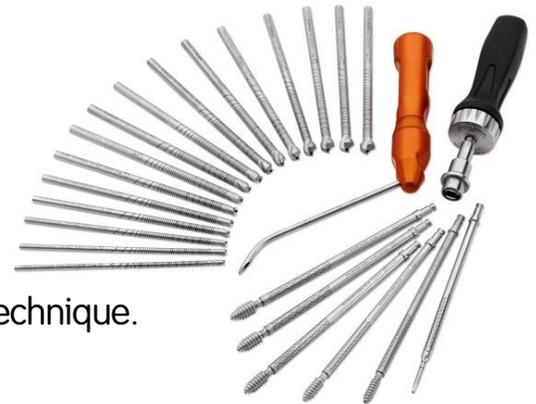


Q&A with Dr. Asheesh Bedi: Transitioning from Transtibial to a Medial Portal Anatomic ACL Technique Using the CLANCY™ Anatomic Cruciate Guide/Flexible Drill System

Asheesh Bedi, MD discusses the benefits of the medial portal anatomic ACL reconstruction technique. From visualization and hyperflexion to short sockets, Dr. Bedi also addresses the challenges many surgeons face when transitioning from the transtibial to medial portal technique.



1. Is there a trend towards medial portal anatomic ACL reconstruction? And if so, why?

I think it is a fair assessment that transtibial surgery has worked well and there is certainly plenty of literature to support favorable clinical outcomes. But as we start to look at the literature more critically, there is growing evidence to support that a more anatomic graft configuration is favorable for biomechanical stability and kinematics of the knee. I think most surgeons would not argue with that point.

It's important to note that anatomic and transtibial are not two distinct categories. Transtibial surgery that is well-executed may, at times, be anatomic. But sometimes anatomy or subtle errors in tibial tunnel position prevent it from being reliably anatomic.

As surgeons, we want to develop techniques that reliably and reproducibly achieve an anatomic result. In this regard, independent drilling, whether a two incision technique, a medial portal technique, or a flexible reamer medial portal technique, is a favorable approach to reliably achieve anatomic socket position that is not constrained by our tools or variable patient anatomy.

The growing body of peer-reviewed literature from many thought leaders in our field from various institutions has provided significant support and impetus for improvement in our surgical techniques to prioritize restoration of ACL anatomy.

2. What are the concerns when transitioning from a transtibial to a medial portal anatomic ACL reconstruction technique?

Some concerns for transtibial surgeons transitioning to a medial portal technique include visualization, hyperflexion, and short sockets.

Hyperflexion creates some degree of discomfort with drilling and reaming, often secondary to obscured visualization from a prominent fat pad. Avoiding hyperflexion with medial portal reaming with straight drills and reaming systems may improve visualization, but comes at the potential risk of prohibitively short sockets or compromise of the back wall.

The CLANCY Anatomic Cruciate Guide Flexible Drill System alleviates these concerns by avoiding hyperflexion for the transitioning surgeon. The flexible system allows for complete visualization in modest flexion while maintaining a favorable superolateral trajectory that preserves socket length and integrity of the back wall.

A good transtibial surgeon has the complete skillset to do an anatomic ACL. They are familiar with instrumenting in the knee with drills and reamers, and comfortable with the anatomy of the ACL footprints. Fixation devices do not change and neither do the graft options. The CLANCY system provides a comfort zone with visualizing the footprint and instrumenting safely through the medial portal without major changes in positioning or set-up for the transitioning transtibial surgeon. It's important to use devices and instrumentation that make those steps easy and reliable.

2a. How do you reduce the concern about back wall blow out when drilling the femoral tunnel through the medial portal without an offset guide?

For some surgeons, offset guides provide a comfort zone to reduce the concern about back wall blow out when drilling the femoral tunnel. One technique that helps is to introduce the desired offset guide through the medial portal, not the tibial tunnel, hooking the guide to the back wall of the lateral condyle. With the offset guide positioned through the medial portal on the lateral condyle, it can be rotated down to mark the safe depth of pin placement to preserve a sufficient

back wall. Do not drill the pin through the femur using the offset guide as this will create an unfavorable pin trajectory, but use it only to confirm that the defined center of your femoral ACL footprint is sufficiently anterior to avoid back wall compromise. This provides additional mental comfort that you have visualized and selected a position centered within the femoral footprint that will not blow out posteriorly even in small knees. With experience, surgeons will find that they are better at identifying the center of the femoral footprint and measuring the dimensions of the footprint using a probe or small ruler. In this regard, the offset devices are certainly not necessary but may be a helpful technique to transition for the transtibial surgeon who is used to them.

3. How does patient positioning/leg flexion vary when performing a transtibial or medial portal anatomic ACL reconstruction procedure?

