A Contemporary International Expert Consensus Statement on the Evaluation, Diagnosis, Treatment, and Rehabilitation of Injuries to the Posterolateral Corner of the Knee

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Purpose: To use a modified Delphi technique to generate an expert consensus statement on the evaluation, diagnosis, treatment, and rehabilitation of posterolateral corner (PLC) injuries of the knee. **Methods:** A 5-individual working group developed a list of 62 statements regarding PLC injuries for use in a 3-round modified Delphi series. Ultimately, 40 statements were retained, and a 100% participation rate was observed in all rounds. Consensus for each statement was quantified. **Results:** Overall, 82.5% of statements reached consensus. Consensus was reached regarding the following: (1) The dial, posterolateral drawer, and external rotation recurvatum tests, magnetic resonance imaging, varus-stress radiographs, and bilateral hip-to-ankle radiographs have diagnostic utility. (2) The presence of concomitant meniscal pathology or neuromuscular injury influences surgical timing. (3) Useful classification systems to guide treatment of PLC injuries currently do not exist. (4) Acute soft-tissue avulsions involving a single stabilizing structure can be repaired. (5) Isolated repair of grade III PLC tears should not be performed without augmentation or reconstruction, and complete grade III PLC injuries should undergo PLC reconstruction. (6) No universally accepted PLC reconstruction technique exists, although the LaPrade technique (anatomic reconstruction of the fibular collateral ligament, popliteus tendon, and popliteofibular ligament using 2 grafts secured in 2 femoral tunnels, 1 fibular tunnel, and 1 tibial tunnel) may confer superior outcomes. (7) There is no consensus on the utility of routine postoperative varus stress radiographs as an objective measure of surgical success. **Conclusions:** Statements that achieved unanimous consensus (all experts stating they "strongly agree") concerned routine use of physical and radiographic evaluations to confirm varus laxity due to PLC injuries and bilateral hip-to-ankle radiographs in the setting of chronic PLC injuries. Individualized treatment based on the presence of concomitant injuries and staged rehabilitation programs are essential. The significance of a grade III posterolateral drawer test in detecting external rotational laxity and whether common peroneal nerve neurolysis should be routinely performed remain in question. No single reconstruction technique confers optimal clinical outcomes. Postoperative varus stress radiographs are not reliable for determining residual laxity. **Level of Evidence:** Level V, consensus of expert opinion.

The posterolateral corner (PLC) of the knee consists of a complex arrangement of capsuloligamentous structures that function as primary and secondary stabilizers against dynamic varus and posterolateral rotary moments throughout knee range of motion (ROM).[1,2] This complexity and the lack of knowledge about diagnosis and reconstruction techniques have made it difficult to establish standardized treatment for PLC injuries. Although an evolving body of literature has accumulated on the biomechanical implications of PLC injuries and the outcomes of both conservative and surgical management,[3-5] controversy still exists regarding the evaluation and management of these injuries. Appropriate treatment of PLC injuries necessitates a comprehensive understanding of several components of the clinical pathway including diagnosis, injury classification, treatment approach, and rehabilitation. Although prior attempts have been made to develop evidence-based, expert consensus statements to generate best-practice guidelines, heterogeneity in recommendations persists. In addition, several critical areas remain without evidence-based guidelines.[6] Therefore, re-evaluation of this topic in light of contemporary evidence and advancements in knowledge since prior statements is important both to provide an updated PLC injury treatment framework and to guide clinicians and researchers as to where additional empirical evidence is needed.

Further standardization of diagnosis and treatment recommendations will allow for improved care of patients with PLC injuries of the knee. Moreover, understanding how guidelines have changed and where new recommendations have emerged is valuable to advance care. The purpose of this study was to use a modified Delphi technique to generate an expert consensus statement on the evaluation, diagnosis, treatment, and rehabilitation of PLC injuries of the knee. We hypothesized that this updated consensus would allow for the establishment of refined contemporary treatment recommendations and the identification of remaining gaps in the literature that warrant increased attention to further advance patient care.

