6 The Optimal Indication for Patellofemoral Arthroplasty

Stefano Pasqualotto, Marco Valoroso, Giuseppe La Barbera, and David Dejour

Keynotes

1. Patellofemoral (PE) osteoarthritis is a relatively common disease whose signs are observed in 39% of patients aged over 30 suffering from knee pain.
2. Patient's related risk factors are female gender and age, whereas increased body mass index (BMI) is not considered a specific risk factor even though it is frequently encountered in patients with patellofemoral osteoarthritis.
3. Four different etiologies have been identified: primary osteoarthritis, osteoarthritis secondary to the presence of predisposing factors for patellofemoral instability, posttraumatic osteoarthritis, and osteoarthritis secondary to chondrocalcinosis or rheumatic diseases.
4. Knee-related risk factors include trochlear and patellar dysplasia, whereas the effects of patellar height and lower limb malalignment on the pathogenesis of patellofemoral osteoarthritis are still debated.
5. Quadriceps and gluteal muscles, hip abductors, hamstrings, and iliotibial band have also been implicated in the genesis of increased patellofemoral joint stress.
6. Conservative treatment should always be the first option, while non-prosthetic treatment represents a valid alternative in case of mild-to-moderate arthritis.
7. The presence of disabling pain and severely reduced knee function due to high-grade isolated patellofemoral osteoarthritis represents the optimal indication for patellofemoral arthroplasty.
8. The ideal patient for patellofemoral arthroplasty is a non-obese patient, aged less than 60, with severe isolated patellofemoral osteoarthritis secondary to patellofemoral instability or trochlear dysplasia.
9. In case of isolated patellofemoral osteoarthritis associated with predisposing factors for patellofemoral instability, the aim of the patellofemoral replacement is to eliminate osteoarthritis and correct predisposing factors, as in the "menu à la carte" described for objective patellar instability.

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6.1 Introduction

Although prosthetic replacement of the patellofemoral joint represents the logical treatment for end-stage disease of the patellofemoral joint, it still remains a controversial option among many knee surgeons. Despite the first successful attempt by McKeever to replace the patellar surface using a Vitallium shell in 1955 [1] and then the promising results of the first patellotrochlear replacements by Blazina, the enthusiasm of surgeons toward artificial replacement of the patellofemoral joint has always been fluctuating [2]. The outcomes of the first implants were considered too unpredictable and inconsistent in comparison to those obtained with total knee arthroplasty. Particularly, shortcomings in the available designs, difficulty in proper positioning of the implant, and failure to address correctly the underlying pathology were the main reasons for this lack of confidence.

Recently, however, there has been a renewed interest in the use of patellofemoral arthroplasty and a growing tendency in believing that patellofemoral arthroplasty has a well-defined place in the treatment of end-stage patellofemoral osteoarthritis (OA). The recent trend toward less invasive surgery as well as the revival of selective, unicompartmental resurfacing options has aroused the orthopedic industry to increase the efforts in improving patellofemoral prosthesis toward a more anatomic design. Meanwhile, a better understanding of biomechanics of patellofemoral joint and pathophysiology of patellofemoral disorders has led to a more precise definition of the proper indications for patellofemoral arthroplasty. As with other surgical interventions, successful clinical outcome for patellofemoral arthroplasty depends on appropriate patient selection and indication, as well as surgical technique and postoperative care.

Side Summary
A better understanding of biomechanics of patellofemoral joint and pathophysiology of patellofemoral disorders has led to a more precise definition of the proper indications for patellofemoral joint and a renewed interest in the use of patellofemoral arthroplasty.

6.2 Epidemiological Data

Epidemiological studies reported an overall prevalence of patellofemoral OA of 25% in asymptomatic population, while this percentage increases to 39% in people aged over 30 who suffer from knee pain [3].

Like OA of the femorotibial compartment, patellofemoral OA is found predominantly in females (72%) with 51% of the patients having bilateral symptoms, starting at the age of 46. Taking into account other risk factors, even though BMI is not statistically correlated with this type of arthritis, 38% of patients with patellofemoral OA are overweight and 29% are obese [4].

Side Summary
Overall prevalence of patellofemoral osteoarthritis is about 39% in people older than 30 years suffering from knee pain. Higher incidence is found in female, elderly, and overweight patients.

