Journal of Neurological Sciences [Turkish] **27:(2)**# 23;239-243, 2010
http://www.jns.dergisi.org/text.php3?id=363

Case Report

Concomitant Ulnar and Median Nerve Entrapment Due to Spontaneous Hematomas at Humerus Mid-Shaft Under Warfarin Treatment: Case Report

Soner YAYCIOĞLU, Hakan AK

Adnan Menderes Üniversitesi Tıp Fakültesi, Nöroşirurji Anabilimdalı, Aydın, Türkiye

Abstract

Warfarin is an effective therapy for both the treatment and the prevention of thromboembolic events, but bleeding is a relatively common complication of this treatment, and sometimes it leads to serious complications. Compressive neuropathies from hematomas were first described in the mid-1960s as treatment with anticoagulation drugs became more widely utilized. Literature shows that this complication effects more frequently lower nerves. In this study, we are reporting a 74 year-old man using warfarin treatment with two hematomas at right humerus mid-shaft which occurred spontaneously and led to ulnar and median nerve injury concomitantly. Patient was treated only conservatively. Hematomas resorbed completely at the following radiological images, and we observed clinically acceptable healing.

Keywords: Hematoma, humerus, radial nerve, ulnar nerve, warfarin

Warfarin Tedavisi Alan Hastada Humerus Orta Kısmında Spontan Gelişen Hematomlara Bağlı Ulnar ve Median Sinir Tuzaklanması: Olgu Sunumu

Özet

Warfarin tromboembolik olayların hem önlenmesinde hem de tedavisinde etkindir, fakat kanama bu tedavinin kısmen yaygın bir komplikasyonudur ve bazen ciddi komplikasyonlara yol açabilmektedir. Hematoma bağlı gelişen nöropati kavramı ilk kez antikoagülan ilaçların daha yaygın olarak kullanılmaya başlandığı 1960 ortalarında tanımlanmıştır. Literatüre göre bu komplikasyon daha çok alt ekstremite sinirlerini etkilemektedir. Bu yazıda warfarin tedavisi almakta olan 74 yaşındaki bir erkek hastada humerus orta kısmında spontan olarak gelişen, ulnar ve median sinir hasarına neden olan iki tane yakın lokalizasyonlu hematomun geliştiği bir olgu sunulmaktadır. Hasta sadece konservatif metotlarla tedavi edildi, takiplerinde radyolojik olarak hematomun tam olarak rezorbe olduğu tespit edildi ve hastanın klinik olarak anlamlı iyileşme gösterdiği belirlendi.

Anahtar Kelimeler: Hematom, humerus, nervus radialis, nervus ulnaris, warfarin

INTRODUCTION

After demonstrating the effectiveness of oral anticoagulants in atrial fibrillation and myocard infarction, the usage of these drugs have been increased[13]. Warfarin is especially effective for both treatment and prevention of thromboembolic events, it has usage also in many clinical indications. Although warfarin is an effective therapeutic agent, hemorrhage is a

relatively common side effect of this treatment and sometimes leads to serious pathological conditions. Annual risk of bleeding is about 2-8 % under this treatment[2,3,8].

Warfarin treatment displays some various hemorrhagic side effects, and these are usually due to inadequate control of anticoagulation. Although this reality, spontaneous retroperitoneal hemorrhages leading to femoral neuropathies have been well described in anticoagulated patients, and some of them were seen when INR (international normalized ratio) value was in the therapeutic ranges[1].

Neuropathy development under anticoagulant treatment is a rare and poorly understood pathology[7]. Femoral neuropathy due to iliac muscle hematoma, neuropathies due to retroperitoneal hematoma, and cases due to spontaneous brachial plexus hematomas have been reported in the literature[1,6,7,9,12]. Double hematomas developed spontaneously at humerus mid-shaft leading to concomitant ulnar and median nerve entrapment under warfarin treatment have not been reported yet.

