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Case Report / *Olgu Sunumu*

Benign paroxysmal positional vertigo of horizontal canal in an unusual age

Olağan dışı bir yaşta horizontal kanal benign paroksismal pozisyonel vertigosu

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In this article, we present a 23-month-old girl case with benign paroxysmal positional vertigo of the horizontal canal. The patient was admitted with the complaints of sudden-onset rapid eye movement and vomiting while rocking the baby to sleep. A significant horizontal nystagmus was observed in the right supine roll test. After a right barbecue maneuver, nystagmus and anxiety in the supine position were observed to be improved. The patient had no similar complaints during a six-month follow-up.

Key Words: Barbecue maneuver; childhood vestibulopathy; positional vertigo.

Bu yazıda horizontal kanal benign paroksismal pozisyonel vertigosu olan 23 aylık bir kız olgu sunuldu. Hasta, bebeğini sallayarak uyuturken, ani başlayan hızlı göz hareketleri ve kusma yakınmaları ile başvurdu. Sağ sırtüstü gövde yuvarlama testinde anlamlı horizontal nistagmus gözlendi. Sağ barbekü manevrasından sonra nistagmus ve sırtüstü pozisyondaki anksiyetenin düzeldiği gözlemlendi. Altı aylık takipte hastanın benzer yakınması olmadı.

Anahtar Sözcükler: Barbekü manevrası; çocukluk çağı vestibülopatisi; pozisyonel vertigo.

Benign paroxysmal positional vertigo (BPPV) is one of the most common disorders causing dizziness.[1] In 1921, Barany described the characteristic nystagmus and vertigo induced by position change and attributed these symptoms to a disorder of the otolithic organ. The prevalence of BPPV has been reported as 7-64/100.000 population.[2] Benign paroxysmal positional vertigo is most commonly clinically encountered as one of two variants: BPPV of the posterior semicircular canal (posterior canal BPPV) or BPPV of the lateral semicircular canal (also known as horizontal canal BPPV).[3-5] Posterior canal BPPV is more common than horizontal canal BPPV, constituting approximately 85 to 95% of BPPV cases.[5] Lateral (horizontal) canal BPPV accounts for between 5% and 15% of BPPV cases.[4,5]

The etiology of lateral canal BPPV is also felt to be due to the presence of abnormal debris within the lateral canal, but the pathophysiology is not as well understood as that of posterior canal BPPV. Other rare variations include anterior canal BPPV, multiple canal BPPV, and bilateral multiple canal BPPV.

The supine roll test is the preferred maneuver to diagnose lateral canal BPPV. Clinicians should inform the patient that this test is a provocative maneuver and may cause the patient to become subjectively intensely dizzy for a short period of time. The supine roll test is performed by initially positioning the patient supine with the head in neutral position followed by quickly rotating the head 90 degrees to one side with the clinician observing the patient's eyes for nystagmus. The roll maneuver (Lempert maneuver or barbecue roll maneuver) or its variations are the most commonly employed maneuvers for the treatment of lateral canal BPPV.[3]

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Lateral canal BPPV is universally defined as a syndrome characterized by intense vertigo, nausea, and vomiting, and triggered by head movements on the plane of lateral canal.[6] The induced nystagmus tends to be more persistent in lateral canal BPPV than in posterior canal BPPV. The nystagmus evoked during positioning in lateral canal BPPV usually exhibits less fatigability and a shorter latency than that evoked in posterior canal BPPV. Determination of the involved ear is sometimes difficult due to rather symmetrical responses, especially if the induced nystagmus is not recorded. In these instances, other findings may provide clues toward determining the affected ear.[3] While posterior canal BPPV has been observed not only in adults but also less frequently in children, to date, lateral canal BPPV has been observed only in adults and no infant cases (0-2 years) have been reported in literature.[1,2-7]

CASE REPORT

A twenty-one month-old girl presented to the pediatric outpatient clinic, with the complaint of sudden onset rapid eye movement and vomiting while rocking the baby to sleep. There was a history of head trauma by falling 20 days prior, without loss of consciousness. Her general pediatric and neurological examination were normal and she was brought to the ear nose throat (ENT) clinic. The child was anxious especially in supine position and was observed to be completely relieved when seated. Her otolaryngologic examination was normal. The tympanometric examination, transient otoacoustic emission, distortion product otoacoustic emission, and auditory brainstem response tests were normal. There was no nystagmus spontaneously or during Dix-Hallpike maneuver. A significant horizontal nystagmus was observed in the right supine roll test with a latent period of 2-3 sec, accompanied by extreme anxiety which was thought to be due to the feeling of vertigo. A right barbecue maneuver was performed. After the maneuver, nystagmus in the supine roll test and anxiety in the supine position were observed to be improved. The patient had no similar complaints during six-month follow-up.

