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# Bascule Maneuver for the Management of Atypical Posterior Canal BPPV

**Presenter: Presenter: Andrea Castellucci, MD**

Greetings everyone and welcome back to a new session of the Inventis Academia project. Today I'm truly delighted to host once again Dr. Andrea Castellucci, who returns to our program after more than one year, and we are very, very happy to have him back with us. Andrea has long been a trusted reference for me, to be honest, someone I regularly turn to for clinical insights, feedback and suggestion on how to improve our vestibular instrumentation. Andrea works as a consultant at the D and T department of the Reggio Emilia Hospital here in Italy. He leads the Autoneurolog Clinical outpatient clinic and collaborates closely with neurology and emergency medicine.

He is actively engaged in both national and international research and is a familiar voice at conferences, webinars and scientific publications. So we are sincerely grateful to Andrea for accepting our invitation once again. The title of today's lecture is Vascular Maneuver for the Management of a Typical Posterior Canal bppv. Before we begin, I kindly remind you that you may submit your questions at any time through the question and answer space on your screen and at the end of the event you will receive a brief survey. We would greatly appreciate your feedback as it helps us continuously improve our educational initiative.

It is now my pleasure to hand over to Dr. Castellucci. So enjoy the webinar and see you later.

Thank you, Anna. Thank you very much. Hello everyone. Welcome back to this Inventis Academia webinar. I'm very honored to be here.

First of all, I would like to thank Anna Scala. She's special for her nice introduction and of course Inventis for inviting me here to talk, to talk with you about this novel management of a typical posterior canal bppv. And let's try to see if this tough variant of BPPV could be treated. Because sometimes I'm sure that it's experience from everyone that when we have typical dppv, we usually do not have problem in the treatments, but when we have less common variants, a typical variance, and we'll. We'll see most of them.

Most of the traditional maneuver usually fail in the. In. In the management of this kind of variant, in this kind of vertigo. So let's try to see if this maneuver can help us in our daily clinical practice. First of all, I need to thank my co workers.

This maneuver has been designed by a group, a group of colleagues, mainly from Italy, a group where I belong. And I really need to thank them so much because this. Because the results that I'm presenting you, of course, are shared by our colleagues. And besides myself, I need to thank my Close colleagues, which are Pasquale Malara from Switzerland and Salvatore Martelucci from Latina, Italy. And of course we need to thank Professor Astrell Libonati, who is, let's say, the leader of this group and who taught us how to understand some signs, who guided us in the design of this maneuver.

And then I need to thank Dr. Luigi Califano from Benevento and Dr. Pecci from Florence, very close friends. And I need to thank them for collecting additional cases. And also my close colleagues here in Regimelia, Dr. Paolo Russo and Dr. Sara Donvito. They helped me in the elaboration of results and in collection of data.

So let's try to understand which are the atypical variants of bppv. If you look at the guidelines of BPPV and the diagnostic criteria made by the Barony Society 10 years ago, we can see that the typical variants are mainly three. So posterior canal BPPV when otoconia are in the long arm of the of the posterior canal and they are free to float here, so called geotropic variant because the nystagmus is geotropic. Because when we bring the patient from the upright position to the dixal like position or the semon position depending which is the maneuver that we prefer, the nystagmus goes up, so the patient is down with the head down, so it's geotropic because the stamos goes toward the ground. This is the geotropic variance.

And then we have the horizontal canal BPPV that might be geotropic or apogeotropic depending on the position of otoconia. If they are in the non ampullary arm, like in these cases is geotropic. If they are in the non ampular, in the ampullary arm of the horizontal canal, the variant is apogeotropic because nice time was bits up at the supine head test. And there is also the coupesis of the horizontal canal leading to not to paroxil nystagmus, but to persistent horizontal nystagmus at the spine head tests. And these are the most common variants.

And Barney Society gave us this diagnostic criteria that are very, very, very clear. And then they say that there are atypical variants, the typical variants might be a typical variance doesn't mean necessarily that they are less common in my opinion. They are not less common, they are not that common as the other one, but not that infrequent. They are quite often detected in my clinical practice and I'm sure also yours, and it's the posterior canal couple it where otoconia adhere to the cupola of the posterior canal and leading to a persistent bending on the posterior canal cupola depending on the position of the head respect to the gravity. And of course we do not, we.

We cannot, we cannot know from the beginning if otoconia are attached in the utricular side of the posterior canal cupola or in the canal side of the posterior canal cupola. And this kind of variant is very frequent in my opinion is is probably among the atypical variants, one of the most frequent and it's easy to treat. And then we have the variance of BPPV associated to positional downbeat nystagmus. And when I say positional downbeat nystagmus I mainly speak about persistent positional nus. And they could be.

Or the anterior canal BPPV where otoconia are up here or where otoconia are somewhere here attached or close to the cupola of the anterior canal. In my opinion this is probably the less frequent form because as you can see otoconia, it's not easy for otoconia to go in this uppermost part of the labyrinth. Okay. In my opinion this is definitely rare. Much more common in my opinion and in my

clinical practice is the apogeotropic variant of the posterior canal BPPV where otoconia settled here in the non ampullary arm of the canal close to the common cross.

Of course all these sites they should be self cleaning because if otoconia are here and they are, and if they are free to float back and forth along the canal, they are not stuck, they are not attached to the wall of the membranous labyrinth. Most of these variants usually should have a very good outcome because they are basically self cleaning and it's quite rare that otoconia go there. But actually persistent down bitness times due to BPV is not that rare and mainly is due to a kind of positional jam. If otoconia are there, it means that there are some kind of stuck there in a narrow tract of the canal in, in a part of the canal where probably there are otoconia with utricular. Utricular part of the utricular macula of the.

Of the matrix of the uticular of the utricular macro. So probably they are somehow stuck there and this is why they lead to a persistent position. On his time. Not reversing with the diagnostic tests then we have another interesting variant, the so called sitting up vertigo. And sitting up vertigo could be due to otoconia that are in the peri ampullary area of the posterior canal here, close to probably a stenosis somewhere here, leading to a nice diagnosis that can be elicited not in the typical positional tests like Dixel pike test or Simone tests, but when we bring the patient from that position to the right position.

So it's the reverse of a typical nice nystagmus is the same, but it's not in that position. But when you bring the patient back in the upright position, they might be here or sometimes they might be here in the so called short arm of the posterior canal. The short arm of the posterior canal is this tiny tract of the the canal between the ampulla of the posterior canal and the utricle. If the otoconia are here, they might lead to this sitting up variants. And of course we also might have the candidate JAM Canary GEM is a variant of BPPV that lead to persistent nystagmus that does not, does not reverse with the head positions.

It's a kind of spontaneous nystagmus that might be horizontal, horizontal or vertical or torsional, depending on the canal affected, depending on the position where the candidates are stuck. And this is, this is due to an aggregate of debris that got stuck in the part of the canal, probably in a narrow tract of the canal, leading to a persistent endolymphatic flow toward or away from the cupola, leading to a persistent bending of the cupola of the fetal canal that will bend toward the ampulla or away from the ampulla, so leading to excitation or inhibition of the canal reference. And it presents with spontaneousness diagnosis that it's actually due, not due to a loss of the vestibular reference, but due to a persistent bending of the cupola toward one side or toward the other side. And of course this kind of variance cannot be treated with the typical repositioning maneuver because we need to shake the head of the patient. We need to rock the patient to dislodge otoconia from this position or directly to the utricle or to another side of the canal affected, where they can be easily treated with the usual maneuver.

And of course leading to a typical paroxysmogen nystagmus and of course the multicanadi ppv. But it's another topic. So typical typical posterior canal BPPV is successfully managed with standard repositioning maneuver with high success rates. You know, otoconia are here free to float back and forth along the ampullary arm of the canal, this long arm of the posterior canal and this is the most common maneuvers are the Epley maneuver. You can see here we bring the patient in the Epley position and of course, after a while there's a typical with ipsy regional torsional components with the crescendo decreasing the course because the otoconia goes and then stops.

And then we bring the patient on the opposite side. We have to wait. We have to be careful. We have to. We have to be slow in this maneuver because we need to use gravity.

This is a maneuver that use mainly the. Uses mainly gravity. And then we reposition the osirconium inside the utricle. Another treatment for the typical posterior chemistry PPPV is the semi maneuver.

Semi maneuver is the diagnostic diagnostic test as this.

But if we can continue with this maneuver going on the opposite side and bringing the patient with. From the face up position to the face down position on the other side. And we need to wait for the liver treatment nystagmus to see if otoconia went all over the canal until the utricle. This maneuver is totally different from the apply maneuver because this maneuver in. For this maneuver you need to use acceleration.

You need to use brisk movements of all the trunk of the patients. So we make the most from an inertia from acceleration from inertial forces. And. And this maneuver can work only if we do brisk maneuver. And this is very good also for typical canal devices.

But if we want to understand what's going on when we have, when we are in front, when we are in front of a typical variance, we have to keep in mind the good and bad prognostic signs during the standard deposition maneuver in posterior canva pppd. And for this we have to remember which are the good and bad pronounced designs. And we have to look at the eyes. We have to look at the eyes, we have to keep the eyes open of the patient and we have to keep the video scope on the advent patient to understand which is the eye movements that we are generating with every kind of maneuver, when every step of the maneuver to understand if everything is going as we want. So if autoponia are going from the ampulla to the utricle, or if they are going back, or if there is something wrong, or if they are switching from one canal to the other one.

So we need to monitor with the eyes. So it's important the nastymus guided approach is something that Professor Rasprela is. Is insisting with us. And it's very important because only with this nystimus guided approach we can understand what's going on during Our repositioning maneuver. And it's very.

It's crucial if we as we will see in the baseball maneuver. So in this nice article, more than 15 years ago, I think he summarized the good and bad pronounced sign in Epley maneuver and in Seman maneuver. So a very good pronounced design for the Epley maneuver is the detection of the same kind of nystagmus. So up a bit ipsy divisional torsional in every step of the of the Epley maneuver. This is the second step.

And as you can see, the nystagmus is still up left torsion because it's a left posterior canal bppv. And also when you bring the patient also in the third position, if we have again this up left torsionalness diagonals, it means that otoconia are going still going away from the ampulla because it's ampullophago for posterior. And Apollo means excitation of the posterior canal. So the excitation of the posterior canal is upbeat left or for left posterior canal. So this is good pronostic signs.

Of course, bad pronostic signs is the detection of a reverse nystagmus when we bring the patient from the first position of Apley to the second position of ep. Look now in the first position of apley still this is still a less posterior canal bppv. You can see here a tiny nystagmus with paroxysmal course. Tiny up the nystagmus left torsional. After a while we need to be slow and this maneuver we do not to do brisk acceleration of the head, but slow acceleration of the head.

