Lateral sagittal infraklavikular blok sonrası gelişen Horner Sendromu olgusu

Tülay Hoşten, Yavuz Gürkan, Mine Solak, Kamil Toker

ÖZET

Horner sendromu, cerrahi, ilaçlar (çoğunlukla yüksek konsantrasyonda lokal anestezikler), bölgesel bası (hematom veya tümör) ya da peroperatif uygunsuz hasta pozisyonu sonucu aynı taraftaki servikal sempatik zincirin (stellat gangliyon) felci sonucu oluşur. Horner Sendromu brakiyal pleksusunun interskalen bloğuyla % 100 oranında görülür ve aynı zamanda diğer supraklavikular blok tiplerinde de görülebilir. Horner sendromu önemli klinik sonuçları olmaması nedeniyle istenmeyen bir yan etki olarak tanımlanabilir. Bu nedenle anesteziyolojistler bu sendromdan haberdar olmalı ve görüldüğü takdirde hastaya güven verilerek yakından takip edilmelidir. Biz bu yazımızda yeni tanımlanan bir teknik olan lateral sagittal infraklavikular blok (LSİB) sonrası gelişen Horner sendromu vakasını sunduk.
Anahtar kelimeler: Horner sendromu, brakiyal pleksus bloğu, lateral sagittal infraklavikular blok.

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SUMMARY

A case of horner's Syndrome following lateral sagittal infraclavicular block

Horner's syndrome results from paralysis of the ipsilateral sympathetic cervical chain (stellate ganglion) caused by surgery, drugs (mainly high concentrations of local anesthetics), local compression (hematoma or tumor), or inadequate perioperative positioning of the patient. It occurs in 100 % of the patients with an interscalene block of the brachial plexus and can also occur in patients with other types of supraclavicular blocks.

Horner's syndrome may be described as an unpleasant side effect because it has no clinical consequences in itself. For this reason anesthesiologists should be aware of this syndrome and if it occurs patients should be reassured and monitored closely. In this case report, we presented a case of Horner's Syndrome following lateral sagittal infraclavicular block (LSIB), a newly described technique.

Keywords: Horner's syndrome, brachial plexus block, lateral sagittal infraclavicular block.

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Kocaeli Üniversitesi Tıp Fakültesi, Anesteziyoloji ve Reanimasyon Anabilim Dalı, Kocaeli

Başvuru Adresi:
Yard. Doç. Dr. Tülay Hoşten
Kocaeli Üniversitesi Tıp Fakültesi Anesteziyoloji ve Reanimasyon AD. Umuttepe Kampüsü, Kocaeli 41100 - Türkiye
e-posta: tulayhosten@hotmail.com
Tel.: 0.262 303 80 88

Department of Anesthesiology and Reanimation, Madical School of Kocaeli University

Correspondence to:
Tülay Hoşten, Assistant Professor,
Department of Anesthesiology and Reanimation, Madical School of Kocaeli University, Kocaeli, Turkey
e-mail: tulayhosten@hotmail.com
Tel.: +90.262 303 80 88

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Introduction

Horner's syndrome may correspond to a diffusion of local anesthetics in prevertebral spaces ultimately involving the sympathetic nerves and communicating with cervical nerve trunks (Honma M et al. 2000). It results from paralysis of the ipsilateral sympathetic cervical chain (stellate ganglion) caused by surgery, drugs (mainly high concentrations of local anesthetics), local compression (hematoma or tumor), or inadequate perioperative positioning of the patient. (Vester-Andersen T et al.1981, Hickey R et al 1989)

Interscalene and supraclavicular blocks of the brachial plexus are the main anesthetic techniques associated with this syndrome (Urmey WF et al.1991, Neal JM et al.1998, Mak PH et al. 2001).

Case Report

A 31-year-old healthy man (64 kg, 178 cm), classified as American Society of Anesthesiologists physical status I, was scheduled for internal fixation of a complex fracture of the elbow. Perioperative anesthesia consisted of an infraclavicular brachial plexus block. The patient was sedated in the operating room with intravenously (iv) administered midazolam (2 mg) and fentanyl (50µg). The block was performed by lateral sagittal infraclavicular technique which described by Klaastad et al (Klaastad et al. 2004). The patient was in the supine position, with the arm flexed at the elbow and resting over the chest or upper abdomen. After identification of the landmarks (i.e coracoid process and just below the clavicle) the needle was introduced parallel to the horizontal plane. A nerve stimulator (Stimuplex®; Braun, Melsungen, Germany and a 22-gauge) and 100 mm insulated stimulation needle (Stimuplex Kanule A, B Braun) was used. The nerve stimulator setting was an initial stimulation intensity of 1.5 mA a duration of impulse of 0.1 ms, and a frequency of stimulation of 2 Hz. The location of the needle tip was considered satisfactory when a distal flexor response and when muscle contractions remained visible after reduction of the intensity between 0.3-0,5 mA. The local anesthetic, 20 ml of 0.5 % levobupivacaine and 20 ml of 2 % lidocaine with epinephrine 1:200000 was injected with intermittent aspiration. Block onset time was 20 minutes. There was no change in hemodinamical parameters. Pneumothorax, vascular puncture and symptoms of local anesthetic toxicity were not observed. 30 minutes after block performance the Horner's Syndrome was observed. The patient did not have any respiratory difficulty. Surgery was completed succesfully without any complication. Horner's Syndrome vanished approximately two hours later.