CASE PRESENTATION

A 74-years old man who was using one tablet of warfarin due to inferior vena cava injury for 25 years referred to our clinic. He was suffering from right arm pain which radiates from humerus mid-shaft down to the fingers, tenderness and loss of muscle strength at the right forearm and hand for one week. Patient didn't have any comorbid pathology as diabetes mellitus, hypertension, any hematologic disease, and any gastrointestinal disease. At the neurological examination, there was loss of muscle strength and sensation at the right side. Complete blood count, liver and kidney function tests were normal. Initial INR was 4. Although there was no history of any trauma, we planned cervical vertebrae x-rays at four-sided, comparative shoulder x-rays, and comparative arm and forearm x-rays for the evidence of any pathologic fracture, all of them didn't reveal any abnormality. For the evidence of any probable aneurysm, pseudoaneurysm and/or any arteriovenous malformation, arteriovenous system coloured doppler ultrasonography and angio graphy were performed and reported as normal. EMG (electromyography) of the upper extremities revealed median and ulnar nerves injury. MRI (magnetic resonance imaging) of the right arm showed double hematomas at right humerus midshaft (Picture 1). In the treatment, initially warfarin treatment was stopped and patient's pain was taken under control with analgesics. Arm and forearm were immobilized and elevated. We didn't think of performing any surgical approach. After controlling the pain, we started active physical exercises. At following controls, complete resorption of the double hematomas and clinically acceptable improvement were observed (Picture 2).

Fig 1: *Coronal T1-weighted magnetic resonance image of the right arm showing double hematomas at right humerus mid-shaft and resolution sides around hematomas (white arrows).*

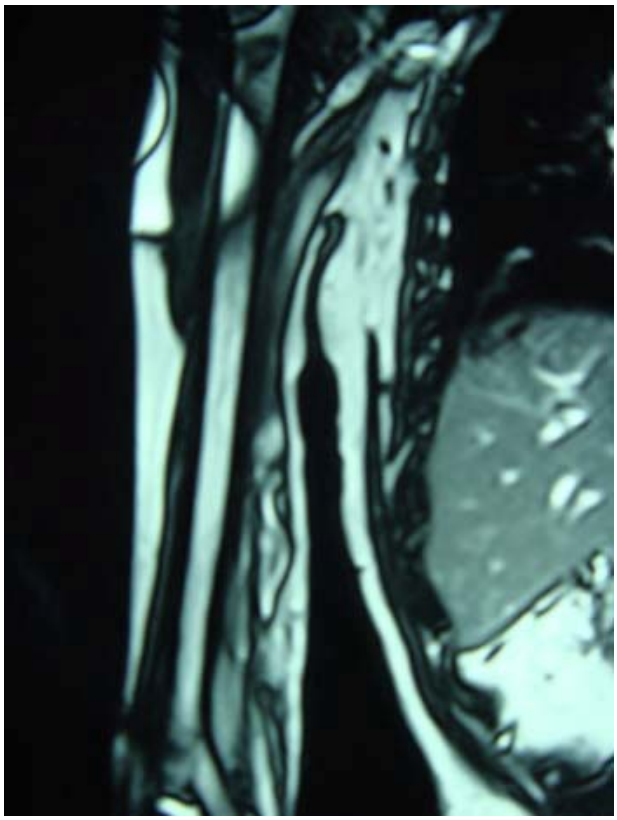

Fig 2: *Coronal T1-weightedmagnetic resonance imaging of the right arm showing the complete resolution of the hematomas.*

DISCUSSION

One of the most important side effects of the warfarin treatment is hemorrhage and the main predictor of this is the INR level. In the literature, it was pointed that the risk of bleeding is increased concomitantly with the INR increase. Most of these hemorrhages are seen at cranium. Although the risk of bleeding increases as INR increases, 50 % of the episodes of hemorrhage develop when INR is under 4[3]. Our patient's INR was 4 which could have twice risk of bleeding according to the literature. Again, according to the literature, hematoma which lead to compressive neuropathy may be seen about 40 % of cases although anticoagulation is in therapeutic range[6].

Some risk factors of anticoagulation treatment for hemorrhage includes age (>65 years), uncontrollable hypertension, history of gastrointestinal disease, active peptic ulcer, thrombocytopenia, platelet dysfunction, coagulation defect, history of underlying malignancy, history of stroke, cognitive and psychological impairment, history of trauma, history of falling, high intake of alcohol, and some drugs[3,10,11]. Among these, the only risk factor our patient has got is advanced age.

Hematoma associated neuropathy develops probably due to local compression of nerve/nerves. This is a rare and poorly understood pathology[4,7] and it usually affects lower extremity nerves, especially femoral and sciatic nerves[6,7]. Peripheral nerve compression may cause to symptoms which change from slight to complete paralysis and other clinic symptoms[4]. In

our patient, it caused loss of sensation and muscle strength.