Methods

Working Group, Survey Development, and Item Inclusion

Five individuals (R.F.L., C.G., A.G.G., K.N.K., J.C.) comprised the working group that was responsible for developing statements for international expert evaluation and candidacy for consensus using a modified Delphi technique. Statements for round 1 created by the working group were based on established clinical knowledge and literature review involving current concepts, original articles, and biomechanical articles on PLC injuries. Deliberation among the individuals in the working group resulted in the creation of 62 initial candidate statements to be included in the first round of the modified Delphi process. Prior to dissemination of the survey to all expert participants for first-round inquiry, the survey was modified to improve the interpretability of statements and consistency of terminology among statements. The working group was also tasked with integrating participant feedback, modifying

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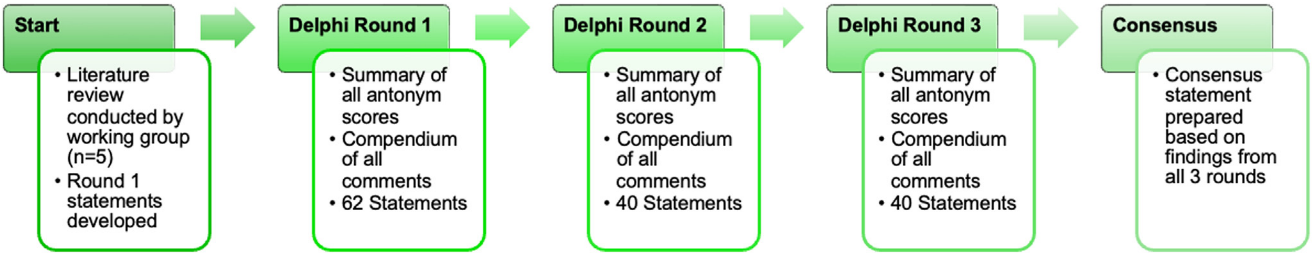

Fig 1. Modified Delphi statement process.

statements where appropriate, and creating surveys for each subsequent round based on prior consensus achievement. Surveys were conducted on 3 separate occasions, after which a final consensus statement was achieved (Fig 1).

All surveys provided to participants in the modified Delphi process contained each of the following 5 sections: Evaluation and Diagnosis of Posterolateral Corner Injuries; Injury Classification and General Treatment Guidelines; Approaches to Management and Treatment: PLC Repair; Approaches to Management and Treatment: PLC Reconstruction; and Recovery and Rehabilitation. On evaluation by experts, each statement within the survey had 5 possible answer choices, presented using a Likert scale, as follows: "strongly disagree," "disagree," "neither disagree nor agree," "agree," and "strongly agree." After each statement, after each section, and at the end of the survey, the experts were provided the opportunity to recommend modifications to current statements and make suggestions for new statements.

Delphi Methodology and Timeline

Consensus statements and sequential evaluation of responses among the 40 experts was conducting using established Delphi and modified Delphi methods.[7,8] An online modified Delphi consensus method was used in this study to provide expert participants with greater flexibility in responding and to allow for efficient communication given the international nature of this study. Additionally, using an online medium is a cost-efficient method to gain expert insight on a topic of interest,[9] with prior evidence confirming reliability in comparison to non-digital Delphi panels.[10,11]

All 3 rounds were completed between September 2024 and January 2025. After completion of the round 1 survey, the working group retained statements that achieved 70% agreement or greater and less than 20% disagreement. The round 2 survey subsequently comprised these retained statements in addition to any new statements suggested by the participants after completion of the round 1 survey that were deemed by the working group to be clinically important modifications or new material. The round 3 survey was created in an identical manner based on responses from the round 2 survey. The median threshold used to define final consensus in Delphi studies is 75% agreement or greater for a given statement,[12] which was also the threshold applied in this study to generate a final consensus statement. Therefore, the working group compiled all statements that achieved 75% agreement or greater (response of agree or strongly agree) and less than 20% disagreement (response of disagree or strongly disagree) on the round 3 survey to develop the final consensus statement.

Statistical Analysis

All analyses of consensus data were performed using Microsoft Excel (Redwood, WA). Consensus statements were generated and disseminated to participants using Google Forms (Mountain View, CA), after which data were exported into predefined spreadsheets to summarize the number of responses for each Likert-scale option per question, as well as the percentage of agreement and disagreement with statements. At each stage, quantification of responses was performed using frequencies with percentages and allowed for evaluation of statements that were eligible to be retained, those that required modification, or those for which no consensus was achieved.