Discussion

Axillary, interscalene, and supraclavicular approaches of the brachial plexus are commonly used in clinical practice. Since the reintroduction of the infraclavicular block by Raj et al. (Raj PP et al. 1973) several modifications have been published; the coracoid approach, the vertical infraclavicular approach, the modified Raj approach and lateral sagittal infraclavicular block. (Whiffler K. 1981, Kilka HG et al. 1995, Borgeat et al. 2001, Klaastad et al. 2004) Following brachial plexus block via interscalene and infraclavicular approaches Horner's syndrome may occur. Jandard et al (Jandard et al 2002) reported a Horner's syndrome rate of 4%, Kilka et al (Kilka HG et al.1995) 7 %, Rettig et al (Rettig et al.2005) 12 % and Neuburger et al (Neuburger et al.1998)1 %.

There may be many causes of Horner's syndrome. It may be related to distribution of local anesthetic solution. There are different studies about distribution of local anesthetics and anatomy of the brachial plexus. Rodriguez et al. (Rodriguez et al. 2003) found that local anesthetics, after both supraclavicular and interscalene blocks, were distributed above and below the clavicle, and conversely they found that after a coracoid block, local anesthetics remained below the clavicle in all patients. Winnie (Winnie 1970) suggests that the brachial plexus is completely encased in a continuous tubular sheath from the interscalene groove to the axilla. On the other hand Beck et al. (Beck et al.1990) showed, in an anatomical study, that connective tissue thickening could divide the neurovascular space of the brachial plexus into two compartments, possibly explaining the unidirectional spreading from the supraclavicular space to the infraclavicular space. Horner's syndrom can be observed during continuous infusion or with a single large volumes. Salengros et al. (Salengros et al. 2007) observed delayed Horner's syndrome in a case during a continuous infusion through a catheter with infraclavicular block approximately 50 hours after the initial block. But Ilfeld et al. (Ilfeld et al.

2004) published a series that examined patients managed with continuous postoperative infraclavicular local anesthetic infusion. They did not report any signs of Horner's syndrome. Causes of Horner's syndrome are large accumulation of local anesthtetic solution or due to the atypical proximal migration of the solution above the clavicle toward the supraclavicular paravertebral area. Sometimes Horner's syndrome can be observed without catheter placement, above 40 ml volumes. (Kilka et al. 1995, Jandard et al. 2002)

When the rates of complications between the supraclavicular and infraclavicular approaches are compared impairment in diaphragmatic movements can apparently be rated as 100% for interscalene, 50 % to 77 % for supraclavicular, 24 % to 26 % for proximal infraclavicular and 0% for more distal infraclavicular blocks. (Neal et al. 1998, Urmey et al. 1991, Rettig et al. 2005, Rodriguez et al. 2003, Winnie 1970) According to Rettig et al (Rettig et al. 2005) Horner's syndrome is a clinically significant sign (100%) that predicts a changes in hemidiaphragmatic movement however, in their patients, changes in hemidiaphragmatic movement was also observed without Horner's syndrome. They suggested that the phrenic nerve and sympathetic trunk are more separated. We did not observe altered respiratory functions or dysphonia in our patient.

LSIB was firstly introduced by Klaastad et al. (Klaastad et al. 2004) Vascular and pleural complications (pneumothorax, vascular puncture) are seen less than vertical approaches Deleuze et al. 2003, Desroches et al. 2003, Koscielniak-Nielsen et al. 2005). The only reported complication is vascular puncture (Zbigniew J et al. 2005). No case of pneumothorax has been reported with LSIB yet. We were succesful in our three patients whom we performed infraclavicular block via lateral sagittal approach without any complication (Hoşten et al. 2006).

Although very rare, Horner's syndrome can be observed with this approach, too. Although Horner's syndrome had no clinical consequences to this patient it may be described as an unpleasant side effect. It has the potential to lead to patient anxiety, discomfort and dissatisfaction. For this reason anesthesiologists should be aware of this syndrome and if it occurs patients should be reassured and monitored closely.

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