OLGU SUNUMU / CASE REPORT

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Büyük Oksipital Sinir + Üçüncü Oksipital Sinir Bloğu Sonrası Gelişen Lokal Anestezi Sistemik Toksisitesi

Local Anesthesia Systemic Toxicity After Greater Occipital Nerve + Third Occipital Nerve Block

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ÖZ

Servikojenik baş ağrısı (CH), büyük oksipital sinir (GON) ve/veya üçüncü oksipital sinir (TON) ile ilişkili bir baş ağrısıdır. Tıbbi tedaviye direnç gösteren CH vakalarında GON ve/veya TON bloğu sıkça tercih edilmektedir. Bu vaka raporunda, CH nedeniyle GON+ TON bloğu sonrası lokal anestezinin sistemik toksisitesi olan bir vakayı sunmayı amaçladık. ASA I risk sınıflandırmasına sahip, 70 kg ağırlığında, 34 yaşında bir kadın hasta, servikojenik baş ağrısı tedavisi için GON+ TON bloğu uygulandı. Blok, ultrasonografi (USG) eşliğinde negatif aspirasyonda kan veya serebrospinal sıvı olmadığı doğrulandıktan sonra, 2.5 ml %0.5 bupivakaine, 8 mg deksametazon ve 0.5 ml salin karışımı ile gerçekleştirildi. İşlem sonrası ilk dakikada, perioral bölgede uyuşukluk ve dizartri gelişti. Tedavi için %10 lipid çözeltisi başlanmıştır. Periferik blok uygulamalarında USG kullanımı ve sık negatif aspirasyonun, lokal anestezik ajanın yanlışlıkla intravasküler enjeksiyon riskini ortadan kaldırmadığı sonucuna vardık. Ayrıca, vasküler yapıların fazla olduğu ve cilt yüzeyine yakın olduğu servikal bölgedeki işlemlerde yanlışlıkla intravasküler enjeksiyon riskinin arttığına inanmaktayız.

Anahtar Kelimeler: servikojenik baş ağrısı, büyük oksipital sinir bloğu, üçüncü oksipital sinir bloğu, lokal anestezi sistemik toksisite

ABSTRACT

Cervicogenic headache (CH) is a headache associated with greater occipital nerve (GON) and/or third occipital nerve (TON). GON and/or TON block is frequently preferred in cases of CH, which have resistance to medical treatment. In this case report, we aimed to present a case with systemic toxicity of local anesthesia, following GON+ TON block due to CH. A 34-year-old female weighing 70 kg with ASA I risk classification, underwent a block of GON+ TON for cervicogenic headache treatment. The block has performed with 2.5 ml 0.5% bupivacaine + 8 mg dexamethasone + 0.5 ml saline mixture after being assured that there was no blood or cerebrospinal fluid in negative aspiration under ultrasonography (USG). In the first minute after the procedure, dysarthria and perioral numbness have developed. A 10% lipid solution has started for treatment. We concluded that the use of USG and frequent negative aspiration in peripheral block applications did not eliminate the risk of inadvertent intravascular injection of the local anesthetic agent. Besides, we believe that the risk of inadvertent intravascular injection has increased in procedures in the cervical region where vascular structures are excessive and close to the skin surface.

Keywords: cervicogenic headache, greater occipital nerve block, third occipital nerve block, local anesthesia systemic toxicity

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INTRODUCTION

ervicogenic headache (CH) is a common form of headache with widespread to the frontotemporal and ocular region, although temporal involvement from cervical bone, disc and/or soft tissue elements is common [1]. The incidence of CH in the general population has defined as 0.4% to 4.5% [2]. CH is a headache associated with greater occipital nerve (GON) and/or third occipital nerve (TON) [3]. Medical treatment, physical therapy, and peripheral nerve blocks could have used in the treatment of CH [4]. GON and/or TON blockage has frequently preferred for treatment in cases of resistant to medical drug therapy [5]. In our literature review, we found no local anesthesia systemic toxicity (LAST) after GON and/or TON block.

In this case report, we aimed to present a case of LAST after the GON + TON block due to CH, with literature.

CASE REPORT

A 34-year-old woman weighing 70 kg with ASA I risk classification , presented to our clinic with diffuse body pain and pain from the left cervical region to the occipital, occipitofrontal, and orbital regions.

Radiological imaging revealed no pathology after cervical X-ray and cervical MRI. The patient had been receiving duloxetine and pregabalin medication for the last three years because of pain in the neck and head. Also, the patient had received three sessions of physical therapy for the same complaint. Despite all these treatments, there was no relief in the patient's clinical status.

