

## Technical Note

# A View From Above: A Modified Patel's Medial Midpatellar Portal for Anterior Cruciate Ligament Arthroscopic Surgery

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**Abstract:** The use of flexible positions based on the surgeon's need to address specific pathology has been advocated in arthroscopic surgery. In this report we reappraise the midpatellar portals popularized by Patel and present a technique modification of the medial midpatellar portal (mMPP) focusing on its use in anterior cruciate ligament primary and revision arthroscopic surgery. The modified mMPP is established under arthroscopic control from a high anterolateral portal. Its location is more proximal than the original Patel's mMPP. The nearly vertical orientation of the arthroscope and its proximity to the midline offer a wider and almost face-to-face visualization of the intercondylar notch in the coronal plane, which would provide advantages over standard portals. The anteromedial and anterolateral portals may both be used as working portals without crowding because the arthroscope is cranially located. The need to perform notchplasty is reduced, minimizing bleeding from trabecular bone. Aggressive soft-tissue processing in the intercondylar notch to improve visualization is seldom required. The recipient site is less devascularized, which may promote autograft healing. The modified mMPP may also facilitate femoral tunnel placement and setting of an interference screw. It is safe and reproducible and may add to the diagnostic and working capabilities of the knee arthroscopist. **Key Words:** Knee arthroscopy—Portal—Anterior cruciate ligament.

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The choice of portal placement in knee arthroscopic surgery is instrumental to a successful procedure. Portal selection is usually based on the best visualization and maneuvers in relation to the index surgery. A variety of fixed portal locations have been described, and the use of flexible positions based on the surgeon's need to address specific pathology in each individual case has been advocated.<sup>1</sup> On the basis

of this perspective, reappraising and possibly improving portal placements less routinely used in knee arthroscopy surgery and defining their applicability to specific procedures may help surgeons choose the optimal portal(s).

In this report we describe the midpatellar portals (MPPs) popularized by Patel<sup>2,3</sup> and present a technique modification of the medial MPP (mMPP) specifically focusing on its use in anterior cruciate ligament (ACL) primary and revision arthroscopic surgery. The theoretic advantages are discussed, and intraoperative images comparing visualization via a modified Patel's mMPP with the view offered by standard accesses are illustrated. Finally, the pertinent literature is reviewed in brief.

### PATEL'S MPPs

The original MPPs popularized by Patel<sup>2</sup> in 1981 are located at the medial and lateral border of the widest cross section of the patella.<sup>3</sup> The use of a 30°

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*The authors report no conflict of interest.*

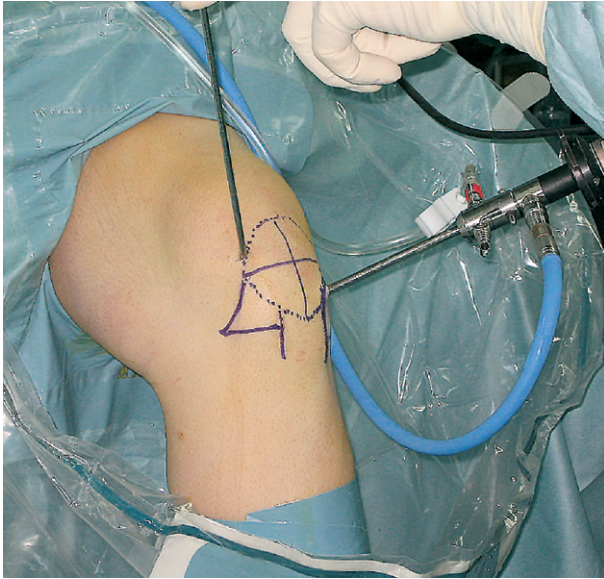
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*Cite this article as: Calvisi V, Lupparelli S, Giuliani P. A view from above: A modified Patel's medial midpatellar portal for anterior cruciate ligament arthroscopic surgery. Arthroscopy 2007;23:324.e1-324.e5 [doi:10.1016/j.arthro.2006.07.040].*