6.3 Etiology of Patellofemoral OA

Four different etiologies [5] have been identified for patellofemoral OA:

1. Primary patellofemoral OA.
2. OA secondary to the presence of predisposing factors for patellofemoral instability.
3. Posttraumatic patellofemoral OA.
4. Patellofemoral OA secondary to chondrocalcinosis or other rheumatic diseases.

Side Summary
Four different etiologies have been identified: Primary patellofemoral osteoarthritis, osteoarthritis secondary to the presence of predisposing factors for patellofemoral instability, posttraumatic patellofemoral osteoarthritis, patellofemoral osteoarthritis secondary to chondrocalcinosis, or other rheumatic diseases.

6.3.1 Primary Patellofemoral OA

Primary OA population (49%) incorporates patients without any orthopedic antecedent and especially any history of patellar dislocation (Fig. 6.1). This kind of OA is often bilateral, with a greater prevalence in women and a mean age at surgery of 58 years [6, 7]. It tends to be well tolerated for a long time, with patients being able to walk normally on level ground, whereas walking on uneven ground, ascending and descending stairs, and steep slopes become progressively more difficult to negotiate. Moreover, patients could complain of a sense of instability, generally due to reflex quadriceps inhibition because of painful stimuli. Catching and locking sensations as the knee flexes are due to patellar osteophytes impinging on the lateral facet of the trochlea and to the bony spurs on the trochlea.

From a radiological point of view, generally both knees are involved. The skyline view shows narrowing of joint space, with bony contact between the lateral patellar facet and the trochlea and patellar subluxation, mainly due to cartilage wear, rather than to extensor mechanism malalignment. Osteophytes are typically on the lateral border of the patella and on the trochlea. A lateral radiograph shows osteophytes at the proximal part of the trochlea, as well as subchondral sclerosis of the patellofemoral joint, and joint space narrowing.

Fig. 6.1 Primary isolated patellofemoral arthritis

Side Summary
Primary patellofemoral osteoarthritis is often bilateral and tends to be well tolerated for a long time. Symptoms generally comprise progressive impairment in ascending and descending stairs associated with catching and locking sensation and a sense of instability.

6.3.2 OA Secondary to Presence of Predisposing Factors for Patellofemoral Instability

The prevalence of patellofemoral OA is about 33% in patients with a history of objective patellar dislocation (Fig. 6.2). In comparison to primary patellofemoral OA, patients in this group are slightly younger, with a mean age at time of surgery of 54 years. The percentage of patients with patellofemoral OA and a history of objective patellar instability is variable in the literature, ranging from 8% to 53% [8–10]. A deeper understanding of biomechanics and anatomical abnormalities of patellofemoral joint in patients with objective patellar instability allowed some deductions on the etiology of osteoarthritic lesions.

Fig. 6.2 Isolated patellofemoral OA secondary to patellofemoral instability

6.3.2.1 Dislocation

Recurrent lateral patellofemoral dislocation has been identified as a significant risk factor for the development of patellofemoral OA [11, 12].

Whenever the patella dislocates, a damage in the patellar cartilage may occur, sometimes producing small articular fractures. Cartilage lesions could be found also on the lateral aspect of the trochlea or even on the lateral condyle, creating mirror-image lesions.

6.3.2.2 Extensor Mechanism Malalignment

Extensor mechanism malalignment is due to an increased distance between the tibial tubercle and the deepest part of the trochlear groove (TT-TG) [13], which increases the dislocating force acting on the patella (Fig. 6.3). In the case of extensor mechanism malalignment, asymmetrical pressure peaks develop on the lateral facet of both the patella and femoral trochlea.

6.3.2.3 Lack of Congruency between the Patella and the Trochlea

Trochlear dysplasia and, to a lesser extent, patellar dysplasia may be responsible for a lack of congruency between the two articular surfaces, making the joint unstable [14–17]. In this scenario, two factors may cause OA.

