VIDEO ARTICLE

Technique of rotational forceps delivery using UTokyo Kielland Forceps

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Introduction

In the case of oblique sagittal suture, making an angle of more than 45 degrees, or deep transverse arrest, application of Naegle or Simpson forceps should be avoided. Instead, the Kielland forceps represent a viable alternative for operative deliveries of such cases. These rotational forceps have the following structural features: (1) the blades do not curve to adapt to the pelvic axis and (2) joining of the bilateral blades slide rather than lock. Effectiveness and safety of Kielland forceps revaluation to date. Al Wattar et al. published a systematic review about Kielland forceps, concluding that Kielland forceps allow for a high success rate with relatively low adverse outcomes, and higher efficacy with less risk of neonatal trauma, relative to those of rotational ventouse. Despite the fact that these forceps are just as useful as normal forceps, the usage of Kielland forceps has decreased in the past few decades, due to fewer numbers of both operators and educators. The present video article demonstrates the appropriate technique to use when applying rotational forceps.

Techniques

In this section, the technique is explained through the various video captions. Our facility uses UTokyo Kielland forceps (Atom Medical Corporation, Tokyo, Japan), which have been developed for Japanese women, and are therefore thinner, shorter, and lighter than original Kielland forceps. The case shown in this video presents a right occiput transverse position, as explained below.

Simulated holding of the forceps
Simulated holding of the forceps is very important for rotational forceps because the rotational direction differs by fetal head rotation. Confirmation of fetal head rotation by ultrasonography is preferred. For cases involving the right occiput transverse position, as is the case in this video, simulated holding should be performed at 90 degrees counter-clockwise from the horizontal position, rotating clockwise.

Application of the left blade as an anterior blade
The blade on the fetal face side is always applied first. In the same manner as is done with normal forceps, use the right thumb to push the lower portion of the blade to insert it into the vagina. Next, push the lower portion of the blade to rotate the blade 90 degrees counter-clockwise along the fetal head curve, using the right index and middle fingers. Visualizing the forceps handle as an axis, try to rotate the blade and not the handle. It is important to insert the blade gently, without forcing it. Slight pushing of the forceps enables easier rotation, as the forceps accordingly locate at greatest pelvic dimension from least pelvic dimension.

Application of the right blade as a posterior blade
In contrast to the left blade, rotation is not needed for the posterior blade, as the latter can be inserted directly into the vagina. To apply the posterior blade, pull the end of the forceps toward the operator and no need to handle vertically-hanging manner.

Joining of the forceps
Join the forceps together after both blades have been inserted. Keep in mind that the depth of each blade would differ according to the fetal head asynclitism, and finger guide would not be aligned.

Trial rotation and trial traction
Trial rotation and trial traction should be performed...
before uterine contraction and bearing down. Check the fetal head rotation by internal examination to monitor not only the forceps but also the rotation of the fetal head, while rotating the forceps with another hand on the finger guide. Again, confirmation of fetal head rotation by ultrasonography is preferred.

**Rotation**

Rotation should begin with uterine contraction and bearing. Rotate the fetal head until the forceps are horizontal. Simultaneously align both finger guides, using pointing or middle finger on the guide to correct the asynclitism.

**Traction: downward-horizontal-upward traction, episiotomy, and removal of the forceps**

After correcting the malrotation and asynclitism, pull the forceps in the same manner as is done with normal forceps. The episiotomy and removal of the forceps that follow are also performed in the same manner as for normal forceps.

**Discussion**

The present video article explains how to perform a rotational forceps delivery. The particular case presented here involved a right occiput transverse position, with the left and right blades applied as anterior and posterior blades, respectively. In cases involving a left occiput transverse position, the opposite rotation should be applied; specifically, the right blade should be applied first as an anterior blade following the application of the left blade as a posterior blade.

The question regarding the superiority of rotational forceps to vacuum delivery remains unanswered. However, in general, a forceps delivery has a higher expulsive force than that of a vacuum delivery, so rotational forceps may be particularly useful for emergency cases involving a non-reassuring fetal status, for example. Given the time constraints, it is important that the rotational forceps maneuver is acquired. We hope this video serves as an educational tool to encourage others to reincorporate rotational forceps into their practices.

**Acknowledgements**

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**Conflict of interest**

None.

**References**


**Video Legend**

The video image of UTokyo Kielland Forceps delivery. The video is consisted with nine sections: Simulated holding of the forceps, Application of the left blade as an anterior blade, Application of the right blade as a posterior blade, Joining of the forceps, Trial rotation and trial traction, Rotation, Traction: downward-horizontal-upward, episiotomy, and removal of the forceps.

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