Results

Forty international experts on PLC injuries completed all 3 rounds of surveys, thereby comprising a 100% response rate. A summary of the number of responses, total number of items within each category, number and percentage of items reaching consensus, and number of modifications and new suggested items is depicted in Table 1. Table 2 displays the number and

Table 1. Summary of Results of All 3 Surveys Aimed at Establishing Expert Consensus Statement on PLC Injuries

Delphi Round	Responses, n (%)	Total Items Included in Survey	Items Reaching Consensus, n (%)	Modifications or New Items Suggested
1	40 (100)	62	28 (45.2)	56
2	40 (100)	40	30 (75)	14
3	40 (100)	40	33 (82.5)	0

PLC, posterolateral corner.

Table 2. Consensus Reached Per Category

Category	PLC Delphi Round 1, n (%)	PLC Delphi Round 2, n (%)	PLC Delphi Round 3, n (%)
Evaluation and diagnosis of posterolateral corner injuries	10 of 20 (50)	8 of 11 (72.7)	8 of 11 (72.7)
Injury classification and general treatment guidelines	3 of 14 (21.4)	4 of 6 (66.7)	4 of 6 (66.7)
Approaches to management and treatment: PLC repair	2 of 7 (28.6)	3 of 4 (75)	3 of 3 (100)
Approaches to management and treatment: PLC reconstruction	5 of 10 (50)	7 of 9 (77.8)	9 of 10 (90)
Recovery and rehabilitation	8 of 11 (72.7)	8 of 10 (80)	9 of 10 (90)

PLC, posterolateral corner.

percentage of statements that achieved consensus within each category for each of the 3 survey rounds. A list of the final statements that achieved consensus is available in Table 3. The overall and relative proportion of agreement for individual statements after round 3 is depicted in Figure 2.

Throughout the modified Delphi process, the initial 62 proposed statements were refined to 40 statements, and consensus among participants on statements within each of the 5 categories increased with each subsequent round. The overall consensus rate of the final statements was 82.5%. International experts achieved consensus for 72.7% of statements pertaining to evaluation and diagnosis of PLC injuries, 66.7% of statements relating to injury classification and general treatment guidelines, 100% of statements relating to indications and use of PLC repair, 90.9% of statements relating to indications and use of PLC reconstruction, and 90% of statements relating to recovery and rehabilitation after PLC treatment.

Within the category of evaluation and diagnosis of PLC injuries, discrepancies existed regarding the clinical importance of using a posterolateral drawer test when diagnosing external rotational laxity from a PLC injury. Additionally, experts could not agree on whether postoperative varus stress radiographs should be obtained to diagnose and quantify the severity of PLC injuries and whether these radiographs can discriminate between an isolated grade III fibular collateral ligament (FCL) injury or a complete grade III PLC injury. Finally, disagreement on the arthroscopic lateral-compartment drive-through sign as a reliable indicator of a grade III PLC injury was unable to be resolved (Table 3).

The category of injury classification and general treatment guidelines was the category with the highest discordance rate, with 33.3% of statements (2 of 6) failing to reach consensus. The 2 statements in this category that failed to achieve consensus among experts addressed whether a useful PLC injury classification system presently exists to guide final treatment decisions and whether common peroneal nerve neurolysis should be indicated at the same time as a PLC reconstruction to avoid iatrogenic injury to the common peroneal nerve.

Discussion

The main findings of this study are as follows: (1) Among an international cohort of participants with expertise in treating PLC injuries of the knee, consensus through a modified Delphi approach was achieved on most statements (82.5%) pertaining to evaluation, diagnosis, treatment, and rehabilitation; (2) statements concerning the management and treatment of PLC injuries with surgical repair or reconstruction techniques, as well as the rehabilitation of PLC injuries, achieved the highest relative consensus among experts; and (3) areas concerning the optimal approach for the diagnosis and treatment of PLC injuries, as well as the clinical utility of existing classification systems and general treatment guidelines, reached majority consensus but the lowest overall concordance, suggesting that ongoing discrepancies for best practices in these areas remain prevalent.