- Trochlear prominence, in high-grade (B or D) dysplasia according to Dejour classification [18], is responsible for impingement between the patella and femoral trochlea whenever the knee flexes and increases the patellofemoral contact pressures with the knee flexion. Grade 3 and 4 kissing cartilage lesions, typically involving the entire length of the patella, are often found and represent the precursor of OA.
- The asymmetry of trochlear facets, as seen in grade C and grade D of trochlear dysplasia, is responsible for a permanent tilt of the patella, which, in turn, exacerbates the unbalanced

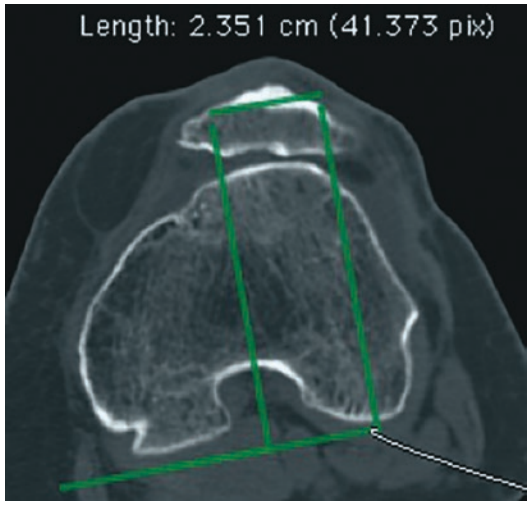

Fig. 6.3 Extensor mechanism malalignment, measured with the distance between the trochlear groove and the tibial tubercle (TT-TG)

contact stress distribution in the patellofemoral joint [14].

Therefore, whenever a young patient shows up with patellofemoral OA, a detailed investigation about any episodes of dislocation should be conducted, and X-rays should be analyzed in depth in order to search for any anatomical abnormalities that may be responsible for patellar instability. Trochlear dysplasia [4] is defined as the most common predisposing factor, and a correlation between higher grade of trochlear dysplasia and higher grade of patellofemoral OA was also found [19].

Side Summary
Osteoarthritis secondary to the presence of predisposing factors for patellofemoral instability is generally found in younger patients. Risk factors are incongruency between trochlea and patella, with high-grade trochlear dysplasia representing the most important predisposing factor, extensor mechanism malalignment, and also number of previous dislocations.

6.3.3 Posttraumatic Patellofemoral OA (9%)

The posttraumatic population (9%) refers to patients with a previous articular patellar fracture. Patellar fractures account for 0.7–1% of all fractures [20] and typically produce patellofemoral OA in the long term [21]. Factors that may promote the development of patellofemoral OA are linked to the mechanism of fracture and accident pattern. A direct shock to the patella, which results in a comminuted fracture, is a well-known source of OA [22, 23]. In the same way, suboptimal treatment of the fracture, with unsatisfactory reduction, gaps >2 mm, and/or residual joint incongruity >1 mm, is likely to result in OA [22–24]. Two other risk factors for the development of patellofemoral OA after patellar fractures are manipulation under anesthesia to mobilize a stiff knee, which leads to diffuse cartilage damage and infections.

From a radiological point of view, the appearance is very variable even though a global patellofemoral OA associated with a patella magna (an enlarged patella overhanging the trochlea on both the medial and the lateral sides) is a common situation.

Side Summary
Posttraumatic patellofemoral osteoarthritis is typically encountered after a patellar fracture. Comminuted fracture and suboptimal treatment represent risk factor for the development of this type of arthritis, whose classic radiographic sign is patella magna.

6.3.4 Patellofemoral OA Secondary to Chondrocalcinosis or Other Rheumatic Diseases (9%)

The pathophysiology of this condition implicates the deposition of microcrystals, generally of calcium pyrophosphate di-hydrate (CPPD), within the joint. Chondrocalcinosis is a metabolic joint

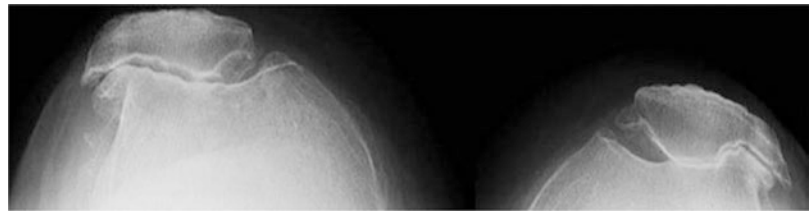

Fig. 6.4 Bilateral chondrocalcinosis

disease, which may affect any joint in the body with a particular predilection for the knee. In the patellofemoral joint, chondrocalcinosis may occur in a form that mimics OA but often occur in a destructive form. Clinical manifestations are characterized by spontaneous serosanguinous effusions of increasing frequency and severity. Otherwise, the signs and symptoms are those of primary OA.

