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Reviewer A

Thanks for the comment.

Comment 1: I read this review with great interest. It is an informative and informative review that deserves to be published.

TCVO is an intra-articular osteotomy that has become common, especially in Japan, and the developer of TCVO, Dr. Chiba G., said before his death that TCVO was never an HTO. The lower limb alignment after TCVO surgery looks similar to that after HTO surgery. However, what is being reconstructed with TCVO is joint congruency and the joint stability. This is achieved by applying varus/valgus stress and internal/external rotation during surgery to optimize the position of the osteotomized proximal tibial fragment. Since dynamic assessment of the joint is necessary, it is often impossible to predict how much degrees will be made or be opened before surgery. Consequently, lower limb alignment is determined secondarily by joint stability. In short, lower limb alignment is not important in TCVO. However, when TCVO is performed on medial knee OA patients with varus deformities, good alignment is achieved in many cases. This philosophy differs from that of HTO, where the alignment is determined and the osteotomy is then adjusted to that alignment. Dr. Teramoto T, the most disciple of Dr. Chiba G, followed this philosophy and reported good clinical results in many cases. Dr. Teramoto's osteotomy can be called a "Classic TCVO".

On the other hand, Dr. Yonekura A et al. introduced the concept of lower limb alignment to TCVO. This concept is similar to the traditional HTO. We may call it "Advanced TCVO." It is important to note that "Classic TCVO" and "Advanced TCVO" may look similar after osteotomy, but their treatment philosophies are completely different. And it is clear from the world of music that advanced TCVO is not always better than classic TCVO.

I hope you will add these points to this excellent review.

Reply 1: Thank you for your suggestion. We have modified our text as advised (see Page 12, lines 284-299)

Changes in the text: "Intra-articular knee osteotomies are a reasonable choice for

treating some kinds of varus deformities of the lower limb, although the indications and surgical techniques are varied and not yet standardized.

TCVO is an intra-articular osteotomy that has become common, especially in Japan, and the developer of TCVO, Chiba et al. (7-8), reported that TCVO has never been an HTO. The main purpose of TCVO is to correct intra-articular deformities by restoring joint congruence and stability. Instead, HTO is performed in patients with extra-articular deformities to change the mechanical axis by shifting the load from the medial to the lateral side. Therefore, TCVO should not be considered a subtype of HTO. Teramoto, the greatest disciple of Chiba, followed this philosophy and reported good clinical results in many cases (6, 24). Teramoto's osteotomy could be called a "classic TVCO". Nakayama et al. introduced the concept of lower limb alignment in TCVO. This concept is similar to traditional HTO, which could be called "advanced TCVO", and consider the alignment's correction as "an accessory benefit" that can be achieved (25). It is important to note that "classic TCVO" and "advanced TCVO" may look similar after performing the osteotomy, but their treatment philosophies are completely different. Furthermore, advanced TCVO is not always better than classic TCVO, so the correct choice of TVCO type depends on the underlying deformity."

Reviewer B

This manuscript tries to summarize indications, surgical techniques and outcomes of intra-articular osteotomies. It will support the surgeon in choosing not yet standardized treatments.

The following are my comments.

Thanks for the comments.

Comment 1: LINE: 185 comparison was made between divergent~~~.

It is confusing whether the comparison was made between screw positions or between plates. Clear statement will be required.

Reply 1: Thank you for your suggestion. We have modified our text as advised (see Page 9, lines 212-220).

Changes in the text: "Cheng et al. (21) analyzed the biomechanical effects of screw orientation and plate profile on TCVO. A comparison between divergent and convergent screw positions and a comparison between straight and countered plate was performed. The authors reported that a divergent screw distribution resulted in greater stability to compressive and torsional loads, reducing the risk of implant failure, although the divergent distribution increased the risk of posterior cortex

penetration and neurovascular injury. Furthermore, the same authors observed that a countered plate reduced the ability to stabilize the gap created and increased the risk of failure of the entire implant. The best choice to improve the construction's stability while reducing the risk of implant failure was the combination of divergent screws and a straight plate (21).”

Comment 2: LINE 216: These results were maintained during the follow-up.

Was the results had sustained from early postoperative months or the results was actually improved? It seems that the results had actually improved as the time passes according to the references. Mentioning that would be helpful.

Reply 2: Thank you for your suggestion. We have checked it and indeed it is as you suggested. We have modified our text as advised (see Pages 10-11, lines 247-254).

Changes in the text: “In the early postoperative months, patients reported a reduction in pain and stiffness and improved Visual Analogue Scale (VAS) and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores. These results improved during follow-up. Radiological evaluations reported a reduction of JLCA from 6° preoperatively to 1° postoperatively, which demonstrated intra-articular correction. The preoperative value of JLCA in varus stress was 8°; in valgus stress, it was 0°. Postoperatively, JLCA in varus stress was reduced to 4°, while in valgus stress, it remained unchanged. The reduction of this angle difference demonstrated that greater joint stability was obtained.”