Recommendations concerning the limited utility of repair techniques during surgical treatment of PLC injuries, reconstruction of PLC injuries, and optimal rehabilitation practices reached a high level of consensus (100%, 90%, and 90%, respectively). Experts agreed that in patients presenting with complete grade III PLC midsubstance tears, isolated repair should not be performed. Established literature suggests that complete reconstruction of the torn PLC structure, as opposed to repair, may provide patients with improved outcomes and a decreased likelihood of failure and recurrent instability.[13,14] However, if a patient with an acute grade III PLC injury consisting of a bony avulsion involving the FCL, popliteus tendon (PLT), popliteofibular ligament (PFL), or biceps femoris is seeking treatment, repair may be considered in this instance based on most expert opinions. In this circumstance, the native anatomy can be maintained without sacrificing the opportunity to perform reconstruction at a later date in the event of repair failure.[13,15] Finally, in the setting of acute injuries, experts came to a consensus that secondary PLC restraints (e.g., biceps femoris avulsion, lateral capsule damage, and iliotibial band avulsion) should be repaired in conjunction with primary PLC reconstruction when amenable.[5] Regarding PLC reconstruction, experts agreed that in the setting of a complete grade III PLC injury (FCL, PLT,

Table 3. Round 3 Survey Levels of Agreement and Disagreement for All Statements

Statement	% Disagreement	% Agreement
Evaluation and diagnosis of posterolateral corner injuries		
A comprehensive physical and radiographic evaluation is recommended in the setting of PLC injuries.	0	100
A grade III posterolateral drawer test should be performed when diagnosing external rotational laxity from a PLC injury.	5	72.5*
A positive grade III posterolateral drawer test indicates injury to the popliteus complex structures.	2.5	87.5
A positive grade III dial test demonstrates increased external rotation laxity in the setting of a PLC injury.	2.5	95
The varus stress test at 0 and 20 degrees of knee flexion is an important physical examination maneuver for the diagnosis of varus laxity due to a FCL and/or complete PLC injury.	0	100
The external rotation recurvatum test (increased heel height compared to the contralateral knee) is suggestive of a complete PLC injury in combination with an ACL injury.	7.5	77.5
Magnetic resonance imaging is the most sensitive imaging modality to diagnose suspected acute grade III PLC injuries.	7.5	82.5
Magnetic resonance imaging is not highly sensitive to diagnose a suspected grade III chronic PLC injury.	7.5	82.5
Varus stress radiographs should be obtained to diagnose and quantify the severity of PLC injuries and can determine the difference between an isolated grade III FCL injury or a complete grade III PLC injury.	7.5	70*
Bilateral hip to ankle mechanical axis x-rays radiographs should be obtained in the setting of chronic PLC injuries.	0	100
An arthroscopic lateral compartment drive-through sign is a reliable indicator of a grade III PLC injury.	7.5	67.5*
Injury classification and general treatment guidelines		
There is no useful PLC injury classification system presently to guide treatment decisions.	7.5	70*
Concurrent meniscal pathology, such as radial, root or bucket handle tears, can influence the surgical timing of acute grade III PLC injuries.	10	77.5
The presence of an associated neurovascular injury influences the surgical timing of acute grade III PLC injuries.	5	85
A common peroneal nerve neurolysis is indicated in cases of PLC reconstructions to avoid iatrogenic injury to the common peroneal nerve.	12.5	72.5*
A neurodiagnostic study should be performed in patients with PLC injuries with clinical evidence of complete common peroneal nerve dysfunction.	7.5	77.5
It is important to differentiate between an isolated FCL, isolated popliteus tendon (PLT), and a complete PLC injury (i.e., FCL, PLT, and PFL).	0	97.5
Approaches to management and treatment: PLC repair		
An acute grade III PLC injury with a direct soft tissue avulsion from bone involving a single stabilizing structure (FCL, PLT, PFL, biceps) may be considered for repair.	7.5	87.5
Isolated repair of complete grade III PLC (FCL, PLT, PFL) midsubstance tears without augmentation or reconstruction should not be performed.	7.5	90
Repair of secondary PLC restraints (biceps avulsions, lateral capsule, iliotibial band avulsions) should be performed in conjunction with primary PLC reconstruction in acute injuries.	2.5	97.5
Approaches to management and treatment: PLC reconstruction		
An anatomic posterolateral corner reconstruction should be performed for complete grade III PLC injuries (FCL, PLT, PFL).	0	97.5
In chronic injuries, varus malalignment should be corrected with a valgus producing high (proximal) tibial osteotomy prior to, or at the time of, a PLC reconstruction.	0	92.5
Minimally invasive techniques (arthroscopic/mini open) should be used with caution in the treatment of PLC injuries.	7.5	82.5
What is the optimal reconstruction technique for grade III PLC injuries that best restores knee stability and function?	35*	65 (LaPrade)*
The LaPrade technique is preferred in cases of concomitant PLC and tibiofibular instability or significant posterior instability.	5	90
There is no reported difference in outcomes when utilizing autografts versus allografts for PLC reconstruction.	5	87.5
Complete grade III PLC reconstructions should include a reconstruction of the popliteofibular ligament (PFL).	7.5	85
Concurrent single-stage reconstruction of the PLC and combined cruciate and medial collateral ligament injuries is recommended rather than a two-stage reconstruction approach.	7.5	87.5
The FCL should be secured with the knee at 20-30 degrees of flexion during a PLC reconstruction.	0	97.5
The PLT and PFL should be tensioned at 60 degrees of knee flexion during an anatomic complete PLC reconstruction using the LaPrade technique.	0	82.5