From a radiological point of view, both knees are generally affected. First radiographic signs are represented by thin linear calcium deposit along all or part of the joint line or as distinct densities in the patellar cartilage. With the progression of the disease, the patella is thinned out overall with the lateral facet more involved. The femoral trochlea is also worn or even destroyed, resulting in patellar subluxation (Fig. 6.4). The joint surfaces are indented and irregular, and this aspect distinguishes chondrocalcinosis from primary OA.

Side Summary

Patellofemoral osteoarthritis secondary to chondrocalcinosis is related to the deposition of microcrystals of calcium pyrophosphate dehydrate (CPPD). This type of arthritis is characterized by spontaneous serosanguinous effusions and linear calcium deposits along the joint line, which progress in patellar thinning and trochlear erosion, resulting in patellar subluxation.

6.4 Predisposing Factors for Patellofemoral Osteoarthritis

An accurate radiographic analysis is an important step to identify anatomic risk factors for the development of patellofemoral OA.

6.4.1 Trochlear Dysplasia

Trochlear dysplasia represents the most important risk factor for the development of patellofemoral OA. Among patients with patellofemoral OA, trochlear dysplasia with the presence of crossing sign was found in 78% [4]. The crossing sign represents the convergence between the trochlea and the lateral femoral condyles; in case of a normal development of the knee, the line of the femoral trochlea remains separate and posterior to the projection of femoral condyles. Trochlear dysplasia is found in 96% of patients with objective patellar dislocations; meanwhile, it is detected only in 3% of a control population [25]. These data show that trochlear dysplasia represents a risk factor for the development of patellofemoral OA and moreover, a direct correlation was also found between the severity of trochlear dysplasia and severity of arthritis (Table 6.1, Fig. 6.5) [4, 26]. This was also confirmed by several studies [27, 28] in which magnetic resonance image analysis of the patellofemoral joint revealed more severe cartilage defects, a higher patellofemoral wear, and lower

patellar cartilage volume in patients with trochlear dysplasia, confirming how trochlear dysplasia represents a risk factor for the development of patellofemoral OA.

From a biomechanical point of view, indeed, the trochlear spur increases the contact pressure on the patellofemoral joint in flexion performing a so-called "anti-Maquet effect," whereas the asymmetric trochlear facets are responsible for an unbalanced kinematic of the patellofemoral joint with a permanent patellar lateral riding. Consistent with this, a recent cadaveric study with simulated trochlear deformities [29] showed that the patellofemoral joint in case of trochlear dysplasia, especially types B and D of Dejour classification, presented increased internal rotation with lateral patellar tilt and translation and increased contact pressures with decreased contact areas and stability when compared with a normal anatomy. This finding could explain the short-term effects (maltracking, increased pressures, and instability) and long-term effects (OA) of different types of trochlear dysplasia.

Table. 6.1 Type of trochlear dysplasia and isolated patellofemoral arthritis

	Primary PF arthritis		OA secondary to PF instability	
No dysplasia	44	27%	6	5%
Type A	58	35%	35	29%
Type B	24	14%	44	36%
Type C	21	13%	16	13%
Type D	19	11%	20	17%

6.4.2 Dysplasia of the Patella

Patellar dysplasia is another important risk factor for the development of patellofemoral osteoarthritis. Patellar dysplasia type II of Wiberg classification [17] was found in 42% of patients with patellofemoral OA secondary to instability. This is the framework of a dysplastic patellofemoral joint with a significant relationship between the presence of trochlear dysplasia and a dysplastic patella.

6.4.3 Other Factors

Patellar height represents a determining factor in the development of patellofemoral arthritis, which is still a matter of debate. While some authors did not find any correlation between patella alta and

