causing atrial fibrillation after laparoscopic cholecystectomy. J Turgut Ozal Med Cent 2016;23(2):208-10.

INTRODUCTION

Splenic artery thrombus and splenic ischemia is a rarely seen. Cardiac pathologies are the most common cause. Atrial fibrillation (AF) is the most important and frequent etiology. Hyperthyroidism is known to lead to AF and hypercoagulability. In the splenic thromboembolism treatment; symptomatic treatment and anticoagulation is mostly sufficient. Here we present a male, 60 years old patient with a known hyperthyroidism, hypertension, diabetes and hyperlipidemia; who had an emergency laparoscopic cholecystectomy and then developed a splenic artery thrombi and splenic ischemia in the postoperative 10th day.

CASE REPORT

A 60 years old male patient admitted to the Emergency Room (ER) with a right upper quadrant pain and tenderness. In his medical history he has a hypertension, hyperlipidemia and diabetes mellitus. The radiologic investigations showed acute cholecystitis. There was no sign of cholestasis, liver function tests were normal but there was a mild inflammation. Pre-operative cardiology and pulmonary medicine consultations were performed because of his comorbidities and age.

Cardiac arrhythmia was diagnosed. Laparoscopic cholecystectomy was performed. After the surgery, early mobilization and prophylactic anti-coagulation (Enoxaparin Sodium 1x0.6 ml) was given. Post-operative period was problem free and he was discharged in post-operative 3th day. Pathology of the specimen was reported as acute cholecystitis. One week after the operation he admitted to the ER with an abdominal pain. In the physical examination there was epigastric tenderness without any rebound and defense. Vital signs were normal. In the laboratory tests his leucocyte level was 19.000/mm³, C-reactive protein level was 1.1 mg/dl and the other values were in normal ranges. Abdominal IV contrast enhanced computerized tomography was taken; it demonstrated a hypo dens thrombi occluding nearly %50 of the splenic artery lumen and sub capsular ischemic areas in the spleen (Figure1-2).

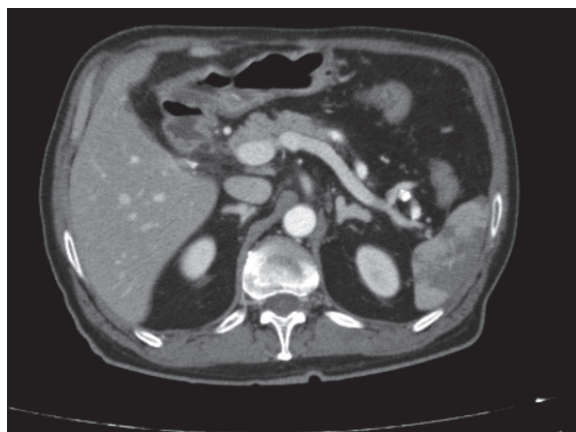


Figure 1. Common ischemic areas of the spleen

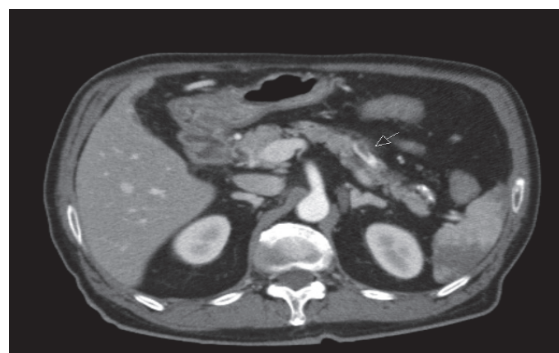


Figure 2. Thromboembolism in the splenic artery (black arrow)

Similarly suspicious hypo dens areas were seen at the pancreatic body and tail. Anti-coagulation treatment was started. Evaluation for the etiology of the thromboembolism was made. Thrombophilia panel was performed for the hypercoagulability and found to be normal. His free T3 and free T4 levels were 6.7 and 3.2 mIU/L respectively. The Thyroid Stimulating Hormone (TSH) level was 0.02 mIU/L and it was learned that, he stopped taking his anti-thyroid drugs for more than 2 months ago. The thyroid Ultrasound (US) was made and there were pseudo-nodules, heterogeneous parenchyma and increase in blood flow. Thyroid scintigraphy was correlated with graves. The anti-thyroid treatment was started again. The control investigations showed a regress in the splenic ischemic areas and he was discharged after his pain improved.

DISCUSSION

Occlusion of the splenic artery leads to ischemia in the spleen parenchyma or infarction in it. This can be segmental or total. A lot of etiologic factors exist. Among these causes; splenic artery thrombus, infiltrative hematologic diseases, splenic vascular diseases, hypercoagulability, anatomic problems and collagen tissue diseases can be listed. The infarct area can vary according to the amount of the lumen occluded and presence of a collateral circulation. In %20 of the cases abscess, hemorrhage, rupture and pseudo cyst formation can be seen as a complication (1, 2). Any asymptomatic and uncomplicated spleen ischemia or infarct does not require any surgical treatment.