(continued)

Table 3. Continued

Statement	% Disagreement	% Agreement
Recovery and rehabilitation		
A sequential staged rehabilitation program (range of motion, muscular endurance, strength, agility, power, and return to sport drills) is important for a successful outcome after treatment of a PLC injury.	0	100
An individualized rehabilitation strategy is recommended based on the concurrent surgical procedures for treatment of concomitant injuries.	0	100
An early mobilization protocol (starting with range of motion on postoperative day one) is recommended to avoid arthrofibrosis after a posterolateral knee surgery.	2.5	95
Use of a range of motion limiting knee brace (e.g., knee immobilizer or lockable hinged brace) for all but daily physical therapy exercises is recommended for the initial 6 weeks following nonsurgical or surgical management of a PLC injury.	0	97.5
Limited weight bearing (non-weight bearing or toe-touch weight bearing) with a brace is recommended for a minimum of 6 weeks following a complete PLC reconstruction.	12.5	75
Six months is the minimum time before which a patient who undergoes an isolated PLC repair or reconstruction should initiate return to sport activities.	2.5	87.5
Objective functional tests are required for clearance for return to sport after a PLC repair or reconstruction.	0	95
Postoperative varus stress x-rays or a clinical assessment of residual laxity are recommended for objective validation of the success of the surgical procedure before clearance for return to impact and pivoting sports.	17.5	62.5*
Postoperative varus stress radiographs can confirm the ability of a PLC repair or reconstruction to restore stability compared to the contralateral normal knee.	5	90
Prior to return to sport, a comparative isokinetic assessment should be performed to determine the functional strength and endurance of the postoperative limb to ensure it has regained sufficient strength (>85% limb symmetry index) and performance levels necessary for a safe return to sporting activity.	5	85

ACL, anterior cruciate ligament; FCL, fibular collateral ligament; PFL, popliteofibular ligament; PLC, posterolateral corner; PLT, popliteus tendon.
*Item did not achieve greater than 75% consensus.

and PFL tear), anatomic reconstruction should be performed with the addition of PFL reconstruction. Because the PFL is one of the main static stabilizers of the PLC, reconstructing this ligament is important for restoring native knee stability.[16] In patients with chronic PLC injuries and varus malalignment, PLC reconstruction should be accompanied by a valgus-producing high (proximal) tibial osteotomy at the time of PLC reconstruction or staged prior to PLC reconstruction to correct the varus malalignment.[17] Normally, a medial opening-wedge high (proximal) tibial valgus osteotomy is performed, but a femoral valgus osteotomy or a double-level osteotomy can be considered according to the site of deformity. In comparison to prior literature, expert opinions regarding hybrid procedures (reconstruction of primary stabilizers and repair of secondary restraints) and PLC repair in the setting of bony avulsions have remained similar over time.[6]