0749-8063/07/2303-6103\$32.00/0

doi:10.1016/j.arthro.2006.07.040



**FIGURE 1.** Operating field of left knee from medial oblique view. The high anterolateral portal (ALP) is exploited to establish the modified medial midpatellar portal (mMPP). Use of a trial needle for optimal placement is recommended. A switching rod is introduced along the longitudinal shallow gutter of the superomedial facet of the medial patellar facet (the anatomic explanation of which is given within the text). The cannula is then shifted from lateral to medial and gently pushed in a cephalad-caudad direction along the switching rod. The almost vertical orientation of the switching rod, which approaches the joint midline at a very acute angle in the coronal plane, should be noted. This allows a wide midline view of the intercondylar notch. The modified mMPP has been shifted more proximally than the original Patel's mMPP so that the arthroscope can be tilted more vertically, improving the depth and width of visualization and maintaining equidistance between the medial and lateral wall of the notch.

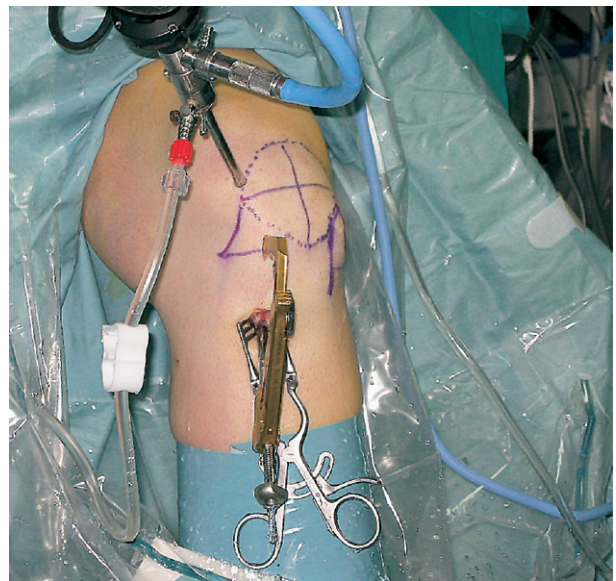
arthroscope is strongly suggested to best exploit these portals. The MPPs were devised to improve visualization of the anterior, medial, and lateral knee structures, as well as the popliteal tunnel. Furthermore, triangulation without crowding is usually possible even when several working instruments are simultaneously introduced into the joint. Reported disadvantages include poor visualization of the posterior meniscal horns and of the posterior cruciate ligament, particularly at its tibial insertion.<sup>4</sup>

#### PLACEMENT OF MODIFIED mMPP

We have been using a modified Patel's mMPP for ACL primary and revision arthroscopic procedures since 1981. The modification was devised during our surgical practice at the Knee and Arthroscopy Unit at the Bormio and Sondalo Hospitals, Sondrio, Italy (A. Branca and M. Magi, personal communication, Sep-

tember 1981). We agree with other authors that the anterolateral portal (ALP) should be placed as proximally as possible, taking care to avoid any impingement between the arthroscope and the lateral femoral condyle.<sup>1</sup> The high portal is located at the apex of a triangle whose medial and lateral sides are formed by the patellar lateral margin and the lateral condyle profile, respectively. The modified mMPP is subsequently established by use of transillumination and a trial needle. Its location is more proximal than the original Patel's mMPP and takes advantage of the subdivision of the medial patellar facet into an inferolateral and superomedial facet by a distally and medially oriented ridge. The latter is a longitudinal shallow gutter along which the arthroscope glides during joint access. The cannula is then shifted from lateral to medial and gently pushed in a cephalad-caudad direction along a switching rod previously inserted as vertically as possible with reference to the coronal plane (Fig 1). An anteromedial portal (AMP) is subsequently established as a working portal. The proximal location of the modified mMPP allows the arthroscope and working instruments to be used on the same side without crowding (Fig 2).

The nearly vertical orientation of the arthroscope and its proximity to the midline offer an almost face-to-face



**FIGURE 2.** Operating field of same left knee shown in Fig 1 from medial oblique view. An anteromedial portal (AMP) is placed as a working portal. The high location of the modified medial midpatellar portal (mMPP) allows maneuvering without crowding. The anterolateral portal (ALP) is used as an additional working portal as needed.

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