

## Case Report / Olgu Sunumu

# Vasovagal syncope developed after spinal anesthesia: a case report

## Spinal anestezi sonrası bir vazovagal senkop: olgu sunumu

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### Abstract

Syncope is a transient loss of consciousness that is associated with the sudden loss of muscle tone and often resolved spontaneously. It is developed as a result of cardiac, metabolic, psychiatric and neurological causes. Vasovagal syncope is the most common type of syncope that is seen in healthy individuals and is frequently related to emotional stress. It is usually induced by a fear, panic attack, pain or an exercise. In this case report, an approach to vasovagal syncope will be discussed that is developed 24 hours after spinal anesthesia due to a fear and panic attack in 39 years old male patient with no previous history of known disease and syncope.

**Keywords:** Vasovagal syncope, postoperative, spinal anesthesia

### Özet

Senkop ; kardiyak, metabolik, psikiyatrik ve nörolojik nedenler sonucunda gelişen, ani tonus kaybı ile birlikte olan, geçici ve çoğu kez kendiliğinden düzelen bilinç kaybıdır. Vazovagal senkop ise sağlıklı insanlarda senkopun en sık rastlanılan tipidir ve çoğunlukla emosyonel strese bağlı gelişir. Genellikle korku, panik, ağrı veya egzersizle ortaya çıkar. Bu olgu ile 39 yaşında herhangi bir hastalık ve daha önce senkop öyküsü olmayan erkek hastada spinal anestezi sonrası 24 saat sonra korku ve paniğe bağlı olarak gelişen bir vazovagal senkoba yaklaşım tartışılacaktır.

**Anahtar sözcükler:** Vazovagal senkop, postoperatif, spinal anestezi

### Introduction

Syncope can be defined as a deprivation of consciousness temporarily that is developed due to either cardiac, metabolic, psychiatric and neurological reasons and frequently

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recovered spontaneously. Some of them including neurocardiogenic or vasovagal syncope occurs by neural mechanisms induced by panic, fear, pain or exercise. Vasovagal syncope is characterized by sudden hypotension and bradycardia in response to inhibition of the sympathetic system and activation of the vagal system (1,2,3). In this article, we presented a case of postoperative vasovagal syncope in a patient who received spinal anesthesia.

## Case report

Male patient, 39-year-old, was admitted to the clinic of general surgery with swelling in the right groin and occasional pain. The right inguinal hernia was found in patient by physical examination and investigation. Risk assessment for anesthesia was made as ASA1 in our clinic. The patient had no history of taking anesthesia.

Due to having adequate fasting period, patient was directly underwent surgery after the implementation of premedication (10 mg diazepam IM and 0.5 mg atropine IM) in the clinic. Spinal anesthesia was planned for the patient. Electrocardiography (ECG) was done, blood pressure was measured and after monitoring blood oxygen saturation (SPO<sub>2</sub>), 500cc 0.9% NaCl was delivered to patient via vascular access. After cleaning the skin of patient with an adequate antiseptic at sitting position, spinal anesthesia was performed by giving 15mg hyperbaric bupivacaine through L3-L4 spinal interspace with 25 gauge quincke spinal needle. Following the assessment of sensory block with the application of cold at Thoracic 10 (T<sub>10</sub>) level, patient was delivered to surgical team. There was not a significant alteration in blood pressure and pulse. Patient started to feel pain during the operation, therefore general anesthesia was induced in patient by giving intravenous (IV) 5-7mg/kg thiopental sodium, 0,6-1,0mg/kg rocuronium and 1-2 mcg/kg fentanyl. General anesthesia was maintained with 1.5% sevoflurane + 50% N<sub>2</sub>O + 50% O<sub>2</sub>. A remarkable fall in blood pressure and heart rate was not observed during surgery. Fluid management was achieved with 1000 cc of 0.9% NaCl during the operation that lasted about 1 hour. Multimodal analgesia was provided with an application of IV 50mg tramadol 100mg + dexketoprofen. Patient was extubated in the suitable conditions without any complication and sent to service.

Patient suffered from hypotension and dizziness, therefore reanimation consultation was requested on the first day (post-operative). Oral and IV fluid resuscitation was advised for patient. However, patient still had postural hypotension and dizziness after medication. Patient was consulted to neurology clinic. Neurological examination and brain computed tomography results suggested that there may be prolonged bupivacaine effect and bupivacaine-induced long QT syndrome in patient. Therefore, patient was examined by cardiologist who did report no cardiological pathology in patient. When patient was re-evaluated by us, there was no motor and sensory block. Moreover, patient did not have any headache. ECG was done and blood pressure was measured at normal range. A significant alteration was also not detected in blood pressure and pulse when patient changed his position from laying to sitting and from sitting to stand up. However; after a few steps bradycardia, hypotension and eventually syncope developed in patient therefore IV 0.5 mg atropine and 10 mg ephedrine was applied in patient. Patient was considered to have vasovagal syncope that lead us to maintain fluid resuscitation. Patient remained in this situation on the second day in post-operative period. Therefore, a syrup contain

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pseudoephedrine was added to patient's medication list and a recovery was observed. This improvement was remained on the third day. Patient was discharged on the post-operative fourth day with a full recovery and a cardiological check. After 3 months, mobile phone interview was conducted with patient revealing that patient did not have any trouble after discharge.

## Discussion

Vasovagal syncope is the most common type of syncope in healthy population and associated with an emotional stress. It often induced by either fear, panic attack, pain or exercise (1). There are adaptive mechanisms allowing normal systemic blood pressure and brain blood circulation. Maintenance of these mechanisms can not be kept in susceptible individuals to vasovagal syncope. Vasovagal syncope develops as a result of decreased perfusion in the brain due to an unexpected vasodilatation and bradycardia (4). Soteriades et al. suggested the rate of vasovagal syncope as 24.1% and 24.5% in male and female patients without any cardiac disorders, respectively (5). Additionally, results from the same study proposed that the cause of syncope is not fully known in either male (31%) or female (41.7%) patients.

There is a number of case studies in the literature suggesting development of vasovagal syncope during implementation of regional anesthesia or operation. Tajiri et al. reported a vasovagal syncope during insertion of epidural catheter (6). Yilmaz et al. have presented a case of vasovagal syncope in patient underwent laparoscopic tube ligation under general anesthesia (3). This patient had a history of previous vasovagal syncope. Bradycardia and hypotension developed during giving a trendelenburg position to patient under general anesthesia. Sprung et al. also reported a vasovagal syncope case developed during epidural catheter implementation in patient who planned to be operated for abdominal aortic aneurysm (7). Patient had a previous vasovagal syncope history developed during surgical procedures. This patient did not take a premedication in the pre-operative period. In addition, a feel of discomfort has been stated in patient. On the other hand, a pre-operative premedication was applied and either fear or discomfort was not observed in our case.

Oral fluid intake is recommended in the post-operative in patient undergoing spinal anesthesia. In our case, it was found that patient received inadequate amounts of fluid in the post-operative period. A consultation was requested from reanimation clinic for patient when hypotension and dizziness developed. To patient, a fluid intake therapy via both oral and IV was suggested. Development of post-operative hypotension in patient that lead him to feel of fear and panic. On the other hand, we think fear and panic led to this situation. The decline was observed in the patient's symptoms after treatment was re-ordered and a syrup containing pseudoephedrine was added to medication. Patients' feel of fear and panic was decreased and patient was recovered clinically.

To conclude, fluid replacement therapy should be initiated early after an application of spinal anesthesia. It should be kept in mind that such a statement can be developed in patients as a result of feeling fear and anxiety.

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