



Acute Subclavian Artery Thrombosis Secondary to Oral Contraceptive Agent Consumption: A Case Report

Masoud Ghiasian (MD)¹, Sajjad Daneshyar (MD)*², Mehrnaz Olfat (MD)¹

¹Department of Neurology, Hamadan University of Medical Sciences, Hamadan, Iran.

²Student Researcher Committee, Hamedan University of Medical Sciences, Hamedan, Iran.

ARTICLE INFO

Article type

Case report

Article history

Received: 18 Dec 2017

Revised: 12 Apr 2018

Accepted: 9 Aug 2018

Keywords

Arterial thrombosis

Ischemia

Oral contraceptive agent

ABSTRACT

Subclavian artery thrombosis is an uncommon cause of limb ischemia in females without a history of vasculopathy. This condition usually occurs secondary to atherosclerotic changes and hypercoagulable states, which are generally asymptomatic. However, it can manifest with such symptoms as coldness, pain, and pulselessness in the upper extremity. Herein, we presented a 40-year-old female admitted to our hospital with three days history of right-side hemiparesis and complaints of imbalance and vertigo. The patient had a history of 2-month consumption of high-dose oral contraceptive (OCP) agents for birth control purposes. Cervical magnetic resonance angiography showed a significant occlusion in the proximal part of the left subclavian artery, leading to the diagnosis of subclavian artery thrombosis secondary to the use of long-term high-dose OCP. Our diagnosis was confirmed with the Doppler color sonography. This case demonstrated the importance of a full assessment regardless of the patient's chief complaints. This kind of assessment allows for a faster and more effective management, thereby reducing the associated costs. Therefore, any suggestive signs or symptoms of arterial thrombosis should be followed up even in low-risk patients. Accordingly, in case the achievement of confirmatory findings regarding the diagnosis of arterial thrombosis, the patient should be immediately subjected to proper medical and surgical interventions.

Please cite this paper as:

Ghiasian M, Daneshyar S, Olfat M. Acute Subclavian Artery Thrombosis Secondary to Oral Contraceptive Agent Consumption: A case Report. *Rev Clin Med.* 2018;5(3):105-107.

Introduction

Subclavian artery thrombosis is an uncommon condition, which leads to ischemic events in the upper extremities and brain, and less frequently in the heart (1). This pathological condition usually occurs secondary to atherosclerotic changes and hypercoagulable state (2). This event is more common in the left subclavian artery rather than the right one (3). A patient suffering from an acute occlusion presents with cold and pulseless upper extremity, as well as arm claudication on the affected side. Discordant blood pressure is another presentation of this condition (2).

Vertebrobasilar involvement may also result in vertigo and visual defects (1). Diagnosis of this condition is made by color Doppler sonography, which is the modality of choice. The magnetic resonance angiography (MRA) also reveals useful diagnostic information (1). Surgical revascularization, including percutaneous interventions (2), is the treatment of choice in this regard. Herein, we presented a 40-year-old woman with hemiparesis and vertigo resulting from acute subclavian artery thrombosis secondary to the consumption of high-dose oral contraceptive pills (OCPs).

*Corresponding author: Sajjad Daneshyar.

Student Research Committee, Hamedan University of Medical Sciences, Hamedan, Iran.

E-mail: s.danshyar72@yahoo.com

Tel: +989366531472

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Case report

A previously healthy 40-year-old woman was admitted to our hospital with a 3-day history of right hemiparesis and a complaint of imbalance and vertigo. She had a history of high-dose OCP consumption for 2 months for birth control purposes. She was a non-smoker and denied any opium or alcohol usage. Except for OCP, she was on no other medication. Neurologic examination revealed right-side hemiparesis (with a force of 4/5 on the right side) and right Babinski sign. Her right radial pulse was normal, and the blood pressure measured at the arm was 120/70 mmHg.

On the left side, the radial, brachial, and axillary pulses were absent, and blood pressure was not remarkable. The pulses of both carotid arteries were full and symmetric. The left upper extremity was also pale, compared to the right side. In the lower extremities, the dorsalis pedis and posterior tibialis pulses of both feet were palpated and obtained as symmetric.

Other physical examinations were normal, without any defect. All the biochemical and hematological tests were within the normal range. Specific tests were also requested for vasculitis and rheumatologic disease, which were within the normal limits. The results of the brain computed tomography scan revealed nothing significant. On the other hand, brain magnetic resonance imaging showed multiple subacute infarctions within the left occipitotemporal region and left thalamus (Figure 1).

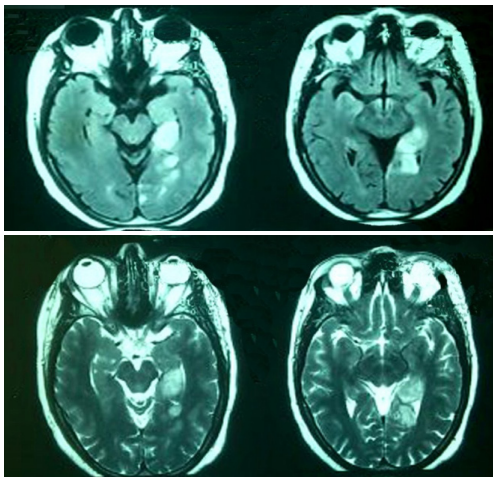


Figure 1. Brain magnetic resonance imaging showing multiple subacute infarctions within the left occipitotemporal region and left thalamus.

We also requested transthoracic echocardiography to rule out probable aortic and carotid problems, followed by a transesophageal echocardiography; however, they showed nothing significant. For further evaluation, the patient was also subjected to a cervical MRA that showed a significant

occlusion in the proximal part of the left subclavian artery (Figure 2).