Consensus could not be achieved on the optimal reconstruction technique for grade III PLC injuries. Experts were prompted to select 1 of 4 options as the optimal reconstruction technique: (1) LaPrade technique (described as anatomic reconstruction of the FCL, PLT, and PFL using 2 grafts secured in 2 femoral tunnels, 1 fibular tunnel, and 1 tibial tunnel; selected by 65% of experts)[18-20]; (2) modified Larson technique (described as reconstruction using a single femoral and fibular tunnel with a looped graft; selected by 0% of experts)[21]; (3) Arciero technique (described as reconstruction using 2 femoral tunnels with a single fibular tunnel and a looped graft; selected by 20% of experts)[22,23]; or (4) other (selected by 15% of experts). Of the experts who selected “other,” many stated that they would select either the LaPrade or Arciero technique depending on the case and therefore could not recommend either technique in all circumstances. For example, an expert stated that in the case of an isolated chronic grade III PLC injury, he or she always performs PLC reconstruction using an anatomic LaPrade technique; however, for patients with acute grade IV knee dislocations with risk of tunnel confluence, he or she elects to use the Arciero technique. Regardless of the optimal reconstruction technique used for the treatment of PLC injuries, there was consensus on using the LaPrade technique in cases of concomitant PLC and tibiofibular instability or significant posterior instability. Additionally, experts agreed that concurrent single-stage reconstruction of the PLC and concomitant cruciate and medial collateral ligament injuries is recommended over a 2-stage reconstruction approach. The anatomic LaPrade technique and the Arciero technique were proposed to be the 2 optimal techniques for PLC reconstruction owing to their ability to restore rotational and varus stability.[24-26] Biomechanical studies have found these techniques to be equally efficacious at

Fig 2. Stacked bar chart depicting breakdown of round 3 Delphi survey results based on percentage of disagreement, neutrality, or agreement. Question 24 is not depicted because it did not use a Likert scale. Experts were queried on the optimal reconstruction technique for grade III posterolateral corner (PLC) injuries and were provided with several options, including the LaPrade technique, modified Larson technique, and Arciero technique.

restoring stability after a PLC injury.[26] Although surgical techniques may be chosen on an individual basis, most experts indicated that the LaPrade technique is optimal. Specific situations such as proximal tibiofibular instability, recurvatum, and combined posterior cruciate ligament injuries are key targets for future research regarding comparisons of the LaPrade and Arciero techniques.

Several other statements regarding the details of PLC reconstructions reached consensus. Indeed, experts agreed that there is no meaningful difference when using autograft versus allograft in PLC reconstruction and that minimally invasive techniques (arthroscopic or mini-open procedures) should be used with caution in patients with PLC injuries. The results of a meta-analysis support this statement,[27] showing that there was a significant difference in Lysholm scores between allograft and autograft (favoring autograft) but there were no significant differences in objective outcomes or failure rates based on graft type selected.[28] This opinion mirrors that of a prior Delphi consensus statement in which consensus was achieved regarding the lack of a role for minimally invasive surgery in the management of PLC injuries.[6] Finally, experts agreed that during PLC reconstruction, the FCL should be secured with the knee at 20° to 30° of flexion and the PLT and PFL should be secured at 60° of knee flexion.

Although the utility of postoperative varus stress radiographs or clinical assessment of residual laxity as a tool to validate surgical success (i.e., a stable knee) prior to return to sport is undetermined at this time,[29-31] all experts agreed that a sequential staged rehabilitation program (ROM, muscular endurance, strength, agility, power, and return-to-sport drills) is important for a successful outcome after treatment of a PLC injury.[32] Furthermore, all experts agreed that a rehabilitation protocol should be constructed based on the concurrent procedures performed in addition to whether a repair or reconstruction was used to treat the PLC injury. Most experts also believed that an early mobilization protocol (which includes ROM on postoperative day 1) is strongly advised to prevent arthrofibrosis from occurring postoperatively. In addition, most experts reported that the use of a ROM-limiting brace (e.g., a knee immobilizer or lockable hinged brace) at all times (except during daily physical therapy exercises) is recommended for the first 6 weeks postoperatively. This bracing regimen was also recommended to be implemented for patients with PLC injuries being managed nonoperatively. In individuals who undergo complete PLC reconstruction, limited weight bearing (non−weight bearing or toe-touch weight bearing) with a brace is recommended for at least 6 weeks after the reconstruction procedure.

Experts also reached consensus on statements pertaining to returning to sport after sustaining a PLC injury. Objective functional assessments were recommended to be required for clearance in individuals looking to return to sport after PLC repair or reconstruction. To ensure that the strength and endurance of the postoperative limb are sufficient prior to returning to sport, a comparative (relative to uninjured limb) isokinetic assessment should be conducted. Consensus was also reached on the timing of return to sport activities after a minimum of 6 months of rehabilitation.