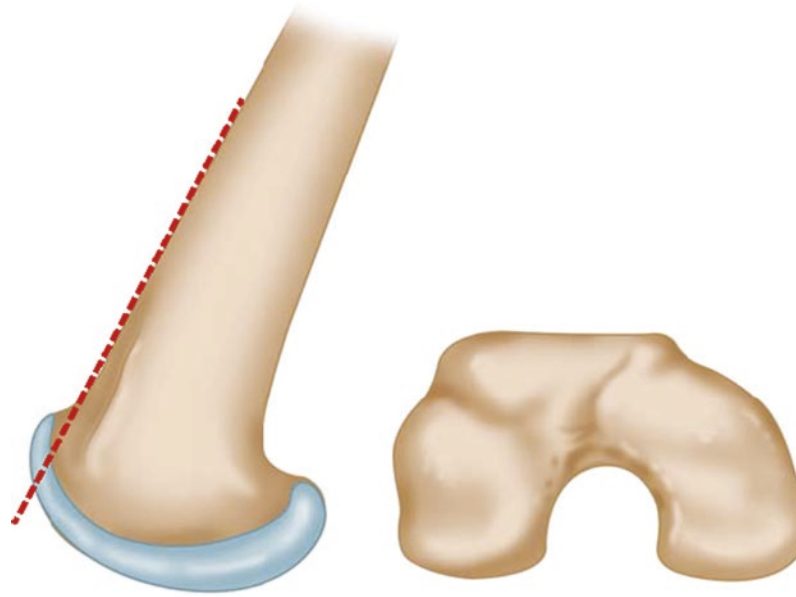

Fig. 6.5 High-grade trochlear dysplasia (type B and type D) is correlated to more severe patellofemoral osteoarthritis

higher risk of developing patellofemoral OA [4], some others reported that patella alta is associated with increased cartilage damage of the patellofemoral joint [30]. Moreover, a recent biomechanical study [31] shows that patellofemoral contact stress increased progressively with knee flexion until contact occurred between quadriceps tendons and the femoral trochlea, inducing load sharing. Patella alta delays this contact until higher grade of flexion, increasing maximal patellofemoral contact force and pressure, whereas the presence of a patella infera significantly rises the contact pressure with the knee extension.

The effect of femoral and tibial rotation on the pathogenesis of patellofemoral OA is still debated. Whereas Dejour and Allain [4] in a computed tomography (CT) scan study did not found a significant correlation between these parameters and arthritis, other biomechanical studies [32, 33] revealed how external tibial rotation increases lateral patellar shift and tilt increasing patellofemoral contact pressure in the lateral compartment.

Influence of limb alignment on patellofemoral OA is also a matter of debate. In the literature, several studies reported that valgus alignment was associated with increased odds of lateral patellofemoral OA [34, 35], whereas other authors did not find any significant correlation between coronal malalignment of the lower leg and increased risk of patellofemoral OA [4].

Quadriceps muscles, hip abductors, gluteal muscles, hamstrings, and iliotibial band (ITB) have also been implicated, in different ways, in the genesis of increased patellofemoral (PF) joint stress. Hart et al. [36] noted a significant reduction in the cross-sectional areas of the vastii and rectus femoris in individuals with patellofemoral OA, suggesting a reduced force-generating capacity. These findings have been also supported by other studies reporting that individuals with patellofemoral OA negotiate stairs with decreased quadriceps force [37] and that lateral cartilage damage and bone marrow lesions were positively associated with quadriceps weakness [38], whereas a strong quadriceps represents a protective factor [39].

The analysis of gluteal muscles in patients with patellofemoral OA revealed that this population showed lower force value in gluteus medius and minimus during level walking and descending stairs in comparison to healthy controls [37]. Moreover, patients with patellofemoral OA also exhibit significantly reduced hip abductor strength [40], which may be responsible for an increased femoral internal rotation with a resultant increased lateral displacement of the patella in the trochlear groove.

The presence of tight hamstrings and a tight ITB have negative consequences on patellofemoral biomechanics. Tight hamstrings, indeed, could contribute to overload the lateral cartilage of the patellofemoral joint, especially in patients with a concomitant extensor mechanism malalignment [41]. In a study of 16 healthy men, those with tight hamstrings exhibited significantly greater lateral patellofemoral compartment joint stress and significantly reduced medial PF compartment contact area during a squat task [42].

The ITB also influences the kinematics of the patellofemoral joint. A tight ITB, indeed, increases lateral tilt and translation of the patella and tibial external rotation, increasing patellofemoral contact pressure [43, 44].

Side Summary

Predisposing factors to patellofemoral osteoarthritis are the presence of trochlear and/or patellar dysplasia, whereas the effects of patellar height and axial and coronal malalignment of the lower limb still represent a matter of debate. Furthermore, quadriceps and gluteal muscles, hip abductors, hamstrings, and iliotibial band have also been implicated in the genesis of increased PF joint stress.