The decision of surgical or conservative approach to nerve compression secondary to hematoma is dependent on the severity of the neurologic deficit not to the underlying etiology. It is reported that if direct pressure and pressure-induced ischemic changes are reversible, evacuation of hematoma and decompression of nerve/s might be beneficial. However, it is also reported that most of the such cases were treated by conservative approach[5].

Good results by conservative approach was been reported in about 85 % of patients in the literature. Hematomas which evacuated in the first 48 hours gave good results in all patient, the later evacuation provided benefit in about 50 % of cases have also been reported[6]. We didn't evacuate the hematomas because 5 days had passed since he applied to us. Moreover easy control of pain by simple analgesics and evidence of spontaneous resolution around the hematomas as seen in Picture 1).

As a conclusion, because of the rarity of such cases, nowadays it is very difficult to make a general comment. In hematoma associated neuropathies, the effects of the pressure and the chemical agents have not been documented very well. Because of this reason, the timing and the benefit of the surgery in such cases is still in controversial. Further studies with larger patient groups and control groups are needed.

Correspondence to:
Hakan Ak
E-mail: nrsdrhakanak@yahoo.com

Received by: 28 November 2008
Revised by: 26 April 2010
Accepted: 07 May 2010

The Online Journal of Neurological Sciences (Turkish) 1984-2010
This e-journal is run by Ege University Faculty of Medicine,
Dept. of Neurological Surgery, Bornova, Izmir-35100TR
as part of the Ege Neurological Surgery World Wide Web service.
Comments and feedback:
E-mail: editor@jns.dergisi.org
URL: http://www.jns.dergisi.org
Journal of Neurological Sciences (Turkish)
Abbr: J. Neurol. Sci.[Turk]
ISSNe 1302-1664

REFERENCES

1. *Andrews F. J. Retroperitoneal haematoma after paracetamol increased anticoagulation. Emerg Med J. 2002;19: 84 – 85*
2. *Arnason T., Wells P.S., Walraven C.v., Forster A.J. Accuracy of coding for possible warfarin complications in hospital discharge abstracts. Thrombosis Research. 2006;118, 253 – 262*
3. *Baker R. I., Coughlin P. B., Gallus A. S., Harper P. L., Salem H. H., Wood E. M. Warfarin reversal: consensus guidelines, on behalf of the Australian Society of Thrombosis and Haemostasis. MJA. 2004;181: 492 – 497*
4. *Bora F. W, Osterman A. L. Compression neuropathy. Clinical orthopaedics and related research. 1982;163: 20 – 32*
5. *Burnett M. G, Zager E. L. Pathophysiology of peripheral nerve injury: a brief review. Neurosurg Focus. 2004;16: 1 – 7*
6. *Elesber A. A., Kent P. D., Jennings C. A. Compressive Neuropathy of the Brachial Plexus and Long Thoracic Nerve: A Rare Complication of Heparin Anticoagulation. Chest. 2001;120:309-311*
7. *Heller A. C., Kuether T., Barnwell S. L., Nesbit G., Wayson K. A. Spontaneous brachial plexus hemorrhage - case report. Surg Neurol. 2000;53: 356 – 359*
8. *Hollowell J., Ruigomez A., Johansson S., Wallander M-A., Garcia-Rodriguez L. A. The incidence of bleeding complications associated with warfarin treatment in general practice in the United Kingdom. Brit J of Gen Pract. 2003; 53: 312 – 314*
9. *Leonard M. A. Sciatic Nerve Paralysis Following Anticoagulant Therapy. The Journal of Bone and Joint Surgery. 1972;Vol.54B,No.1:152-153*
10. *Levine M.N., Hirsh J., Landefeld S, Raskob G. Hemorrhagic complications of Anticoagulant Treatment. Chest.1999;102:352-363*

11. *Love D. G. Management of Hemorrhagic Events in patients Receiving Anticoagulant Therapy. Journal of Thrombosis and Thrombolysis. 1999;7:149-152*
12. *Nakao A., Sajkagami K., Mitsuoka S., Uda M, Tanaka N. Retroperitoneal Hematoma Associated with Femoral Neuropathy: A complication under Antiplatelets Therapy. Acta. Med. Okayama. 2001;Vol.55,No.6:363-366*
13. *Wallvik J., Sjalander A.,Johansson L., Bjuhr Ö., Jansson J-H. Bleeding complications during warfarin treatment in primary healthcare centres compared with anticoagulation clinics. Scandinavian Journal of Primary Health Care. 2007;25 :123*