And as you can see here in the second position there is no the upbeat left torsion on his dynamics. There's a down bit right torsional nystagmus. It means that otoponia are going back are going back to the ampulla. So of course this is a bad pronounced design or that might be due to a. If the nystagmus is not paroxysmal but is persistent, it might be due to a polarity of the posterior canal.

Of course, depending on the position of the head, we will bend the cupola of the of the canal away from the ampulla or toward the ampulla depending on the position.

What about someone maneuver small maneuver? You can see here Simon maneuver uses the role playing. And this is very important because in the school maneuver we will use the role playing as in someone maneuver. So in the diagnostic test we have this is a right posterior canal dppv. We have a transit upbeat.

Nice time was with right torsional component. And as you so briskly bring the patient up with face down with this patient in the same direction, with the head of the patient in the same direction, we will have a upbeat right torsional nystagmus. And this is a good pronounced design. If we do not have this nystagmus in some maneuver, it means that the maneuver failed. And this is the little drawing.

And if we bring the patient in this position with a phase down, always in the same position, of course we will have a progression of otoconia away from the puller toward the uterus. Another good pronouns design is very interesting is this huge huge downbeat nice diagnosis with ipsilitional torsional component. This is a riposterior canal DPPV treated with APP with the semi maneuver. When we bring the patient back in the upright position, if otoconia pass through the common cross, they might excite. They might excite ex vacuum their ipsiligian anterior canal.

So we will have a down binastamus with ipsilisional torsional component because it's a strong, strong excitation of the ipsilicional canal and anterior canal. And the excitation of the right anterior canal is a down midnight with the right torsional component. And when we have this kind of nystagmus just once again, usually the patient has a huge trunk, you know, a huge retropulsion. The so called anterior canal crisis. As Professor Shigeno wrote a nice paper about this.

And this is a paper from our friend from Florence in Naples. And they wrote this interesting articles that say that this kind of nice language is good pronosis sign. Another bad pronouns. Another bad pronouncing sign for the semi nova, of course is the. This is the typical upbeat right torsional next time.

Most of the typical right posterior canal BPPV when we bring the patient on the liberatory position. For someone in this role playing, of course nystagmus should be still up right torsional, but actually is nothing or down left torsional. So it's reverse. It means that otoconia came back. They didn't succeed in running through all over the canal, but they went back.

So we know that if we bring. If we repeat the maneuver, of course autoponia will be still there because they are not progressed to the usual. Another badness sign is A down B Next time is in this fourth position. But this downbeat this time is. Is different from the other one.

That was a good sign. This is a better sign because the torsional components is reversed. It's not a downbeat right torsional component for the right posterior canal, but it's a downbeat left torsional component. It means that the efference of the posterior canal our inhibiting have been inhibited by autoponia that came again went again toward the ampulla baconal. So with all these notions in our mind, of course is physiology.

We have to remember which are the ocular muscles that are connected for to eat which canal. But with all these things in mind we can go. We can go to the. To the buzzfool maneuver. So which are the typical variants once again are where autocon settle in uncommon or stenotic canal tracts generating unusual position on ecstasymus and are usually, as we said, refractory to standard repositioning maneuver.

So we have a posterior canal copulethiasis sitting up vertigo, BPPV with persistent position or down B N stymus that might be anterior canal or apogeetropic posterior canal and also posterior canal canal jam. So cupolarythis. Let's see a case of typical cupolarythis. We bring the patients in dixel pipe tests and sometimes we have a subtle persistent nystagmus that mimics the typical nystagmus of the canalis. But it's persistent and it's better visualized when we bring the patient in the half of pipe position and is basically a position.

When we bring the patient head from the whole pipe position and we lift 30° up. And when we bring the patient on the opposite side, there's a reverse of the styus. This is called the inversion test. And this is due to. This could be just due to posterior canalcopolitis.

But we can never know if otoconia are in the canal side as we said or are attached in the utricular side of the of the posterior canal. They might be in both of this position. And these are nice articles about cupolithiasis. In my opinion, posterior calculator is not that rare. But actually if we go to the through the literature, to the linkage the English literature, there are a few rappers, a few papers about.

I actually don't know why. These are very interesting articles. And the important thing to remember is the alpha pipe position. Okay. Otoconia could be here or could be on the other side of the posterior canal.

So we bring the patient in the dixel pipe position and sometimes and you can see here the cupola of the posterior canal. Now it's overloaded because it has Attached from one side or in the other side or in both sides. Otoconia. So it will bend. It will bend in one direction or in the other direction, depending on the position of the head.

Usually in the dixel pipe test, it's. It bends just a little bit toward the canal, so leading to an excitation of the anterior canal of the posterior canal, because it's an unpolicable flow and excitation for the posterior canal. So we have a persistent nystagmus. But if we want to see better this nystagmus, we can go in half position. Because if we bring the patient from this position and we lift the head 30 degrees, 20 degrees, 30 degrees, 40 degrees.

It depends, it depends on the position of the head. It depends on the position of the cupola. It depends on the anatomy of all of us. Every, every, every person probably has a tiny difference in anatomy. Of

course, the cupola, now it's almost horizontal.

And then the cupola that is overloaded will bend very much, very much toward the canal. It will bend much more toward the canal than in the whole pipe position. So the half a pipe test is crucial if you want to detect a posterior canal copul. Posterior canal copilotiasis. And of course the next time will be much stronger in the position.

It will be always persistent, usually persistent with no crescendo decreasing the course, but persistent because the cupola will be bent in that position until we change that position. Of course, we, if we want to be sure, we can do the inversion test. So we bring the patient on the opposite side with the head down. And in that position the cupola will bend exactly contra and we will bend in the opposite direction. So tower than puller.

It would be a strong inhibition of the posterior canal. So we'll have a damage with reverse torsional components.

What about the BPPV with persistent down venous thymus? BPPV with persistent down venous stymus is this. We bring the patient down in the dixel pipe one from one side or in the other side on the straight angle position. We have a persistent downbeat next time with sometimes tiny torsional components. When we bring the patient back in that right position, nothing happens.

We bring back the patient in the opposite alpine position and the next time was the same. What's going on here? What's going on here? The two variants of BPPV that might lead to this kind of nystagmus are. We can see again the movie could be.

Or apogeotropic apogeetropic posterior. Can I be ppv where otoconia settled? Here in the non polar we are. When we bring the patient in the supine position otoconia will go toward the ampulla of the canal

so they inhibit the posterior canal. So downbeat nice time with contralesional torsional components or anterior canalitis.

When we bring the patient down, autoconia will go away from the canal leading to an excitation of the anterior canal leading to a persistent dam business time with with ipsilation torsional component. And of course we can never know if they are in the non ampullary arm of the right canal of the right posterior canal or in the left anterior canal. Because both of this paired canals one is inhibited and the other one is excited. They give the same type of nystagmus and it's not very easy to understand which is the canal affected. These are several reports about this position of the ambient.

The first one who hypothesized that it could be due to an apogeetropic variant of the posterior canal was our friend Bepi Agus from Sardinia, from Italy. And after then Professor Vanuki, Rudy Pechy and Beatrice had made some very interesting paper in the physiology of this BPPV and also and also in the treatment. And also Luigi Califano made very nice reports about the tiny difference between the apogotropic posterior canal BPPV and then contralesional anterior canal bppv. And of course a lot of. A lot of.

A lot of colleagues from. From the U.S. from France, Professor Bronstein from England. And so many of them. This is just a few records a few. A summary of the records about positional dambin extanguous.

Of course they. They made so many nice interesting papers about the hypothesis that they might be due for two anterior canalitizes. Professor Jacobino made a very nice.

A very nice maneuver for the treatment of anterior conditions. So many. So many colleagues proposed variants for antinocalitis. And we. A few years ago we proposed to use the video head impulse test to detect which is the canal affected between one side between the posterior canal from one side and

anterior canal from one side.

If we have a persistent dambin extension. Because if we have a persistent ambulance thymus probably otoconia are somehow stuck there and they lead to a production of the VOR vestibular reflex of the canal effect when we perform the video head impulse test. So this might be an interesting finding. What about the sitting of variance? Sitting and variance was proposed by.

Was first theorized by Professor Belabuki and was described very well by our friend Dario Darius Coco from Argentina. And this is basically this kind of nystagmus. Nothing happens in the typical whole pipe position. And then his time comes with not the typical proximal force with a tiny persistent course when we bring the patient in the preposition. And he proposed.

He made two very interesting articles about the physiology and about the interpretation the patomechanism for this. For this sitting up variants. And he hypothesized first that it might be due to otoconia that are kind of entrapped between the ampulla and a stenosis close to the pool of the posterior canal that lead to nystagmus. Just when we bring the patient back. So that otoconia do this go away from the ampulla when we bring the patients a few seconds after that we bring the patient back in the prior position.

Or in this. In the. In the following article a few years ago, he proposed that might be due to a short arm cupolaritasis, a short canalo or cupolitis or a posterior canal cupolitis that sometimes might lead to this kind of nesting was not when we bring the patient in the old pike on a Huttle pike, but when we bring the patient just in the upright position. And this is a record of our friends from India, Professor Sudipadari and our friends, they proposed a very nice interpretation for this kind of nice diagnosis. And then we have the posterior canal pupilitis.

Posterior canal pupilitasis is not that common at all. This is quite rare. But we might face this kind of.

This kind of condition. And this is. This is my friend Pasquale Malara from Switzerland. And she was a girl with.

With the recent. With recent right posterior canalitis that made the reposition mover by herself at all. And she presented with this tiny downbeatness time of spontaneous downbeat instamus with left torsional components. And of course it might be mistaken as a central. Might be.

It might be. It needs. It needs to be. It needs to be rule out a central pathology in this case. But it was nothing more than a posterior canal jam here then led to a persistent bending of the cupola persistent bending of the cupola toward the.

So a persistent inhibition of the canal leading to a persistent damage with left torsional components. And with the positive video head impulse test. Because in this case the cupola is continuously bent there and we can also move the head. But this time was usually will never reverse. Probably it will reduce or enhance depending on the.

On the action of the gravity on the, on the, on the cupola. But but it's due to BPPV and in this case video head impulse test. So impulsive tests for the diagnosis of the video of the vestibular reflex for the canal. They can give us important clues because in that case the pull out the canal is not free to respond to the, to the, to the impulses. And so we will have a reduction of the VR for the factory canal.

And of course this is a reversal after reposition maneuver. It will reverse, the VR will normalize. So in this, in this condition, in this position, how can we, how can we, how can we treat this atypical variance? Of course there are some reports that says what we know from our clinical practice. This atypical variants needs.

Needs more than one maneuver, usually need more maneuvers than the standard reposition than the standard variant of canalitis of posterior canalitizes. And some, some papers says of course that they need, they need more than one examination, one more than one visit, more than one or two maneuvers. And some other record says that they need to be helped the, this repositioning maneuver need to be helped with head shakings or with master vibration. And this is a very interesting point that we will use even in the Bosphorus maneuver. We published.