DISCUSSION

Horizontal canal benign paroxysmal positional vertigo (HC-BPPV) is a disease characterized by vertigo, nausea, and vomiting, which is aggravated by head movements.[4-8] There are two forms of HC-BPPV. These are geotropic, with paroxysmal, bidirectional nystagmus, in which there are more severe symptoms when the head rotates to the affected side and apogeotropic, with longer and more severe nystagmus when the head rotates to the unaffected side. Schuknecht[8] suggests that these forms depends on cupulolithiasis positioning in the non-ampullary or in the ampullary extremity.

Both BPPV of posterior semicircular canal and HC-BPPV are seen more frequently in adults. Horizontal canal benign paroxysmal positional vertigo has been only reported in a paper in a 10-year-old boy[4] but it has never been reported in infants.[4,7] In view of the high prevalence of BPPV in middle-aged women, hormonal factors may play a role in the development of BPPV. Benign paroxysmal positional vertigo may develop secondary to various disorders that damage the inner ear and detach the otoliths from the utricular macula.[3] Hypertension, arteriosclerosis, metabolic disorders, damage of endolymph with chemical and physical factors, are mainly suggested factors observed in adults. However, childhood BPPV is a different matter.[9] In pediatric age groups, vestibular diseases are mainly due to infections, cranial trauma and drugs. Head trauma causing mechanical damage to the ear is the most common cause of BPPV.[7] Rarely, patients develop BPPV after mastoid surgery or if they engage in a persistent head-tilt position, such as among barbers or dentists.[9,10] Compared with the idiopathic form, traumatic BPPV exhibits several distinctive characteristics, including a higher incidence of bilaterality, involvement of multiple canals on the same side, equal occurrence among women and men, a younger and more even age distribution, more difficult to treat, and frequent recurrences.[11] The other forms of peripheral vestibular disease are not related with a single typical position, but are present in different positions and the caloric test is generally successful.[4,10] In our case, there was a head trauma history without loss of consciousness and vertigo had started after 20 days while rocking the baby to sleep. Her neurological examination was normal. Suarez et al.[12] reported that BPPV related to head trauma is seen in younger patients, and more frequently presents with bilateral canalithiasis than other populations with idiopathic etiology. However in our case unilateral HC-BPPV was observed.

The clinical form is characterized by a history of recurrent vertiginous attacks without aura, short lasting and with spontaneous and complete recovery between attacks. In our case, the symptoms described clearly suggested the diagnosis of BPPV of peripheral origin. Actually, positional vertigo of central origin (as described in the adult) is characterized by absence of latency, persistence of vertigo during the period while the patient is lying in the triggering position, absence of fatigue, no complete recovery notwithstanding specific rehabilitation, and positive neurologic examination.

Labyrinthine structures in the first years of life show more plasticity and a more rapid recovery of possible microlesions, which explains the relative rarity of cupulolithiasis in children.[4]

The barbecue maneuver involves rolling the patient 360 degrees in a series of steps to effect particle repositioning. It may be performed in the outpatient setting after a diagnosis of lateral canal BPPV has been made with the supine roll test. Variations of the roll maneuver appear moderately effective and are the most widely used treatments for lateral canal BPPV. Other methods of treatment have also been advocated, but currently no RCTs provide reliable measures of effectiveness. At this time, there is no sufficient evidence to recommend a preferred treatment maneuver for lateral canal BPPV treatment.

In this paper, we report a 21-month-old girl with right BPPV of horizontal semisircular canal. This report is interesting as it shows that HC-BPPV can seen even before the maturation of the vestibular organ, and that the features observed in the child are similar to those found in adults.[4,8] Although head trauma or rocking the baby on the leg are previously reported etiological reasons, a 21-month-old pediatric patient is the youngest case in the literature.

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