Deep Vein Thrombosis (DVT) or cardiac thrombi are the most common reason of thromboembolism. They may present with different clinical scenarios. The most important complication of DVT is pulmonary emboli, and the most important complication of a cardiac thrombus is a systemic thromboembolism. In %30 of the cases there is a history of a surgery, and it is responsible for %5-10 of the hospital deaths. For these reasons; in advanced age patients with comorbidities, venous thromboembolism prophylaxis and early mobilization in post-operative period is very important (3). AF, ventricular aneurysm, cardiac valve diseases are most common factors leading to cardiac origin

thromboembolism (4). AF is a frequently seen rhythm abnormality. The frequency in general population is around %1-2. It is more common in male gender and elderly patients (5). It can be undiagnosed for a long time. Advanced age, HT, DM, coronary artery disease (CAD) and thyrotoxicosis increases the risk of thromboembolism around 2, 3 times (7). At the same time it was seen that it causes arterial thrombosis in %10-40 of the patients (8). J. S. Staffurth et al reported a total of 26 systemic emboli in 21 of the 262 patients with thyrotoxicosis induced AF (8). Hyperthyroidism may also lead to hypercoagulability (10).

The pericardial or myocardial manipulation triggers fibrillation, that's why it is more frequently seen in the intra-thoracic surgeries. It is seen in %4 of the major surgeries besides the cardio-thoracic surgeries. Surgery and anesthesia leads to a stress response by increasing the sympathetic and hormonal activities. This may cause a predisposition for arrhythmia (11). Today some data claim that the AF is triggered and maintained by the inflammatory response (12). It is mostly seen in the post-operative day 4, when the inflammatory response is highest after the surgery (13). Of course it should be kept in mind that sepsis; electrolyte imbalance may also trigger AF.

The risk factors like HT, DM, advanced age, inflammation, the history of a surgery and also quitting the hyperthyroidism treatment for more than 2 months; may be the cause of AF and thromboembolism in our patient. As we know most of the AF is subclinical. The diagnosis may not be made by a standard electrocardiography (ECG) all the time. In one study only %5 of the stroke patients could be diagnosed with AF (14). For this reason only clinical findings of peripheral thromboembolism may be seen, just like in our case.

Patients should be questioned before any emergency intervention for hyperthyroidism, and the thyroid function tests must be gathered in advanced age patients with co-morbidities.

REFERENCES

1. Antopolsky M¹, Hiller N, Salameh S, Goldshtein B, Stalnikowicz R. Splenic infarction: 10 years of Experience. *Am J Emerg Med* 2009;27(3):262-5.
2. Jaroch MT, Broughan TA, Hermann RE. The natural history of splenic infarction. *Surgery* 1986;100(4):743-50.
3. Emmiler M, Koçoğulları CU, Ayva E, Çekirdekçi A. Mortalite, morbidite ve maliyeti her geçen gün artan önemli bir sorun; venöz tromboemboli profilaksisi. *Cerrahi sanatlar dergisi* 2008;1.2:20.
4. Chang RW, Chang JB, Longo WE. Update in management of mesenteric ischemia. *World J Gastroenterol* 2006;28;12(20):3243-47.
5. Camm AJ, Kirchhof P, Lip GY, Schotten U, Savelieva I, Ernst S. Guidelines for the management of atrial fibrillation. *Eur Heart J* 2010;Eh4 278.
6. Karaçaglar E, Atar İ, Yetiş B, Corut H, Ersoy B, Yılmaz K. Atriyal fibrilasyon hastalarında emboli risk faktörleri sıklığı ve emboli önleyici tedavilerin uygunluğunun araştırılması: Tek Üçüncül Bir Merkez Deneyimi. *Anadolu Kardiyol Derg* 2012;12:384-90.
7. Lin HC, Yang LY, Kang JH. Increased risk of pulmonary embolism among patients with hyperthyroidism: a 5-year follow-up study. *J Thromb Haemost* 2010;8(10):2176-81.
8. Bar-Sela S, Ehrenfeld M, Eliakim M. Arterial embolism in thyrotoxicosis with atrial fibrillation. *Arc Intern Med* 1981;141(9):1191-2.
9. Staffurth JS, Gibberd MC, Fui SN. Arterial embolism in thyrotoxicosis with atrial fibrillation. *Br Med J* 1977;10;2(6088):688-90.
10. Squizzato A, Romualdi E, Buller HR, Gerdes VE. Thyroid dysfunction and effects on coagulation and fibrinolysis: a systematic review. *J Clin Endocrinol Metab* 2007;92(7):2415-20.
11. Walsh SR, Tang T, Wijewardena C, Yarham SI, Boyle JR, Gaunt ME. Postoperative arrhythmias in general surgical patients. *Anne R Coll Surg Engl* 2007;89(2):91-5.
12. Chung MK, Martin DO, Sprecher D, Wazni O, Kanderian A, Carnes CA. C-reactive protein elevation in patients with atrial arrhythmias inflammatory mechanisms and persistence of atrial fibrillation. *Circulation* 2001;11;104(24):2886-91.
13. Walsh SR, Oates JE, Anderson JA, Blair SD, Makin CA, Walsh CJ. Postoperative arrhythmias in colorectal surgical patients: incidence and clinical correlates. *Colorectal Dis* 2006;8(3):212-6.
14. Kirchhof P, Auricchio A, Bax J, Crijns H, Camm J, Diener HC. Outcome parameters for trials in atrial fibrillation: executive summary. *Eur Heart J* 2007;28(22):2803-17.