

THEME TOPIC

Treatment of anterior semi-circular canalithiasis by a sedimentation procedure in a vertical rotatory chair

Traitement d'une lithiase du canal semi-circulaire antérieure par sédimentation en stimulation giratoire

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Abstract

Objectives. – To describe the video-nystagmographic characteristics, treatment, and results of a specific canalith repositioning procedure (CRP) on patients with canalolithiasis of the anterior semicircular canal (ASC).

Material and methods. – This was a retrospective study conducted from January 2005 to March 2006 on 16 patients treated for a benign paroxysmal positional vertigo (BPPV) of the ASC. Each patient after analysis and diagnosis using two-dimensional video-nystagmography (2DVNG) was treated with a specific CRP in a specific vertical rotatory chair with control of pulse and blood pressure. The effect of this procedure was determined after 1 week with video-nystagmoscopic (VNS) positional control. A 2DVNG bithermic caloric test, an impulse rotatory test, and a vibratory test were performed. Patients were contacted in May 2006 to measure the long-term effect of the CRP results.

Results. – In this retrospective study of 16 anterior BPPVs (a BPPV), the sex ratio, the average age, and the symptoms were comparable to those in patients with posterior BPPV (p BPPV). The sedimentation CRP proved to be effective, with all patients cured after 8 days, even though the length of illness before treatment was 11.68 weeks on average. At the time of the study, 13 patients were already cured, 8.07 months on average after the CRP. Three patients relapsed (one in an anterior form, two in a posterior form).

Conclusions. – ASC BPPV is rare, possibly because the DIX HALLPIKE (DH) test does not sufficiently provoke the condition. The hyperextension with the head in the 45-degree upper position, especially in a rotatory chair, is probably more effective. It seems that the prolonged sedimentation in this position is the key to the treatment.

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Résumé

Objectifs. – Décrire les caractéristiques vidéonystagmographiques, la manœuvre libératoire (ML) spécifique et les résultats de cette manœuvre chez les patients présentant un vertige positionnel paroxystique bénin (VPPB) du canal antérieur en forme canalolithiasique.

Matériel et méthodes. – Cette étude rétrospective a porté sur 16 patients traités pour un VPPB du canal antérieur. Chaque patient a bénéficié d'une vidéonystagmographie 2 dimensions (2DVNG) et d'une ML spécifique réalisée dans un siège rotatoire vertical sous contrôle du pouls et de la tension artérielle. Les effets de la ML ont été évalués après une semaine sous contrôle vidéonystagmoscopique positionnel. Sous 2DVNG, une épreuve calorique, une épreuve rotatoire impulsienne et un test vibratoire osseux ont été réalisés. Les patients ont été recontactés en mai 2006 pour mesurer les effets à plus long terme de la manœuvre.

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Résultats. – Dans cette étude rétrospective de 16 VPPB du canal antérieur, le sex-ratio, la moyenne d'âge, les symptômes sont comparables à ceux des patients présentant un VPPB du canal postérieur. À propos de l'efficacité de la ML, on peut dire que tous les patients ont été soulagés après huit jours, alors même que l'évolution des symptômes avant traitement était de 11,68 semaines en moyenne. Au moment de l'étude, 13 patients étaient toujours asymptomatiques, 8,07 mois en moyenne après la ML. Trois patients avaient récidivé une fois, (un en forme canalaire antérieure, deux en forme canalaire postérieure).

Conclusions. – Le VPPB du canal antérieur est rare, la manœuvre de DH peut être insuffisante à révéler les nystagmus diagnostiques. L'hyperextension, tête défléchie à 45° sous l'horizontale, spécialement dans une chaise rotatoire est peut être plus efficace. Il semble qu'une sédimentation prolongée soit la clé du traitement.

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Keywords: Benign paroxysmal positional vertigo; Anterior semicircular canal; Vertical rotatory chair; Canalith repositioning procedure

Mots clés : Vertige positionnel paroxystique bénin ; Canal semi-circulaire antérieur Giroisège ; Manœuvre libératoire

1. INTRODUCTION

BPPV is the most common cause of vertigo. Free floating heavy particles, the canalithiasis, is considered to cause BPPV. All the semicircular canals can be affected.