Actually our friend Salvo Martelucci from Latina collected very interesting cases and we published this paper a few days ago saying that this atypical variants of course needs more more than a single maneuver to be treated. Most of them need more than a single maneuver to be treated. And most of them need more than two or three visits with repetitive repositioning maneuver to be treated. So of course these are more refractory cases.

So in these cases, in these four cases that we said posterior canalococolithiasis sitting at variance BPPV with the persistent down B length times and kinetic gem. Maybe in these cases impulsive maneuver might be beneficial. Which are the impulsive maneuvers that we know we have Brandarov exercises. Brandarov exercises were probably the first kind of treatment that was. Was proposed I think in the 80s, in the first 80s to, to treat BPPV.

And of course we cannot call it treatment because in these cases otoconia do not go back in the utricle. In this case it's otoconia just disrupts and disperse using random body rotation from one side to the other one. So it's a kind of help for the patient to, to help the patient to live with this vertigo that sometimes mine relapse. Of course, when autoponia Re aggregates or it might persist. So this impulsive maneuver, in our opinion is not tailored.

It's not for a typical canal, an impulsive maneuver designed by our friend Luigi Califano. And this is basically the so called quick little tree rotation maneuver. And it's basically a variation of the. Of the

Epley maneuver because it has the same steps of the Epley maneuver, but they are made briefly from one side to the other one. So it used the steps of the epile maneuver using the acceleration of the semi maneuver.

And this is very, very, very smart treatment for some kind of this atypical maneuver because we impart acceleration to the head. You can see here from the movie from the first position of the eclipse maneuver directly to the third position with the head down, with the phase down position, we might help this stuck otoconia to go from one side or in the other one to to be free from this impasse. Another interesting maneuver was the reverse seman maneuver. It was actually designed and proposed by professor vanuki more than 20 years ago, but it was just published in an Italian journal and it was any. It was not used in literature.

Yes, there are some reports in literature about this reverse manova, but in our opinion is something very interesting. And he used it. Let's go, let's see again. And we use this. And he proposed this reversible maneuver for the treatment of the anterior canal.

So we he bring the patient, he brings the patient on the ipsilesional side of the canal and he brings the patient back. So it's basically a reverse manomanova because the position are the same of the small maneuver, but it starts from the end of the seminole and it goes back to the beginning of the maneuver with the face up, with the in the face up position. And it's a maneuver that might help us to bring otoconia from the anterior canal to the utricle. So using inertia of the otoconia inside the canal, the same group. So Professor Vanucci with our friend designed this demisimon maneuver, so half Simone maneuver to treat the apogeotropic variant of the posterior canal.

So again, down being aesthymus. And in this case we, we bring the patients in the first step of the reverse maneuver and we bring briefly the patient up. We don't use all the 180 degrees on the other side when we bring the patient in the upright position just to help the otoconia to go from this side to the

common cross. So using again inertia of auto, it's within the within the canal. So from all this impulsive maneuvers, now we are getting close to the.

To the. To the idea of the. Of the Basque maneuver. The idea of using this impulsive maneuver to convert an atypical variance in a typical variance comes from our friend, our friend Professor Osprela, our mentor. He published this.

The use of this reversible maneuver to treat a position of downbeat nystagmus that was basically due to a apogeetropic posterior canal BPPV and to convert it in a typical BPPV of the posterior canal. And look, this is a lady with a downbeat. Nice. Time was persistent downbeat nice. Thymus with tiny left torsional components.

So he uses the reverse maneuver of Professor Banuki, but not for the anterior canal. Now he uses this for convert the aperture drug the posterior canal variant in a typical posterior canal variant. Look, he published this videos in this book written with Professor Thermona a few years ago. Look, he goes with the head 45 degrees face down on the left side. So in the art decide and he briefly brings all the patient rolls all the patient rock all the patient on the other side.

So this is the reverse mount maneuver. And look what happens now there's a typical typical posterior kind of EPPD on the right side. So otoconia were stuck in the non ampullary arm of the posterior canal and they went back in the pullary arm of the posterior canal. So now the diagnosis is fine. And now he uses the small maneuver to treat this.

To treat this this kind of patient. So we're getting close and basic maneuver is already described. So we design this tailored and impulsive and repetitive maneuver along the affected canal plane. It could be LARP or ralph. LARP or RALPH not in the pitch plane, but RALPH or route in the RAW plane.

So along this X LARP or X RAP axis and we will see. So to treat these atypical variants of BPPV leading to a resolution of symptoms and sign during the same session or at the following operation. So for the posterior canal cochlear thiasis for them to detach from the cupola and go into the utricle. For the aperture tropic variants of the posterior canal to go to lead to put to help otoconia to move from the mampular arm to the common cross or in case of anterior canal to go from this position to them to the common cross and to be and to go to the uticle or mostly mostly to convert them in typical forms. And this is in our opinion very, very Important, we can convert this atypical variance in typical BPPV of the posterior canal.

This posterior canal copuletis is convert in a typical canal of the posterior canal. This apogeetropic form of posterior canal in typical canalotal posterior canal. Or this sitting of variance in a typical posterior canal BPPV or to convert in geotropic horizontal canopy ppv. How can we convert a posterior canal cupolitis in a geotropic with ppv we will see. We will bring the patient from one side to the other side and detach this otoconia and lead and move them in the nonpolary arm of the horizontal canal or in an episotropic variance.

So bringing this otoconia toward the horizontal canal here close to the cupola or in anterior canal anterior canal BPPD as in this case. So from this position to the anterior canal and to localize. And this can help us to localize otoconia in certain cases. Of course, if we have a posterior canalitis, we'll not know if otoconia are here or here. If we have a persistent Albini styles, we cannot know from the beginning if they are here or here.

And if we have a sitting up variance, we do not know if otoconia are here in the short, in the short arm on the peri ampullary sides of the canal. So all these maneuvers have different aims. Resolve immediately convert and of course to understand where they were at the beginning, depending on the outcome of the maneuver. So these are the planes that we have in our hands. So we have the pitch

plane.

The pitch plane is this plane that goes around the Y axis. We have the yaw plane that goes around the Z axis left and right. And then we have the role plane that goes around the X axis. So this is basically the role playing. But we know that posterior canal and anterior canal are not in these planes.

They are in an offset axis of 45 degrees. So with align the head of the patient in this new role axis. In this new role playing. Sorry, in this new role playing it was. It will be called larp.

LARP and route plane along this X plarp axis. And we will align the right posterior canal or the left anterior canal, depending on the type of next mechanism that you will see at the diagnostic maneuver. And we start rolling the patient in this direction. Look. And this is the large plane.

So left anterior right posterior role plane. And we bring the patient first in the first. In the first step of the semi maneuver. And again we perform the first the reposition as a Mom maneuver and we bring back the patient in the reverse maneuver. And we bring the patient again in a small maneuver and we bring back the patient in the face up and again in a face down until something happens.

If something doesn't happen after five, 10 times, we can use the vibration or head shakes. And again face down, face up, face down, face up. So basically it's not immune. It's nothing new, is just a repetition of maneuvers that we already use. But we also we always need to look what happens at the eye, what happens at the zachary inside to understand where they are and how to continue the maneuver.

And the importance is that the head should be always aligned with the plane of the posterior canal and the contralesional canal that we are treating. And how we understand if it's this couple of canals that you're treating or the other couples of canal, of course from the torsional components of the next

thymus. As we will see of course if we. If we find some. Something, some position next time was that give us.

That gives us the clues that probably it's a left posterior canal or right anterior canal. We will roll the patient in this ralph plane, in this new role plane, in this new role plane along. Along the aligning the route plane. So this new X ralp axis. So we'll do like this.

And so the patient will be turned toward the right side and start again with the first amount maneuver. Reverse amount maneuver against a mom. Reverse amount. And it's the vascular maneuver. Stop.

Let's see what happens. Do we have a resolution of anus? Do we have a modification of anus? Do we have something else? Nothing, nothing happened.

Okay, let's use the vibration and go again, go again, go again. Until something happens or until the patient says okay, let's stop. Usually after 5 or 10 of 10 maneuvers. Usually we can stop and ask the patient to come back in the next. At the next evaluation.

Why bascool? Because basically is a nice French term. It's very musical term that says that is something that is swinging as a rocking chair, swinging from one side to the other one. So it's very nice way to describe this kind of maneuver. And we proposed for the first time this maneuver at the Bionic Society meeting last year in Uppsala.

And it has been published here in the abstracts of the. Of the meeting. And we are going to submit the full article for ideology research. And let's see some cases. Okay, we have a patient with positional vertigo, but nothing happens at the whole pike.

But look, when we bring the patient back in the upright position. Look, there is a with right torsional component. So it's a sitting up. Where are the particles Per unpullary or in the short term. Let's go with the bascule.

One side, the other side. And look what happens here at the eyes again in the other side. Oh, something changed. Now it looks like a typical posterior canal. Bppv.

Yes, it means that probably otoconia went through this stenosis. And now we are using again the maneuver and we are having a laboratory next time. It means. Okay, it means that now to call, you are going away from the ampulla. They are finally going toward the common cross to the utricle.

So as you could see, look at the eyes on what? What's happening? Another case of sitting up. This is different. Nothing or nearly nothing in the Simon first position.

That is basically a dixel pike on the right side. Look, when we bring the patient back, look huge. Nice time. Most upbeat. Nice time was with the right torsional component.

So this is the nasty moves that we expected on the first position. But nothing happened. So it's a sitting of variance. Where are the particles? Short arm opera ampullary as the first one.

Let's go with Basco maneuver. First step is the Simone second step again Liberty position for the Samoan. Nothing happens. Again, reversible.

Nothing happens. Oh, my stagnose. There's no more nice diagonals. What's going to happen? Let's go again with the vibration.

Oh, look what happens now. Now we have a typical geotropic horizontal camera bppv. It means that otoconia were here. Finally were detached. And now they entered the non ampullary arm of the right horizontal canal, leading to this incredible horizontal geotropic paroxysmous thymus.

And then we start with the barbecue maneuver or with the Zuma maneuver or with the Buffoni maneuver for the horizontal canal. And the patient is fine. Look, cupolarytis on the right posterior canal. We bring the patient in the whole pike and the right pike. And look, there is upbeat.

Next time was with the right torsional components. Is it similar to the typical posterior canal bppv? No, it mimics. It's not paroxysmal. It's persistent.

And look, we perform an Epley maneuver. We are in the face down control and this time was reversed. So it means that. Or there were octoconia that came back. Or as in this case, it was persistent.

It means that the cupola is bent on the other side. Okay, let's go with the basic maneuver. Left side this is of course in the large plane. Again, we bring the patient face down. Look tiny down be.