Given the potential for misdiagnosis and the effect of knee stability and functional outcomes, it is imperative that clinicians successfully detect PLC injuries to prevent substantial delays in treatment. A comprehensive physical and radiographic evaluation is a crucial starting point. On the basis of data from this study, there is consensus on the following: (1) The use of several existing physical examination maneuvers can diagnose PLC injuries; (2) the dial test is successful in detecting increased external rotational laxity[33-35]; (3) injury to the popliteus complex can be determined by conducting the posterolateral drawer test[35,36]; (4) varus stress testing of a flexed knee can sufficiently diagnose varus laxity; and (5) a complete PLC injury with a concomitant anterior cruciate ligament injury is suggested during the external rotation recurvatum test following the rationale of the heel-height test.[37,38] However, there is still no consensus on the use of a grade III posterolateral drawer test to diagnose external rotational laxity from a PLC injury, putting into question the clinical value of this maneuver.[39] Future work should be conducted to clarify the validity of the posterolateral drawer test in diagnosing PLC injuries.

Regarding imaging techniques, there was consensus on magnetic resonance imaging being sufficiently sensitive to diagnose acute grade III PLC injuries. However, experts concluded that magnetic resonance imaging was not sufficiently sensitive to routinely diagnose chronic grade III PLC injuries.[40] Additionally, consensus was reached on the use of bilateral hip-to-ankle mechanical radiographs as a diagnostic tool in the setting of chronic PLC injuries to assess for varus alignment. Experts did not reach a consensus on the use of varus stress radiographs to diagnose and quantify the severity of PLC injuries or to determine the difference between an isolated grade III FCL injury and a complete grade III PLC injury.[29-31,41,42] In terms of surgical approaches to diagnosis, experts agreed that arthroscopic evaluation of PLC injuries may be important to confirm the diagnosis and create a proper treatment plan. However, consensus was not achieved on whether the arthroscopic lateral-compartment drive-through sign is a reliable indicator of the diagnosis of a grade III PLC injury.[43] After round 3 of the modified Delphi consensus process, experts agreed that there is currently no useful classification system in place to guide treatment decisions for PLC injuries. It is important that future classification systems allow clinicians to distinguish between an isolated PLT injury, an isolated FCL injury, and complete PLC injuries (i.e., FCL, PLT, and PFL).

Experts did agree that the presence of concomitant injuries and neurovascular findings impact decisions regarding treatment. Consensus was reached that the presence of an associated neurovascular injury or presence of concurrent meniscal pathology (i.e., radial, root, or bucket-handle tear) with a PLC injury influences surgical timing in patients with acute grade III PLC injuries. Furthermore, patients with symptoms suggestive of common peroneal nerve dysfunction in addition to the PLC injury should receive neurodiagnostic testing. However, there was no agreement on whether common peroneal nerve neurolysis is indicated in all individuals at the time of PLC reconstruction regardless of symptoms.

Limitations

Several limitations should be considered in the context of the current study results. First, round 1 survey statements were developed from the combination of a literature review and the real-world clinical experiences of the working group; as such, there may be topics pertaining to PLC injuries not addressed in this consensus statement that hold a degree of clinical relevance and warrant further research. Second, all modifications after each round of statements were provided by the expert panelists based on a combination of clinical experience and literature review. Finally, geographic differences including access to resources, socioeconomic factors, and cultural differences may limit the generalizability of the proposed recommendations in certain patient populations (e.g., regarding routine acquisition of stress radiographs in patients with concerns for PLC injuries, access to allografts, or access to specific surgical implants).

Conclusions

Statements that achieved unanimous consensus (all experts stating they "strongly agree") concerned routine use of physical and radiographic evaluations to confirm varus laxity due to PLC injuries and bilateral hip-to-ankle radiographs in the setting of chronic PLC injuries. Individualized treatment based on the presence of concomitant injuries and staged rehabilitation programs are essential. The significance of a grade III posterolateral drawer test in detecting external rotational laxity and whether common peroneal nerve neurolysis should be routinely performed remain in question. No single reconstruction technique confers optimal clinical outcomes. Postoperative varus stress radiographs are not reliable for determining residual laxity.

Disclosures

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