Canalithiasis of ASC is also possible, but it is very rare. In our experience the BPPV of ASC was found in 4.5% (16 cases/354) of typical BPPV, in the literature to 1.3 at 3% [1–4].

This aBPPV is characterized, during the ampullofugal stimulation by ageotropic torsional downbeat nystagmus. This nystagmus is reproducible, reversible, paroxysmic, fatigable, with latency and of short duration.

In this retrospective study, using a sedimentation CRP in hyperextension in a specific rotatory chair we assessed the efficacy of the method in diagnosis and treatment of the aBPPV. Finally, we showed the probable optimization role of the vertical rotatory chair in the efficacy of the CRP.

2. MATERIAL AND METHODS

From January 2005 to March 2006, 722 patients were diagnosed as suffering from BPPV. 368 patients (51%) were atypical and excluded from this study.

Nystagmus Brandt's [5] criteria were used for the diagnosis of typical BPPV. They include:

- latency: the nystagmus begins one or more seconds after the adapted head position;
- short duration: the paroxysmic nystagmus gradually reduces;
- reversal: when the patient returns to the initial position, the nystagmus may reoccur in the opposite direction;
- fatigability: repetition of the diagnostic position reduces the duration and the slow phase velocity of the nystagmus;
- linear and/or rotatory nystagmus: the nystagmus is adapted to the diagnostic position;
- efficacy of the canalith repositioning in the validated procedure.

In this study a BPPV was diagnosed in 4.5% of the typical BPPV (16 cases/354).

In the diagnostic position, the patient's head was turned 45° on the contralateral side of the canal. In our vertical rotatory

chair, the patient was lowered backward with the head hanging 45° in the supine position. The first phase of CRP (Fig. 1).

ASC BPPV diagnostic was confirmed with appearance of down beat and torsional nystagmus ipsilateral of the canal (contralateral of the head rotation).

When the patient was diagnosed as having aBPPV the CRP was performed. Throughout the CRP, the head was always turned to 45° on the contralateral side of the canal.

Ultimately at around the positional nystagmus, the patient was assisted to assume a horizontal plane. The second phase of CRP.

The same inconstant nystagmus appeared. The procedure was recommenced with assistance to achieve a 30° attitude to the horizontal plane. The third phase of CRP (Fig. 2).

The procedure concluded in a seated position after disappearance of down beating and torsional nystagmus. The fourth phase of CRP (Fig. 3).

Throughout the CRP, blood pressure and pulse were controlled.

The effect of the sedimentation procedure was determined after 1 week. A new positional VNS in our rotatory chair was performed with a 2DVNG bicaloric (30° and 44° Celsius), impulsional rotatory (180°/10 s) and vibratory (100 Hz) tests.

At the end of the study (May 2006), we contacted all patients to measure the long-term results of the CRP.

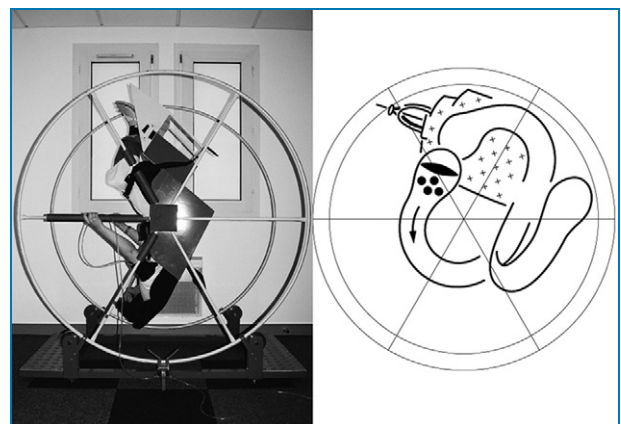


Fig. 1. Canalith repositioning procedure for ASC BPPV: first phase.

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