Most transtibial surgeons are familiar with instrumenting and preparing the ACL sockets with the knee hanging at 90 degrees of flexion at bedside, or slightly greater than 90 degrees.

Surgeons who prefer that degree of flexion have the option of a two incision surgery. This procedure does involve more surgery, more dissection, and possibly more OR time. However, a two incision surgery remains an excellent surgical technique for independent drilling and anatomic graft configuration.

The medial portal technique with straight-pin and straight-reamer devices requires hyperflexion of the knee. This is necessary for safe clearance of the medial femoral condyle with reamer passage as well as to maximize femoral socket length.

Transitioning from transtibial to anatomic ACL reconstruction with non-flexible, medial portal reamers requires a fundamental change in the way surgeons have been setting up and doing these cases. Sufficient hyperflexion is often not possible with the leg hanging off the side of the bed. It may require bringing the leg on the table or removing the base of the bed. This transition requires a fundamental change in the way surgeons have been setting up and doing these cases.

4. How do you overcome the challenges of hyperflexing when transitioning from transtibial to medial portal anatomic ACL reconstruction procedures?

Visualization can be lost with hyperflexion. A large fat pad can block the ability to directly monitor the reamer position and depth in hyperflexion. Experienced surgeons have modified portal placement and arthroscope position to overcome these difficulties, but it may be uncomfortable for the transitioning surgeon to ream an instrument in this position if it is not done routinely.

Flexible reaming addresses some of those concerns. The flexibility of the pin affords medial femoral condyle clearance and superolateral trajectory to achieve sufficient socket length without positioning in extreme hyperflexion

In this regard, the CLANCY curved femoral guide and flexible drill instrumentation allows transitioning surgeons to avoid poor visualization and short sockets with minimal modifications in their traditional techniques.

The CLANCY system also helps to overcome the problem created by variability in hyperflexion. Hyperflexion is often “in the eyes” of the surgeon. It may be 100 degrees for some but 130-140 degrees for others. We often lack insight into the limitations our set-up has created to achieve the desired hyperflexion. Many surgeons are experiencing very short tunnels because the hyperflexion on the table is less than what would have been achieved with a different setup.

5. Why do you prefer the CLANCY Anatomic Cruciate Guide/flexible Drill System?

I prefer the CLANCY Anatomic Cruciate Guide/Flexible Drill System for a number of reasons:

1. It has reliably allowed me to achieve anatomic socket position on the femoral side independent of my tibial tunnel position or variability in patient anatomy. In this regard, I have been able to guide the placement of my socket based on patient-specific, footprint anatomy and not based on technical convenience of the tools available to prepare the femoral socket.
2. The CLANCY system reliably allows for preparation of longer femoral sockets, as it can achieve a favorable superolateral trajectory from the anatomic center of the femoral footprint. Short sockets have been an issue with rigid instruments used in the medial portal even for adept surgeons, and are a concern for insufficient tendon-bone interface for healing with soft tissue grafts.

3. The CLANCY system allows for preserved visualization through every step of instrumentation, including guide pin placement and femoral reamer passage. This improves comfort for transitioning surgeons who may not be comfortable with “blind” reaming in hyperflexion.

6. What technique tips would you recommend to a surgeon when utilizing the CLANCY Anatomic Cruciate Guide/Flexible Drill System?

Guide:

There is a technique to holding the CLANCY curved femoral guide that affects your tunnel length. The guide should be centered in the femoral footprint for anatomic, single-bundle reconstruction in every case. However, the obliquity with which the guide is held will affect socket length and aperture geometry. If you hold the CLANCY curved femoral guide relatively oblique and vertical, more parallel to the wall of the lateral condyle, you will get a very long tunnel and larger, oval aperture geometry. This is helpful for soft tissue grafts in which sufficient tendon-bone interface is critical for healing. Holding the guide more perpendicular to the wall will result in relatively shorter sockets and circular aperture geometry. This may be favorable for bone-tendon-bone grafts in which only 25mm sockets are necessary for seating and fixation of a bone plug.

Closing Statement:

The growing body of peer-reviewed literature is providing increasing support for anatomic reconstruction of the ACL. It appears to be biomechanically and kinematically favorable for the knee. In this regard, independent drilling techniques that prioritize restoration of footprint anatomy and graft obliquity are critical for us to reliably improve our outcomes.

Surgeons should use whichever technique is reliable and reproducible in their hand to achieve these results. In my opinion, the CLANCY flexible reaming system affords many advantages to make this a technically easy transition for the transtibial surgeon. I have been fortunate as a young surgeon to learn these techniques from adept clinicians such as Drs. David Altchek, Russell Warren and Answorth Allen at the Hospital for Special Surgery. I give them and Dr. William Clancy great credit for helping me to be a better ACL surgeon in my own practice.

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