Figure 2. Cervical magnetic resonance angiography showing a significant occlusion in the proximal part of the left subclavian artery.

Our diagnosis was confirmed by the Doppler color sonography, which revealed a large intraluminal thrombosis in the left subclavian artery, extending to the vertebral artery and leading to artery obstruction.

The patient was put on a therapeutic dosage of heparin. A vascular surgery consultation was requested. The patient was a candidate for subclavian artery thrombectomy and underwent the surgery. The postoperative course was uncomplicated. She was discharged with full pulses and resolved hemiparesis. During the two years of follow-up post-surgery, the patient continued to live normally.

Discussion

In our patient, acute subclavian artery thrombosis was likely to be the origin of multiple micro emboli to the left cerebral hemisphere and subsequent infarctions. This embolic occlusion at the level of left occipitotemporal region and left thalamus arteries explained the right hemiparesis in the patient.

In addition, the artery obstruction caused by this thrombosis had disturbed the blood flow to the left upper extremity and was responsible for absent pulses in this region. This condition if left untreated, could lead to progressive limb ischemia, along with potential limb amputation. Accordingly, Mokhberi et al. in Sari, Iran, reported a cases of elbow amputation due to untreated subclavian artery thrombosis (2).

As confirmed by a plenty of laboratory investigations, the patient had no history of vasculop-

athy or hypercoagulable disorders. On the other hand, she was on high-dose OCP for a long time. There is well established evidence on the association of OCP use with an increased risk of arterial and venous thrombosis (4-7). In a meta-analysis performed by Baillargeon et al., the high-risk population was reported to have a significantly higher incidence of myocardial infarction, cardiovascular outcomes, and ischemic stroke events (8).

In a survey performed by Lalude, arterial thrombosis caused by OCPs was less common than venous thrombosis among Danish women; however, it imposed a higher rate of morbidity (9). The case of subclavian artery thrombosis leading to embolic event has been already reported by several researchers.

In this regard, Jusufovic et al. described a 49-year-old male with cervical rib resulted in subclavian artery thrombosis and cerebral and cerebellar infarction (10). Additionally, Park et al. reported the case of a 56-year-old women with cerebellar infarction caused by subclavian artery thrombosis due to trauma (11). However, to the best of our knowledge, our study is the first research reporting the case of subclavian artery thrombosis leading to embolic event secondary to OCP consumption.

The physicians are recommended to prescribe OCPs with caution for older women and consider medical indications. Furthermore, if OCPs are used only for contraceptive purposes in women beyond reproductive age, it is better to replace them by non-hormonal methods.

In addition, our case is considerable from another point of view. Our patient presented with right hemiparesis. Therefore, she was subjected to a complete physical examination and detected with absent left pulses. Problem-based approach and examination, which is commonly applied by the physicians, may increase the possibility of missed diagnosis. This case demonstrated the importance of a full assessment regardless of the patient's chief complaints. This assessment would facilitate a faster and more effective management, thereby reducing the associated costs.

Conclusion

In this study, we reported the first case of cerebral infarction caused by subclavian artery thrombosis secondary to OCPs consumption. Considering our case, it can be concluded that even in low-risk patients, any signs or symptoms suggestive of arterial thrombosis should be followed up. In case of the achievement of confirmatory findings regarding the diagnosis of arterial thrombosis, proper medical and surgical interventions should be applied as soon as possible.

Acknowledgements

The present study was supported by the Hamedan University of Medical Sciences of Iran.

Conflict of Interest

The authors declare no conflict of interest.

References

- Ochoa VM, Yeghiazarians Y. Subclavian artery stenosis: a review for the vascular medicine practitioner. *Vasc Med.* 2011;16:29-34.
- Mokhberi V, Davoodi M, Marjani J. Acute thrombosis of subclavian Artery: A Case Report. *ARYA Atheroscler.* 2008;4:89-91.
- Williams SJ 2nd. Chronic upper extremity ischemia: current concepts in management. *Surg Clin North Am.* 1986;66:355-375.
- Kemmeren JM, Tanis BC, van den Bosch MA, et al. Risk of Arterial Thrombosis in Relation to Oral Contraceptives (RATIO) study: oral contraceptives and the risk of ischemic stroke. *Stroke.* 2002;33:1202-1208.
- Meade TW. Oral contraceptives, clotting factors, and thrombosis. *Am J Obstet Gynecol.* 1982;142:758-761.
- Tchaikovski SN, Rosing J. Mechanisms of estrogen-induced venous thromboembolism. *Thromb Res.* 2010;126:5-11.
- Peragallo Urrutia R, Coeytaux RR, McBroom AJ, et al. Risk of acute thromboembolic events with oral contraceptive use: a systematic review and meta-analysis. *Obstet Gynecol.* 2013;122:380-389.
- Baillargeon JP, McClish DK, Essah PA. Association between the current use of low-dose oral contraceptives and cardiovascular arterial disease: a meta-analysis. *J Clin Endocrinol Metab.* 2005;90:3863-3870.
- Lalude OO. Risk of cardiovascular events with hormonal contraception: insights from the Danish cohort study. *Curr Cardiol Rep.* 2013;15:374.
- Jusufovic M, Sandset EC, Popperud TH, et al. An unusual case of the syndrome of cervical rib with subclavian artery thrombosis and cerebellar and cerebral infarctions. *BMC Neurol.* 2012;12:48.
- Park H, Kim HJ, Cha MJ, et al. A case of cerebellar infarction caused by acute subclavian thrombus following minor trauma. *Yonsei Med J.* 2013;54:1538-1541.