Next time was with reverse torsional component. Again. Again, nothing happens.

Oh, probably there's something is going on. Look again. Huge, huge conversion. Huge conversion in horizontal canal. Bppv geotropic.

It means that otoconia were here and not in the canal side. They're in the utricular side. They got detached and they didn't got stuck here in the uticle, but they went back. They went through the horizontal canal leading to a geotropic paroxysmal horizontal nystinus. And of course, with the barbecue maneuver and whatever maneuver we treat and we resolve these cases.

Another couple of. Look, we bring the patient in or PI position. And in this case, nothing happens. And it's quite common in cupolaritizes. Maybe a tiny rotational ipsilision of rotational.

Let's go with the hot flow pipe test. Oh, look now nystagmus is much more clear. And it's persistent because the cupola is bent toward the canal. But where are the particles in the canal part? Only in the utricular part.

Let's go with the maneuver. With the bascool maneuver. Of course, this is the inversion test. And this time was the reverses. So of course, Epley maneuver is totally ineffective.

And also the typical Samoan maneuver is totally ineffective. We need to use repetitive maneuver to detach otoconia. To detach otoconia. You can see downbeat with the left torsional components. Okay, let's go with the basic maneuver.

So it's a posterior canal on the right side. So let's go on the right. Simone diagnostic test diagnosed again half a pike position. You can see now nice diagonal starts and we bring the patient briskly on the other side. We need to be brisk.

We need to be brisk. We do not have the inversion now, so probably autoconiatoconia detach. You can see here. Now I'm using head shakes. Of course, the video is shortened.

I use so many maneuvers, so many repetition. And look what happens now. It's horizontal. Horizontal upwards. You dropping my stagnants.

Next time it goes to the left. And when we bring the patient in the opposite side. Look what happens next time was goes toward the right. So we convert this posterior canal coupletizes in an acupolitis of the horizontal canal. We can you cannot say publicizes because nyx is not persistent, but is transit.

So it's a canalitizes of the short arm of the horizontal canal. And of course, after requisitioning monoter for the horizontal canal. Basically a prolonged positional force. Prolonged position on the healthy side. Otoconia finally went back to the.

To the neutrople. So the. The trip of the otokone were from here, from here to here. Okay. Another case posterior cannococular of the left side.

Nothing happens in typical Simone or whole pike half full pike. We leave the patient a little bit. You can see now a tiny left torsional. Nice diagnosis. Tiny left torsionalness diagnosis.

It's very tiny, but we need to look at the eye of patient. This is why we need to use video goggles. Of course this nystagmus, the half of pipe position is very similar to the position of McClure Panini, the horizontal canalitis. Because if we bring the patient 30 degrees up and we lay the patient on the pillow, the position is very similar to the. To the hufflepike.

This is why in with this, with this supine hand roll test with 30 degrees up we can see the nystagmus and the reversal of nystagmus as in this case. You can see now downbeat right torsional. Okay, it's a couple of this. Let's go with the baspool maneuver and let's see what happens. We start on the left side with the face up and then right side with face down.

We need to be brisk. We need to use acceleration first and then a deceleration when we are close to the to the bed again back.

Of course I shortened the video because sometimes I need five, ten times this maneuver. Look what happens now. I'm using the vibration to detach zirconia because I know, I know that it is a posterior canal couple of. Let's see what happens with the vibration during the maneuvering.

Look what happens. Oh, finally. Finally we have the typical paroxysmal. This time was for the typical posterior kind of posterior for a left posterior canalitizes you. You could see that it was paroxysmal.

Christianity, Christian, the course. Okay, that's good. That's great. Now we can go with a typical someone maneuver or we can start with the Nepal maneuver From there. To treat this variant, we dislodge autoconia from that critical area of the Cooper.

Another case I'm showing you. I'm showing you all the typical possible things that might happen. This is another posterior canal couple of the right side. In this case. You can see the next time was this persistent?

Persistent. We can stay here, remain here for 20 for five minutes and this time, which is still Going and his thumbnails is still going.

Okay. We bring the patient on the other side. And of course the next time was will reverse because it's not a typical canalitis. There will not be a laboratory. There will be a reversal of next time.

Downbeat left torsional persistent of course is less. Is less strong because in inhibition of the canal and not an excitation of the canal as in the first case. Again, first trial. After a while it starts again. The typical torsional you could.

You can see how nystagmus in cupolitizes is mainly torsional than up than vertical. Is mainly torsional than vertical. This is typical for politics. Look, after a few trials nothing happens no more. So probably we detach those of zirconia.

We put also the patient in half a pike to see what happens. Nothing in face down position on the other side. There is no reversal of nastyness. Probably a tiny downbeatness dinosaur. Okay, so we'll probably detach coining from there.

So we just ask the patient to lay on the following days on the left side. And probably those otoconia finally. Eventually will go in the utricle.

Another case apogotropic posterior. Can I bppv? So we don't know where our particles because we just have a downbeat nystagmus with persistent course. Downbeat with left ocean. So is it a right posterior canal in apoglopic form or it's a left anterior canal?

We don't know. But we will basically the patient along the axis of these two canals. And this. The plane of the two canals is the same. The plane of two canals is the same.

So we continue to basically the patients until something happens. You can see how brisk I am because nothing happens. Nothing was happening. So let's go. Oh, finally.

Now. Finally I finally we understood that it was a posterior. A right posterior canal canalo. It isis that it was in apogotropic for it was a positional gem. It was otoconia that were stuck in the non polarion of the posterior canal.

And we transformed this manual this. It was on this form in a typical form.

Let's go again with another case. Cannot look calorie jam. You can see a tiny spontaneous downbeat. Nice tables with in this case left torsional component. Tiny spontaneousness diamonds.

You can see better. There is no gaze of hope. So it's not. It. It's.

It's quite likely that it's not central. Of course we need to schedule, we need to exclude. We need to rule out everything look in down head pitching. Nice diagnosis. Almost reduce.

And this is probably because the. The gem is here and gravity goes in this direction and the cupola goes in the other direction. So in opposite direction. Now gravity and the persistent flow of the otoconitor and puller are in the same direction. And this is why Einstein was now grows.

But you can see that nystagmus never reverse, never reverses. It's still the same. It would be modulated by the position of the head because there is gravity that goes together or goes tall or goes against the nice. The persistent endolymphatic flow of the cupid. And with the vibration there's a.

An incremental of nice tightness. And of course the video heading pulse test gave us this reduction of the VOR for the right posterior canal. So we know that it is a typical right posterior canal canary gem. So how we can treat this patient with the Epley maneuver, we will never succeed. With the small maneuver, we will never succeed with whatever maneuver they use that makes the most from gravity.

No, it will never. It will never succeed. We need to use impulsive maneuver, repetitive impulsive maneuver. We bring the patient in the whole pike. But look, it's still down bit.

Now it's more evident because now gravity goes more or less in the same direction of the persistent endo inflated lobe given by the otoconia that are stuck here.

So downbeat with the left torsional component. And again, an astagmus never stops. It's still downbeat sometimes is more evident the torsional component. Sometimes it's more evident in the vertical component, depending on the position of the head. And again, also in the other position is the same.

So let's go with the bascular maneuver. Let's go with the basketball maneuver because we need to move or to call to dislodge autoponia from that place where they are probably stuck. Okay, we know that it's right. Of course, it might be also a left anterior canal gem in very. It's very difficult in our opinion.

But we have the video impulse test that gives us this clue that it's a posterior canal on the right side. So but anyway, even if it was the anterior canal on the other side, the plane is the same. The plane of these canals is the same. Why these two canals? Because we have the torsional component.

Left torsional with downbeat might could be given just by left anterior canal or right posterior canal. So let's go with this basketball maneuver. Let's go. What happens now? I'm Short in the video.

Usually I stay there for 10:30 seconds and then I briefly bring the patient on the other side. 10:30 seconds there. Bring the patient again. 10:30 seconds there and then go. Okay, let's see what happens.

Let's see what happens after one week maybe there's a tiny down Venice Times. Very tiny down in this time. Look what happens now. Look what happens when we bring the patient in the upright position. Look what happens.

A huge liberty in his diamonds. So finally otoconia where it is lost. Look, the so called anterior canal crisis. It means that otoconia are passing through. Look down.

Right torsional. They are passing through the common cross and they are exciting ex vacuum the anterior canal leading to a huge retropulsion. And down being next time with ipsy lesion torsional components. So the.

The tour of the taconia were here with the basic maneuver. We. We dislodged the otoconia from here and we bring otoconia here. That finally went back. And look, after this huge crisis, you can see now that there is nothing going on.

No more. No more. Nice diagnosis. I will go now down. We put in the patient in the whole PI position.

Nothing happens.

And of course the video nipples test was normal because. Normalized on the. For the. For the posterior canal here.

Another case of Canary Gem. In this case we have probably two components. Look. Spontaneous downbeat nystagmus. Spontaneous downbeat nystamus with right torsional component.

So probably is a left posterior canal or right anterior canal. You can see now there is no gaze at all. She doesn't have abnormalities. For the smooth pursuit, for the VR cancellation, everything was fine. It's.

It's predominantly peripheral. Peripheral floor down. Bit upbeat. Sorry. At the pitch test still the same downbeat.

Nice diagnosis. Okay, so probably. And the video nipples test is this one. So a slight reduction of the left posterior canal. So probably there is something going wrong there.

Going on there. Vibration leads to downbeats, to an enhancement of the downbeat or sometimes an enhancement of the rotational component. It depends on the position of the vibration or the vertex or at the mastoids. Look, now it's more the torsional component toward the right.

So let's go with the basketball maneuver. We know that it's probably a left posterior canal. It might be also a right anterior canal. But according to our video test is the right posterior canal. Look, we bring the patient there.

Oh, look what happens. Look what happens. There is also a paroxysma position on nystagmus with the typical creation of Course. So probably there are two clots. The first clot, the most important clot was the gem in this position.

And probably there were also another group of otoconia free to float. So let's use basketball maneuver to help the clot to help otoconia to go back. Of course, we will never free these canalolitizes. The otoconia that are fatal float in the puller arm of the posterior canal. With one trial of maneuver.

Because there is the gem that acts as a stop for them. That prevents them to go back to the utricle. So we need impulsive maneuver to detach to dislodge that gem. Also look now we have just downbeat nice times just down Bennett's times. Both in the first position and also also in the other position just down the next time.

It means that probably, probably both clouds got together and look what happens a few weeks later.

No more spontaneousness times. So the gem crumbled. We dislodged the gem with his largest jam. And let's see what happens at the next positional tests.

Apparently the head pitch test doesn't give us any clue. But if we perform the typical positional test for posterior canal. Look left alpine. Okay, now we have a typical posterior canal devices of the left side of the left posterior side. Left posterior canal.