Clinically diagnosed as CH, GON + TON block was planned using ultrasound (USG) for treatment. Premedication wasn't used before the procedure. Following non-invasive blood pressure, ECG, and SPO2 monitoring; a 21 G block needle (PAJUNK SonoPlex Stim cannula) was inserted from the left C2 level between the dorsal surface of the obliquus capitis inferior muscle (OCI) and the semispinalis capitis muscle (SSC) using USG imaging (Esaote MyLab 7) [7]. No blood or cerebrospinal fluid (CSF) was observed after negative aspiration of the needle, then 2.5 mL of 0.5% bupivacaine (BUVASİN 0.5%) + 8 mg dexamethasone (DEKORT 8mg / 2mL) + 0.5 mL saline solution was applied slowly.

In the first minute after the procedure, dysarthria and perioral numbness occurred. Over time, 4/5 strength loss in hands and legs was observed. Despite all these symptoms, the patient did not develop any rhythm problems, respiratory distress, and loss of consciousness.

There were no pathologies found in Cranial CT, Cranial Diffusion MRI, and Cervical MRI of the patient.

Diagnosis of LAST was considered in the foreground. For treatment, 100 mL of 10% lipid solution (Oliclinomel N4-550E) was administered for 30 minutes. Then, the infusion was started on a dose of 0.5 mL/kg/h to the patient

DISCUSSION

GON + TON block was applied to a region that is rich of vascular structures (occipital artery and occipital vein) in the treatment of CH, which is resistant to medical treatment [5]. Although the GON + TON block was performed using USG and control of the absence of blood by negative aspiration, we evaluated the development of dysarthria and numbness in the perioral region within one minute after the procedure as an unintentional intravascular injection of bupivacaine. A dramatic improvement in the patient's symptoms with intravascular lipid infusion confirmed our diagnosis.

Clinically, LAST was seen in 7.5 to 20 of 10,000 peripheral nerve blocks [6].

LAST may result from an accidental intravascular injection, rapid systemic absorption, and relatively high dose administration of local anesthetics [7]. The onset of LAST symptoms within one minute after the procedure, indicates intravascular injection of the local anesthetic drug [8].

Accidental intravascular injection of local anesthetics may include perioral numbness, paresthesia, dizziness, difficulty in visual focus, tinnitus, disorientation, and drowsiness as early symptoms of central nervous system toxicity. As the plasma concentration of local anesthesia increases, dysarthria, motor function loss in the extremities, and tonic-clonic seizures may be seen [9]. The symptoms with the highest mortality in LAST are seen in cardiovascular system. The patient may develop sinus bradycardia, refractory ventricular arrhythmias or cardiac arrest [9]. Among the patients with LAST, isolated neurological symptoms were seen in 43%, neurological + cardiovascular symptoms were seen in 33%, and isolated cardiovascular symptoms were seen in 24% of the patients [10]. In our case, isolated neurological symptoms developed in accordance with the literature. We interpreted this as a result of the limited amount of local anesthetic administered (2.5 mL of 0.5% bupivacaine), and limited local anesthetic plasma concentration.

It was reported that negative aspiration, which was frequently performed in local anesthesia applications, significantly reduced but did not completely eliminate the risk of intravascular injection [8]. In the literature, there have been case reports reporting unintentional intravascular injection despite the absence of blood in negative aspiration [11,12].

In our patient, despite the absence of negative blood aspiration, we interpreted the development of unintentional intravascular injection as a result of the complete collapse of the venous structures due to the pressure of the USG probe itself and/or the pressure exerted by the practitioner, because the vascular structures in the cervical region where the application was performed were close to skin surface.

The introduction of USG in peripheral nerve blocks provided many advantages such as imaging of the nerve, needle, peripheral structures, and the spread of the local anesthesia. However, USG reduces the risk of inadvertent intravascular injection but does not eliminate it [13-15]. In an axillary block case in the literature that was performed with USG guidance and negative aspiration control, it was realized that local anesthesia did not spread between tissues, and contrary to that, there was an intravascular injection which then was realized after application of a total of 3 ml of local anesthetic [13]. In our patient, although we used USG during unintentional intravascular injection, we concluded that the use of USG in block applications does not eliminate the risk of unintentional intravascular injection in accordance with the literature.

As a result; we conclude that USG use and frequent negative aspiration in peripheral block applications do not completely eliminate the risk of

unintentional intravascular injection of local anesthetic agents. Also, we believe that the risk of unintentional intravascular injection increases in procedures in the cervical region where the vascular structures are excessive and close to the skin surface.

Informed Consent: Patient consent was obtained for this study.

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