Look, the typical paroxysmal course. Cliching the decrease. They start. And now they are going toward the undermost part of the canal. Here.

You can see now the next time which is fading. It's quite long next time. And it means that probably otoconia where a lot. But you can see now that nystagmus is fading. It's almost stopped now.

Sometimes we have a reversal of this next time was because it was quite a strong next time. We probably. We also have a reflux of photoconia that are going now back and forth along the canal. You can see now that in the same position we have a reversal of nystagmus. Or probably there is also a clot here, another clot here, but it's still free floating, wifely floating.

Because if we go on with the positional with the appley maneuver. Look what happens. Okay, now we have again still a right a left torsionalized diamonds with update components. It means that otoconia are going still in the same direction. Are continuing their course toward the uticle.

They're still exciting the posterior canal efference.

Now to convent. Okay, let's see what happens after this maneuver. Let's see what happens. We can go on. We bring the patient back in the all pike position on the left side look almost nothing.

So bas maneuver was very very effective to cramble that jam that prevented free floating otoconia to go back to the UT and of course VIDA impulse test normalized also in these cases. Of course now there's nothing that prevents high frequency dynamics for that canal. What about the video frenzel equipment I use? I I first started to use this equipment with the cable but as you could see, you know movements are very brisk. Movements of the wall trunk of the patient are very brisk.

And sometimes the cable is. Is not very. Is not very comfortable to use the cable. So I switched to the. To this wireless.

Top wireless video goggles from Inventus. And of course this is much more convenient when you need to use brisk acceleration and deceleration with the wall trunk of the patient. Is very useful to have binocular vision because you could see that sometimes it's the torsional components is much more evident. Usually it's much more evident in one eye and not in the other one. And the other one is much more evident the vertical component in the other one.

The token. So binocular in my opinion is. Is quite crucial and it's crucial also to have a wireless without cable. And this is very very convenient in my opinion. So these are our results.

I'm going to the to to the end of this talk. This our result. We collected almost 130 patients with a typical variant also a few of them also with anterior recounter BPPV. And we all of them were first treated with standard reposition maneuver that were ineffective. So we treated them with the Bastille maneuver.

And this is our population. 42 subjects with posterior canal copilotiasis 38 sound just with the positional down binastemos either due to apogeetronic posterior canal DPPV or to Contralesional Anterior Canal BPPV. 35 subjects with the sitting up vertigo variants. 9 subjects. We also included some subjects with refractory typical BPPV that probably didn't respond didn't went okay with the reposition maneuver probably due to stenosis of the canal or something that prevented otoconi to progress through the canal and some subjects also with canary gen. And this is the algorithm of our of our maneuver.

We start with the BASO maneuver and we can face three possibilities or dynamic resolution. After a while we do not see anything great and we also we always check two days, three days later, some within one week later to see if it was real resolution. Or we might face and it's very common conversion into a typical bppv. And so we treat this for a candidate switch and we treat this new variant, these new

typical variants, and we check again. So we use Goponi maneuver, barbecue maneuver, Aspira maneuver, Zuma maneuver for the horizontal canal, or the typical EPI maneuver or Sama maneuver for the posterior canal, or the Jacobina maneuver for the, for the anterior canal.

And we check again within one week to see if everything was fine or we can face even the ineffectiveness of the, of the maneuver. We start and we continue with the full maneuver and after 10 trials we see that everything is, is the same. So we say okay, let's see again after one week and we do the same bus Pullman over and we have the resolution. And if it's like this, we check again or we have a conversion and if it's a conversion, we do reposition maneuver for this new variant, typical variant, and we check again. Or if it's ineffective, we start again and we ask again the patient to come back one week later when to stop.

I would say that after three, four, five trials, nothing happens. Okay, let's, let's ask the patient to do some tests. We can do the damps, we can do the video animals test. If we didn't do before, we can schedule a brain MRI to be sure that it's, that it's just an atypical variant of the posterior canal bppv. Sometimes we know that this persistent positionalized diagnosis might, might hide some central pathologies.

Usually when it's like this, we also have other central signs like gaze of organized diagnosis, impaired smooth pool suit, Imperial Circadian, impaired VR cancellation NYSTagmus increase when it, when we ask the patient to fix our, our, our finger. So there are a lot of. But of course if after four or five trials I would suggest to schedule some other test and trust the patient to come back or we can give some treatment. We can give some treatment because sometimes this persistent positional nystagmus or this atypical next time was, might not be due to BPPV but might lead to other conditions that we'll see that might lead to an overload deep of the cupola, an overloading of the cupola, a heavy cupola, light cupola or heavy cupola that might make mimic a posterior canal cupola. Of course, some migraine, some

menas disease, some might result in this heavy cupola, this buoyancy Mechanism that mimics 100% Posterior canal cupola paralysis.

For instance, usually Nystagmus in heavy cupola are. Are weaker than typical. Nice time. Persistent nice timeless direction. Changing position on this time was due to bppd.

Okay, but of course we can. We have to check. We have to check here everything.

Why I say that it's important to. To check the patient again within one week later because sometimes we might face this situation. Look, you can see now I'm using the wireless goggles. So I'm free to do whatever I want to the patient without paying attention to the cable.

Okay, just wait.

Okay, let's go. Let's go back.

So we bring the patient here. And now there's a typical persistent upbeat Nice time with the right torsional components.

Now it's freezing.

Something is freezing. Anyway, I just wanted to. To show you this. This video because in our opinion, in my opinion is. Is quite important to see.

Let's see if. If it's working. Sorry for these troubles.

Okay, now it starts. The persistent positional nystagus.

You can see how nystagmus goes towards right torsional with tiny. A big component. Tiny, big component.

Okay. Half of my position nothing changed actually. So let's go with the Basque maneuver.

And now it reverses. So we bring back the patient in the other position and we want to see what happens again. Upbeat right torsional component. Zone otoconia are still stuck. There are still attached to the cupola.

Okay, let's go again. Vascular maneuver from one side to the other side. The importance is to keep the head always in the same direction to align the plane of the head to the plane of the head. The other movements to the plane of the canals. And look what happens.

Nystagmus now looks like it's fading probably there's a tiny nystagmus residual. Very tiny. So we bring the patient back. We check again the patients. And it looks like there's nothing.

It looks like there's nothing. So probably we can't think that we. That we. We resolved this case probably with the test tutoconia that were on the utricular side. And they finally went back.

Okay. After one week, the patient says, ah, I'm still. I'm still having the same problems. I'm still having the same position on these times. Look, position as timers is the same.

So probably they didn't detach. They probably just moved from the upper part of the cupola to the lower part, the basal part of the cupola so that they couldn't deflect the cupola very well. In my opinion, this is the most likely Condition the most likely chance they might be also it might be the case they detached and they reattached again. They. They attached to the uticle, they went to the uticle, they detached, they went to the uticle and they detached from the uticle again and attached to the pupil again.

But in. In most of this position, most of this condition probably during vascular maneuver otoconia just went from the upper part of the cupola where they could effectively bend in the cupola from one side to the other one to the Basel part where they. They are. They are too weak to deflect the cupola probably. So we think everything is fine.

But if we see the patient again on the next video, at the next evaluation, the problem is the same because probably with our movements otoconia again when. When to the upper part of the cupola leading to a persistent banding. Okay, so this is our results. We. We have a resolution or conversion in posterior canal, lateral canal anterior canal, as we as I showed you.

And in 20 cases it was ineffective. So it was effective. We consider effective even if we switch the these atypical variants in atypical variants in 84% of cases and in 20 cases. So it means in 15% of cases we didn't have any success. And it helped us.

It allowed us to understand to detect the regional position of autoliths depending on the outcome of the maneuver. And we had the chance to see that position of the ambient in this case with the position of the next time was the great majority. Vast majority of the patient had an unpullary arm posterior canal organisation and not an anterior canalitis because it converts in a typical posterior canal of the same side. And in cases of posterior canal cupolithis and sitting up variants we had a chance to see that most in most cases otoconia were attached not in the canal part of the cupola, but in the utricular part of the cupola. And this is very very interesting because it's not very common to see rappers papers about the utricular side of the pupil of the posterior canal in dppv.

Actually this is rappers of several years ago by backing them. That says that according to temporal bone studies the utricular side of the cupola here etricos of the posterior canal cupola represents one of the most likely position for this longitochonia to settle both both in upright position both and supine

position. As in this case could go in the common cross in the posterior canal, but also in the cupola of the posterior canal. In the utricle side the cupola. And also after repositioning maneuver it could go here and in the posterior canal, it could go attached to the cupola of the posterior canal.

This is another more recent study of our colleagues from, from Spain. And, and they say that according to mathematical models, during the applique maneuver, if we do not pay attention to the position, to the corporate position of the head, if you do not tilt the head forward enough when you bring the patient back, we have a chance to put otoconia from the utricle to the ampulla of the posterior canal. Of course the utricular side of the posterior canal. So it's not, not that rare at all. What about posterior short term lithiasis?

It's. It's still debated which are the signs of this posterior short term lithiasis. Because if we look in the literature we can say that otoconia in the short time the posterior, you know, of the, of the posteriorsis in that tiny tract of the canal between the posterior canal and the uticle. Otoconia might lead to an upbeat nystagmus as in, as in canolitis, a downbeatness or sometimes as Professor Buki says, they might just lead to the so called type 2 BPPV, let's say a kind of truncal lateral pulsion when we bring the patient from the legs or position or supine position of or deep head ankle position to the upright position. Probably because according to his model, probably because in this area the area of the ampulla is quite wide.

And so if we have otoconia there, they do not success in having the drag effect to the pupula to bring the cupola to deflect the pulley in one, in one direction or in the other direction. So we just have, we do not see nystagmus, but we just have, you know, some kind of lateral portion when we bring the patient back. And there are also some maneuvers for this short arm variant. This is the bow and yaw maneuver that has been published a few years ago by this colleagues. And it's basically we bring the patient in the bow position and we do in the yield plane like this to dislodge the cornea from this position to the Utah.

And sometimes it might happen. I really use this maneuver because I start using maneuver but I didn't succeed very well. Probably it was unlucky or didn't did before very well.

Okay, I just have some problems.

I was freezed.

Okay, I need to share the screen again.

I'm sorry. I'm going to Read the the end of my token.

I was near to the end, but I wanted to to share some last thoughts.

I'm so sorry for this. Okay, so what about this short term BPPV or type 2? BPPV or residual dizziness. Sometimes we call it residual dizziness. Look, look at this patient.

This patient has a kind of residual dizziness, especially when she woke up in the morning. So nothing happens. Nothing happens when we bring the patient in the plane of the left posterior canal. Look what happens when we bring the patients in the oppai position.

Nothing happens actually in the right or by position. But when we bring the patient back and from the all right position to the upright position, if we are very careful to the eyes. Look, there's a tiny torsional. Nice timeless with right torsional components. Tiny right ocean with tiny Unbelievable times.

If you do not use binocular video frenzel, we do not see anything.

Would you ever think to perform reposition maneuver for this case or. I would bet with you that most of us would probably say, okay, probably is something that's. That is there is some residual of that of a

previous posterior canalithis of the right side. So take this medication and see what happens.

We can also call this subjective BPPD because sometimes the nystanmos is very subtle. But the patient says, now I'm feeling dizzy probably. He doesn't say. She doesn't say, I'm. I'm feel.

I'm seeing everything spinning. But she is. I'm feeling unstable. Let's try basco maneuver. Let's try basco maneuver along the plane of that posterior canal.

Let's try. What happens? Nothing happens in the position. Nothing happens in this other position.

And we say okay, probably it's not autocon. It's just a residual. Sometimes we say it's a residual utricular hypofunction. Sometimes it might be just subjective bppv. So, you know, some, you know, central reset or something else.

No, no, no, no. This is bppv. This is bppv. This is residual bppv. This is the real short amortizes because of the cornea are not attached to the group.

Otherwise they will lead to deflection of the cupola. So a persistent next timers. They are probably in the pullery arm in the. Sorry. In the short term close to the ampulla.

So they are not effective enough. Effective enough to lead to a deflection of the cupola. But something we saw something. Now probably we detached. Look what happens when we continue the baspool maneuver?

Probably Some of us will say okay, let's stop maneuver because it doesn't work. Look what happens. Look how strong nice time was. We elicited horizontal next time was so toconia were here. They went away from the posterior canal short term and they went here on the horizontal canal.

Of course, the patient now is not very happy. She's probably being vomiting. But now we understand what's going on and we treat this typical horizontal cannabv with. Now I'm using the Zuba maneuver. You can see the horizontal Instagram goes toward the right, the left side.

That's good. It means the otoconia are going away from the right from the horizontal canal on the right side. And after that the patient is fine. You can see, you can appreciate now the importance of this kind of maneuver to understand what's going on.

Last one of the last important thing results. Look what happens if we look. If we define the patient in which the maneuver was affected and which the Bascule maneuver was ineffective after 5, 6 trials and we see the comorbidities, the comorbidities of these patients. We can say that in most patients in which the maneuver was effective they didn't have comorbidities live previous sensorial hair loss Meniere's disease MST by migraine. Let's see the percentage of comorbidities in those patients in which the full maneuver was totally ineffective.

Just a few portion of them has no comorbidities. Most of them had vestibular migraine. Meniere's disease previous sensory neurohenia loss that probably might recall to early onset of Meniere's disease. And we know from papers from Professor Spryla on the paper from other colleagues and also those police who use this home goggles to give the patient home to record when they have an acute vertigo spells that sometimes Meniere's disease vestibular migraine might lead to persistent positional nystinus direction changing. That's probably due to an overloaded or are light heavy coupler or a light coupler of the posterior canal.

Of course, in the cases where we our best full monopary doesn't work. We can give some medications. I can give some medication for vestibular migraine. I can give steroids, I can give diuretics. According to the to the case of the patient and in most of these cases without basic maneuver the positional nystagmus results.

This is. These are since our previous talk in at the Barren Society our friends from India in particular our friend Ajay Kumar Bats and his Colleagues, Professor Sudhir Kothari published mainly case records where they used the Basque maneuver to treat atypical variants of bppv. And they were very nice because they included my name among the authors. And they also use vibration to help this to help otoconia to dislodge and to go directly in the utricle. I think this.

This is probably the last concept I would like to give you because it's the time is consuming, the time is going. How we can understand if we are in front of detachment of otoconia or not. Look, this case is a posterior canal cochlear file in a typical old pipe position. Nothing happens. Half of my position to lift the head of 3040 degrees.

Look what happens now the cupola. Now the cupola is horizontal, so it can bend a lot toward the canal, leading to a persistent deflection of the cupola toward the canal. A persistent excitation of the efferents, activation of the efferents of the posterior canal.

And of course we are. Now we can use the inversion test to see if. If it's to confirm the popularizer. But actually we can also avoid using this because it's very clear that it's a cupolary ties. Anyway, it's always important to use even the inversion test.

So we bring the patient on the other side with the face down and to see if the next time was a reverse. Last time was reverses. Look, now it's down bit, left torsion. Okay, so we need to use some apply maneuver. Was totally ineffective because we made the apply maneuver to test the inversion test.

So let's go with the basketball maneuver with vibration and starts again with upbeat. Next time with the right ocean of components better visualized, better detected in half a pipe position. Like in this case, we bring the patient on the other side to detach otoconia from one side or even the other side. We don't

know which side they are. Okay, again.

It looks like everything is fine. But are we sure? No, you need to be sure. Look, half a pipe position Again upbeat next time. So nothing changed.

Autocon are still there.

Let's go on the other side. Look down bit. So cupola is still overloaded. Now we are in the large plane. Left anterior, right posterior.

In this new role plane. Okay, again upbeat nystagmus with the right torsional component.

Now I'm using some head shakings. Tiny down bit nystagmus. Look what happens now when we bring the patient in the first position. Now nystagmus is down bit is not Upbeat is down bit. Turning it up in his thymus.

In our opinion, this is a very important sign because in the cases with otoconia that are attached in the utricular side, it's the sign that tells us that oconia detached. Because look what happens now. Look what happens now. We just move a little bit the head and we switch the canals again in the horizontal canal. We switched.

We switched the otoconia in the again in a horizontal canal. So it means that otoconia previously detached. And now they entered the non ampullary arm of the otoconia of the horizontal canal on the right side. And now we have a typical horizontal canalotysis. So that down bit.

Nice diagnosis. In the first position. It's an interesting sign which can be the interpretation of this sign. And it's something that it's quite commonly detected just before having the switch. Before having the

switch to another variant.

Probably we might have an anterior canal stimulation. Let's see what happens otoconia in the attached. In the pullery in the utricular side of ampulla. First position. They lead to upbeatness timers.

Right torsion. Second position. Okay. The lead to downbeat nystagmus with left torsional component. If they got detached here, we might.

We might see anything. But if we continue with the bascule maneuver, they might adhere to the cupola from the short time of the anterior canal. From the utricular side anterior canal and lead to a bending of the cupola, an excitation of the interior canal cupola that leads to a downbeat. Nice diagnosis. This might be in our opinion one of the explanation if it was like this.

The rotational component should be its vision right torsional component. Sometimes the down bit is left torsional component. So here's the verse. And in those cases, in our opinion would be due because when we start from the beginning, when we are sleeping and otoconia dislodge and they go in the. And they get attached to the cupola of the posterior canal and they start to overload the cupola.

Of course, the cupola starts to bend toward the canal. But even if we are. When we are supplying. But even if we are in that right position, the cupola should slightly bend toward the canal. And in the first phases of the posterior canal copulitis.

I'm pretty sure that the patient has a kind of persistent spontaneous nystagmus. Actually it's not spontaneous because it's self spontaneous. Just like the horizontal. Just like the self spontaneous. Nice times that we have in horizontal canal Cupolaritis.

There might be a spontaneous pseudospontaneous nystagmus in the. At the. For the posterior tunnel copilot. That would be vertical torsion. So it would be upbeat right torsional.

Nice time was when we are in the upright position. Of course when we bring the patient down this next time it would reverse. And of course when we. When we. Since most of our time with spent with the patients in upright position with the head in upper position.

And this is also why most of these patients they never. They never say that they just have positional nasty typical tysis. Most of this patient has an in particular unsteadiness. They are very very dizzy. Very very kind of attacks.

Sometimes probably is due to this.

To this kind of several spontaneousness that we have at the first phases.

Days, hours minutes hours days pass. And probably and probably what happens in the central part of our. In the. In our brainstem. Maybe in our.

At the pulse at the level of the nuclei. You know, this persistent nice thymus leads to a kind of central compensation. So probably the efference of the contralesional posterior canal will start to weigh more to work more. So we have a kind of rebalance, a central rebalance. Okay.

So one side the cupola is heavier and leads to a persistent positional direction change in nystagmus that mainly a bit a bit ipsy regional torsional on the other side probably the anterior canal. The paired canal on the other side probably starts to work more to compensate this work more this major working on the other posterior canal on the other side. What happens? What happens? The problem that nasty fades because we have a new balance between the effluents.

We start with the new reset of the efference resting fine rate. Okay, what happens if we start with the basic maneuver of course the baseball over the next time of changes again. And when otoconia detached, what happens? The cupola of the posterior canal that was overloaded now is lighter. Now is lighter.

But actually got again the. The right weight that she had. So she's. The cupola started to have the right weight regained the right way that that. That it had.

But in this new reset of the. Of the efferents it's weak. It's a. It's.

It's. It's. It's softer.

Its weight is lower. So now it prevails the anterior canal on the other side. Then through canal the interior canal. The Empress sign. So this new reweight leads to a downbeat nystagmus that is with contralision torsional components.

So in our opinion, one of these two concepts might be responsible for this. Downvenous timers where autoponia detached. And this is why if we continue with the Basco maneuver or we have a resolution or we have a switch of the. Of the. Of the.

Look, this is probably the last case. In this case we could have a couple pulu canalyties. Look huge paroxysmal nystagmus in dixel pipe test. Huge paroxysmas with also dam reverse components. Probably due to more clots in the same canal or.

Or a reflux of otoconia or a transient hyperpolarization of the receptor. Anyway, it's canal reticence because it's huge with paroxysmal course. And look, now we're going with a Sama Nova and we have a

liberatory nastymus. So we know that autoponia are getting. Are going.

Are proceeding going toward the utople away from the polar. So they are still exciting the reference of the posterior canal. Okay, so we bring the patient back and we think everything is fine. It was a strong canalothis posterior canalitis. Let's check.

Let's have a check. I always suggest to have a check when we do whichever kind of bppv. Not just a typical variance. Also, also typical variants. Look half of all pike.

Simone. That is basically whole pike. Nothing happens for tiny. Actually, none. Nothing.

A tiny torsional next time was that starts to be very, very, very, very strong. Much more strongly in alpha pipe position. What's happened? There were canal. There were otoconia in the ampullary arm leading to a canola thysis.

But there were also some otoconia attached to the cupola. Which part of the pupillary. Which part of the cupola. Are they in the canal side or in the uticular side? In my mind, probably it's more likely that they were in the canal side since we also have a canal hypnosis.

But look what happens. We start using the basketball maneuver. In the first position we have a transit down bit nice time once. But again an upbeat nice time was in alpha PI position. So otoconia are still there.

Look, it's not deliberately sign. This is still up B with the right torsional component. We bring the patient again in the opposite side and we have a reversal of Ms. D. So it means that otoconia are still stuck there, still attached to the bull. So we start to use head shakes, vibrations. Nothing happens.

You can see now. Downbeat, left torsional. Okay, vibration. Let's go again.

And again. It looks like it reverse downbeat. But actually it was just the memory of that of the other position. So I'm starting to use it shaking. We can use whatever head shakings and vibration.

But the next time it is still the same. Look what happens now.

A tiny down be nice time was Okay, I could imagine that probably are still attached. But let's go back to the first position. Okay, now otoconia. Now we have a real down B nightstyle with left torsional component. So probably autocon test probability.

Even in alpha PI position we still have that down B N S dynamics. So this is as we said is probably a liberatory sign. In fact, I want to be sure that it's just down B N S dynamus and it's not a memory of the previous of the previous position. Look what happens still down B Nice dynamus. As we said, probably the new reset of a new lighter cupola.

Oh, look what happens now we have again a horizontal canalitis. So there were otoconia tests on the utricular side. So it was a canalolitis plus cupolithis on both sides of the. On both sides of the. Of the cupola of the posterior canal.

Of course, we might use also the yoplane to perform the bascule maneuver as in this case or in this case, depending on the affected canal. Okay, we can use this. This is a refractory posterior canalitizes. Posterior canalitizes. You can see next time was his transients and I use.

I don't use the role plane. I use the yoke. Sorry, not the yoplane, the pitch plane. I'm using the pitch plane always with the head rotated toward one side or either side, depending on the position of the. Depending on the canal affected.

Okay, so in conclusion from our preliminary data, the Pascal maneuver seem to represent a promising maneuver for the management for of a typical posterior canal BPV. Since we have a diagram resolution in 1/3 or a conversion in almost half of these cases in typical variants that we can easily treat with using maneuvers that makes the most with gravity or whatever. It also has a diagnostic role as it allows for the detection of the regional position of autoliths in most posterior canalocopolic highs and sitting variants and also in DPPV with down B N Einstein. And it might be addressed over a non autolytic cause of positional vertigo buoyancy mechanism due to vestibular migraine or Meniere's disease. In most cases of failure.

Of course, further research are needed to assess the feasibility of the school maneuver in the management of a typical bppv. So we arrived to the end of this talk. I'm sorry if I was very long. I would like to thank again invent this and I would like to give greetings to send the greetings from the Italian Stable Society where I am part of the when I'm one of the counselors and I would like to share my email address if you have any questions and now I'm going to read the your questions. So we have questions for anterior canal BPV or postotope bppv.

Can we explain why the nystaimone would be sustained if you're proposing that they are falling through the canal, should it not be brief once the otoconia have settled to the most dependent spot? Yes, it's very it's a nice question but as I said before, when otoconia settle anterior canal or the non ampullary under posterior canal those areas are usually self cleaning. So if otoconia are there in some cases in most cases they would go by themselves in one side or in the other side or toward the utricle or to another another part of the labyrinth just with gravity. If they are there, they're probably partially entrapped so we do not have a complete gem. Most of them have a partial gem.

It means they're probably stuck in close to the stenosis so that if we bring the patient in the positional tests they do not move, they just lead to a persistent band. Persistent endolymphatic flows tower the

ampulla or away on the ampulla depending if it's a posterior canal BPPV or in apostrophe form on an anterior cannabis. And and of course this will lead this is why it will lead to a slight reduction of of the VR at the video head impulse test.

How often do these episodes occur in a day or week? How long does each episode last? I I would say it's they are typical. The patients with these are typical variants have positional spells have positional spells. But as I said in the last part of the talk, most of them presents with the marked unsteadiness much more evident than in a typical posterior eppg.

This is probably due to, as I told you, this new reset, this new rebalance of the afference from one side to the other one can BEPPV occur alongside hearing loss? Yes, sure. Might be due to some vascular events. Some vascular events might lead to hearing loss and a dislodge of the cornea in the utricular part in the utricular neckline. We have omkar Hawaii how long should we wait to each position step of a school maneuver?

Yes, we need to wait. I usually suggest you to wait at the beginning at least 20, 30 seconds. And then we bring the patient in the other position, wait a little bit 20, 30 seconds and again in the other position. After a while, if we don't do anything, we can start reducing the time between one position or the other. But usually at the beginning I would suggest you to wait at least 30, 20, 30 seconds.

We have either thought how do elderly handle this maneuver? And this is a very important topic. Of course, elderly patients, patients with fat patients with high weight might be not. Not easy to treat. Of course, if you need to reuse the school maneuver.

Sometimes some patients prefer basically maneuver along the pitch plane as the one that I showed you in one of the last slides compared to the basic maneuver along the role playing. But even with the. I have. I had a lot of elderly patient with this. With this type of variants.

And most of them were okay with this kind of maneuver. Of course, most of them after a while, if I didn't succeed in anything, most of them ask okay doctor, please can we stop? Because I'm very, very. I'm not feeling well. Let's see again on the next examination.

Yes, this is probably the most. Oh, and here is our friend Myers from Czech Republic.

Thank you for being here, Maya. How can I. She's great. Most of you will know she's great auto neurologist from. From Czech Republic.

How can I distinguish copulitizes from canalutricular side in all canals? Just to summarize, please. Sometimes I'm completely lost to imagine which side it could be cooperitizes from from kind of triple side. No canals. Okay.

If we have a persistent direction changing nystagmus irrespective it's horizontal or vertical torsional. Of course the first thing to to think is that we have something attached to the cochlea. So if it's a persistent horizontal apogee dropping. Nice time was at a horizontal at support pinehedral test. It's a of the horizontal canal.

If we bring the patient in the whole pine position we have some nystagmus half of thy position nystagmus is stronger and stymos is up torsional much more torsional than up in most times. And it reverse and it's persistent and it reverse just when we bring the patient in the opposite position. So opposite side face down. And it reverses with persistent course. Of course it will be cupola of a vertical canal of Course, I will never know if it's a posterior canal from one side or anterior canal on the other side.

And I will never know both horizontal and both vertical canals. If otoconia are attached from one side or in the other side, I will never know. This I cannot know. I can understand if they were attached on one side, canal side or in the utricular side. Just watching what happens after the school maneuver.

How it. How. How it goes. How it goes with the maneuver. If it resolved, of course, it could not be in the canal part because it should lead to a canary crisis.

They were on the other side, in the triple side and they got stuck in the usual. If I convert it in a posterior canal, typical posterior canal, it means they were there in the canal side. If I convert it in a horizontal canal or in an anterior canal, it means that we're on the other side in the utricular side. So in our opinion, it's very good to understand what's happening. What's happening in the other.

In the following. In the following steps. Another friend with maneuver. Could you please make the recording available? Do you know we see any stomach because of poor Internet connection?

Thank you. Yes, for sure. In January this recording will be available in audiology online sites still. Maya, what do you recommend for possible lateral canal unidirection bppv? How and how you recognize it from death is neuritis?

Yes, sometimes we might have unidirectional nystagmus in. In bppv in horizontal. In horizontal canal, but sometimes also in posterior canal. We do not have the direction. The typical direction changing the physiology is not very easy to understand.

I think Luigi Califano wrote a very nice article about only directional positional Instagram was for horizontal cannab. Sometimes the direction changing is not evident. Sometimes it depends on where the particles are. Because the particles are close to them. Close to the.

In. In the ampullary arm. In the ampullary arm. And they are very close to the ampulla. Maybe they are not lead to the drag effect to.

To deflect the cupola. So depending on the. On the position they have, they might leave only to an Instagram that goes in the same direction. How can we distinguish it from the episodal neuritis? With a video head impulse test.

In most of the cases of horizontal canal bppv, even unless it's not a cannily jam leading to a persistent nystagmus. A persistent horizontal nystagmus. And not just.

And not just positional nystagmus. But when we have Only a kind of spontaneous nystagmus horizontal or vertical torsional and we have a canary jam. The video head impulse test in my opinion is crucial because if we match video head impulse test and temps. If we have a cannon jam, just the canal affected is has a reducement of the VR gain. If we have vestibular neuritis, of course we have horizontal and anterior at least if not also the posterior canal.

And of course even the damps should be reduced. At least the utricle should be deduced. So at least the aqua events should be reused. And cervical event should be okay if that's superior vestibular neuritis. If it's totally vestibularitis, both utricular and sacromacula reduced.

But if we have a canary gem, just the canal is affected and vamps and vertical canal and the other canals they're not affected by. By the gem are perfectly. The video heading was best.

How to treat a typical cochleitis of the lateral canal. This is. This is. This is actually it's not the topic of today, but it's in my. But it's very nice question.

Thank you. In my experience I usually use the shake. You know, if we have posterior canal and anterior canal, it's not easy to shake the patient in this direction. If we have a horizontal canal, horizontal canalitis is much easy. We do not need to to to basically the wall trunk we can use just robust head shaking vibration.

We can bring. I usually use this. I bring the patient with the head down, supine with the head so in the prone position with the head down. And I use the head shake because I don't know if autopilot are attached in your trick or side or in the canal side. So I want to see what happens.

And I stop in one direction again shaking and I stopping in the other direction and see what happens. Always monitor the eyes and I do the same. In the supine position I do the same. And I also use some risk maneuver like the Griffoni maneuver, but briskly and sometimes it works. With a canal jam, wouldn't there be no endolymphatic flow such that the instamo shouldn't be able to be an ass?

With certain head positions.

Nystagmus usually never reverse. In Canadian gem. In Canadian we have a persistent flow of endolymph along that canal leading to a persistent bending of the cupola. Of course that flow is not that strong to be not. Not affected by.

By gravity. Sometimes gravity might reduce the deflection of the cupola. So nystamus might reduce or might sometimes meet mitigate that much that is almost non evident. And sometimes. And when we bring the patient in the opposite position, the gravity goes in the same direction of the.

Of the. Of the. Of the endolymphatic flow. So next time was increases. It depends.

In my opinion, gravity usually modulates next time never reverse modulates.

Elias Villagrant says Professor how to differentiate inferior neuritis to calendar posterior canal? Very, very nice question. Unfortunately and this time was might be the same. Unfortunately, the video and impulse test might has the same finding vamps. Cervical dams should be reduced in inferior vestibular neuritis.

Cervical dams should be normal and posterior canal jam because there's nothing going on in in the circle just the posterior canal. But it's a good question because you can just understand you. You can just see this sometimes when you are in the acute stage of the inferior vestibular neuritis. So you have A down B nice thymus. If you hyperventilate, nystagmus can sometimes reduce.

It's difficult that it's reversed, but it reduce. And this kind of thing doesn't happen in the. In the. In the posterior canal gem. And another thing is that gravity modulates nystagmus spontaneous nystagmus even due to inferior vestibular neuritis.

But not like. Not like gravity for the canary gem. So the different modulation of nasty moves with gravity can help you also. But in my opinion times as easy to to do and it's important.

Margozata Kelvin asks us great lesson. Do you think manual treatment is better in this case than use a tier of a chair? Thank you for this question. I don't use TRV chair in my opinion I've never used it so I do not have experience. In my opinion it's not that easy to reach this brisk acceleration.

Maybe the position that you reach are much more convenient with the table chair, but. But I'm not using this. But those impulsive maneuver probably are not so easy to to achieve with the trailer. But I'm not using the arbitrary so probably I would be happy to to see uh. This kind of maneuver replying in curvature.

Another question. Are there any contraindication to the schools in semantics of Pike? Ah, the contraindication are the same patients with broken bones, patient with neck problems, with severe neck problems, post traumatic patient with. You know, with some broken bones.

I would say stop.

Elias Villagran My other question this time was in a typical posterior BPP is provoked in all the exotic position or only affected side.

It depends for posterior canal polytitisis in effective side is persistent in the opposite side it might reverse a little bit or might be or might give anything in the sitting up variants just usually when you just go back from the dixel pike to the upright position just when you have the head rotated toward the factor side and in a posterior canal jam in my opinion all all position are the same because the next time was is more or less spontaneous. So it's the same in positional downbeat next time is due to anterior canalitis or apogee. Posterior cannabis usually is detected on both the same nystagmus downbeat with tiny rotational components isn't detected in both in both dixel pipe tests sometimes just on one side, sometimes just in the contradictional side, sometimes just in the straight editing position but in my opinion most of them in both opositions oh, here is son Abu Zayed and a very close friend from Jordan. I'm so happy that you were here. Thank you for being here.

She's a great auto neurologist from Haman. Thank you dear Andrea for interesting and informed delight. I actually learned the supermodel from you. I use it for my patient. It's really effective.

Thank you. Thank you you very much. So for your for for saying this. I'm very happy. It was useful.

Again, Maya's the best Wonderful presentation. Thank you very much. Thank you very much Maya for your comments. Our friends Omkara, Hawaii in how much pageant participation of a typical BPPV

requiring basic maneuver do you find history suggested for migraine and how many of them require migraine Prophylaxis? Yes, in the one of the last slides I said that in most patients with that were ineffective ineffective with an accurate history taking patients do have migraine do have migraine and do have symptoms consistent with vestibular migraine.

And I usually use medication prophylaxis for migraine when I do not have any success with vascular maneuver in the same regime the joint proposed to the patient after the bus pool for a few days no quick mover. As for the athlete to not have the athletes go back to the cupola. Yes, of course I always suggest them to sleep on the healthy side on the one that I think that they have decided because in most cases in most cases of cupola thiasis otoconia are attached in the triple side of the cupola. So laying mostly on the unaffected on the healthy side or the cornea. If they dislodge they go back in the utical and and in and in also in the Sitting of variance the same also in.

In the position of downbeat and stymus where I usually think about an apogotropic barrier and the posterior canal and never to the anterior canal. Because in my opinion in my experience is much more rare to have. I usually ask the patient to lay on the. On the other side again. So in the last case, the shortcoming.

Do you think Bowen, your maneuver will work? Yes, theoretically, yes. In my opinion. I. I start to use short amorthysis. Since when?

Since two years.

It worked in my hands. It worked not so much. But theoretically, yes, politically, yes. If you bring the patient in this position and you start.

You start shaking the head with different velocities and doing these movements in the airplane, you should have. Yes, you should lead to our cohort for the patient. But I prefer using the school maneuver because I'm more confident like this. Maybe I need to be more confident with the. With the boreal maneuver.

Dr. Sahil Patel how to differentiate posterior copilot side versus reticular side. And just see what happens after repositioning maneuver in my hands after bascool maneuver. After that you can understand where they were. If they transform in canal canalitizes. So they were in the canal side.

If they transform in horizontal. If they resolved immediately. If they convert and they switch to anterior canal it means they were in the opposite side. And there is Eka Karkeli from. From Georgia.

Thank you for being here. She's a very close friend neurologist from.

From Georgia. Thank you for being here. Thank you for being a presentation. We'll learn more and more from each life to review. Started to use maneuver for typical cases and I'm satisfied.

Thank you very much for this opportunity. Thank you for being here. I'm honored to have you. And again Maya Czech Republic could you reverse. So could reversal of upbeam to downbeat in alpha pike could really mean it was attached.

So maybe only nose down would be okay. Good. Reversal of upbeat to downbeat enough Alpine would really mean it was attached. So maybe only N down would be okay.

Could be. It could be. Maya, I'm not sure. I'm not sure I got your question. But if.

If the.

The important thing that I'm That I would like to tell you after your question, but I'm not sure that your question was like this is that when you finally achieve at the midnight status in the first position in half a pipe position when you start phone. And if it's. It's true that probably they detached.

I could suggest. I could. I could feel confident to suggest the patient just to lay down on the other side because it means that they were detached. And if they were detached, just lay on the other side with the nose down. In the following days, probably they will attach.

They will go back to the uticle without switching them by continuing the bascule maneuver in horizontal canal that it's definitely not comfortable for the patient. So if this. This was your question, Maya. It's very interesting question. Very, very clever question.

Because it's something that I'm starting to do. In the last period before, since I was not confident with this. With this sign, liberatory sign, the detaching sign. Let's say I continue the bas maneuver until switch or until nothing happened. But in.

In this few period, in the last period, I start to. As soon as I see this switch from AB to down B, I just stop and I just suggest the patient to lay down. And in most cases they are okay. So thank you for the request. Refined with contrary motortion could be really just needed three type of.

Of hill canal liberty paretic type contrary ipsy torsional site would be affected. Yes, yes, exactly. Something that's. That we say together. Thank you for your questions.

Julian Guerin after maneuver for a typical canal with you check directly if it's resolved. No risk to get anything in the zodiac or receive it. Yes, you're right. Sometimes I have. Sometimes I have a small.

I have a typical canalitis. I do apply maneuver or someone maneuver. I have also the libertarian sign. If I do not have a liberty in a stymus. I always check because I'm not very confident that everything was fine.

And in most of the cases there are still something. There is still something. If I. If I get the liberty in this timer and I. I feel confident to check again to see if nothing happens or there's a tiny down beneath the most. It means that there are some residual in the non polari arm of the posterior canal close to the common cross.

Sometimes, but not very. Not very frequent. But sometimes I had not really a residue of posterior canal, but I have a conversion in horizontal canal because probably otoconia were somewhere then utricle not again attached and they with a tiny movement on the ad. They finally fell. They eventually fell in the.

In the horizontal canal. So you're right. But I feel confident to check again because most of our patients here in Italy wants to recover quick, quickly, because they are. They feel crazy with the bppv. So I want to be quite confident to save the patient sleep on the other side.

Because now everything is Fine. Not just because I made some part of my job. I want to complete the job in the first. Complete the most of the job in the first session. Dr. Omakar, why?

What is the time gap between a therapeutic and recheck? One week. At least one week. I would say to check again in one week. You can also do after two days.

If. If nothing was good. I would suggest if you have a conversion or we have a reduction and a possible recovery. You need just two days and it's okay. If you have an ineffective maneuver, I would check to.

To. To wait for a while. Probably the next time you will see the patient. Probably next time was finally faded. So probably it resolved in the meanwhile just sleeping with the head in the unaffected side.

So probably they were in the utricular side in the short time of the posterior canal.

Which side you ask to lay down after the school or any maneuver is done. Healthy side. Thank you. Katrazina Fearliton. Is it possible that position on central could be inhibited by fixation?

Yes, it could be possible. I would say that if we have an enhancement of nystagmus with fixation, this is for sure central. It's not peripheral. If you have an inhibition. If you have a.

If you have an inhibition with fixation, it could be very likely peripheral. But some kind of nystagmus central might. Might be hinted by fixation. So I would not use just this sign to understand if it's a. If distant is central or peripheral.

I would use the entire battery of bedside test and also of course MRI or what else. So circadian pursuit, VR suppression. What else? Yes, more than those at least bedside.

Hello. Thank you for a great presentation. Thank you. After changing to lateral canal barbecue maneuvers start from which here? Great question.

From the year that you have down from here that you have down. So from the affected ear you start rolling the patient toward the contra regional side. If you want to do 180 degrees, more or less like the zoom on over. If you want to do three 360 degrees after the like the baby humano. But you always start from the effective side.

Oh, we have Adas Benruvi Shimon. She's a very nice friend from Israel. Thank you for being here. I'm honored that you be here. Thank you for this interesting presentation.

Would you consider stopping the repetition of the maneuver once you detect the liberty sign to kind of conversion? Exactly. Is it? This is the comment that probably Maya wrote. Yes, this is in my opinion, since I'm starting to use this and to look for this.

I'M starting to do like this and probably this is the best doing so we. We avoid patients to have a kind of switch on the horizontal canal or. Yes, usually on the horizontal canal. That is terrible for the patient. But it's terrible just in that stage.

After that you treat the. The horizontal canal and everything it's okay.

I have a patient after typical posterior canalitis after vestibular neuritis the kind of tasis respond to camera position maneuver only for a few days and then come back that would I do. Yes, probably this is the Lindsay anyway syndrome where probably usually it's due to an micro ischemic lesion of the intervistibular artery or might be due to vestibulent right. Is probably the macro of the utricular of uticle is lesion so it's hard for them to. To be attached or to be. Or to be.

Yes replaced in the uticle. So you need to. You need to have patience.

Okay. Just a que. Just a comment from Darius Coco Hyundra. In the sitting of variant which proportion of a convertricular site did you. Did you.

Did you ground in the sitting up? Mostly in the utricular side. Thank you Dario for being here. It's a honor for me. Okay, thank you.

Anna, I'm here. I think we are. Yes. Done. Yes.

Sorry for the last question. No worries. Andrea, can you see my face? Because I think. Thank you.

That's great. So first of all, thank you so much Andrea for this excellent and highly practical presentation.

I think that your passion, clarity and ability to translate a complex concept into actionable clinical steps make every session with you truly, truly valuable. So thank you very, very much, Dr. Castellucci and I really hope we can see you soon in academia. Before closing, I would like to announce our next Academia webinar, the last one for this year, scheduled for December 17, featuring Dr. K. Kristen Jenke, lead audiologist and director of the Vestibular Imbalance Research Laboratory at Boys Town National Research hospital in Omaha, Nebraska. U.S. her session will focus on remote camera VHIT. What is it?

And how does it fit into my pediatric vestibular test battery? So please keep an eye on our social media channels for updates and registration details. Finally, we kindly ask you to complete the short survey you will receive shortly. Your feedback is essential and deeply appreciated. So thank you all for joining us today and see you at the next and the last academia event for this fantastic 2026.

Bye. Thank you very much, Anna. Thank you all. Bye. Thank you.

Bye.