6.5 Therapeutic Consequences

6.5.1 Non-operative Treatment

Conservative treatment should always be considered as the first option. This kind of approach always represents a mixture of non-operative treatment of patellofemoral arthritis and conservative management of conditions that produce patellar pain, such as a tight lateral retinaculum, vastus medialis obliquus (VMO) dysplasia, and core defi-

ciency. Symptoms may be alleviated by weight loss in case of overweight patients, by activity modification, such as avoiding activities like running and squatting and limiting stair climbing, by quadriceps strengthening, water exercises, bracing, non-steroidal anti-inflammatories (NSAIDs), glucosamine–chondroitin, and viscosupplementation [45]. However, in the setting of advanced arthritis, these non-operative treatment options failed to give excellent results, in particular, in a long term [45, 46].

Side Summary
Conservative non-operative treatment always represents the first treatment option. This consists of weight loss; avoidance of worsening activities such as running, squatting, and stair climbing; and promotion of quadriceps and core strengthening and stretching, cycling, and water exercises.

6.5.2 Non-prosthetic Treatment

Non-prosthetic treatment represents a valid alternative especially in case of mild-to-moderate arthritis [47].

In the setting of a primary patellofemoral arthritis without anatomical abnormalities, the results of soft-tissue realignment procedures have not been sufficiently investigated. Release of the lateral retinaculum has been widely performed in case of lateral patellofemoral pain associated with tightness or contracture of the lateral retinaculum and a lateral patellar tilt. However, the results of this procedure in relieving pain are difficult to predict [48]. Among bone procedures, the tibial tubercle osteotomy represents an alternative with the aim of correcting extensor mechanism malalignment, performing a medialization or an anteromedialization [49, 50].

Another valid option in the treatment of mild-to-moderate patellofemoral arthritis is the partial lateral facetectomy, which consists of removal of about 1–1.5 cm of the lateral border of the patella including osteophytes [51]. Partial lateral facetectomy is indicated in case of lateral isolated patellofemoral arthritis and could be associated with lateral release in case of patellar tilt or with internal procedures like medial reefing or an Insall proximal realignment.

Side Summary
Non-prosthetic operative treatment is indicated in case of failure of non-operative treatment in the presence of mild-to-moderate arthritis. Tibial tubercle medialization or anteromedialization has the purpose of correcting extensor mechanism malalignment and reducing patellofemoral pressure, whereas partial lateral facetectomy represents a good solution in case of isolated lateral patellofemoral arthritis.

6.5.3 Patellofemoral Arthroplasty

6.5.3.1 Indication and Contraindications

The best indication for a patellofemoral arthroplasty is the presence of an isolated, degenerative patellofemoral arthritis resulting in persistent pain and functional limitations, which affects daily activities, despite a period of 3–6 months of non-operative treatments. Posttraumatic OA, diffuse grade 3 cartilage degeneration involving the entire trochlea, the medial facet, or proximal half of the patella, and failure of previous extensor unloading surgical procedures represent additional indications [52, 53].

Contraindications to patellofemoral arthroplasty are represented by the presence of tibiofemoral arthritis, a systemic inflammatory arthropathy, such as chondrocalcinosis or rheumatoid arthritis, obesity, the presence of a complex regional pain syndrome, and the presence of psychogenic pain. Moreover, patellofemoral arthroplasty is not indicated in case of severe coronal plane tibiofemoral malalignment (valgus >3 ° or varus >5°), history of meniscal surgery, fixed flexion contracture greater than 10°, limited flexion (< 120°), and a patella infera [52–54].

Moreover, when interviewing and examining patients with patellofemoral arthritis, it is mandatory to look for factors that may adversely influence clinical outcomes and failure rates. The etiology itself represents an influencing factor in the results of this procedure. Several studies [4,

55] reported significantly higher incidence of failure because of progression of femorotibial OA in case of primary arthritis in comparison to arthritis secondary to patellofemoral instability.

Considering patient's risk factors, it is well known that obesity is associated with lower postoperative functional improvement and patient satisfaction and higher failure rate due to progression of tibiofemoral arthritis [56–58]. On the other hand, the presence of trochlear dysplasia is considered a protective factor for the progression of tibiofemoral OA. Several studies in the literature, indeed, showed that patellofemoral OA in the presence of trochlear dysplasia is significantly associated with less progression of tibiofemoral OA and that patellofemoral arthroplasty performed on these patients is correlated with higher patient-reported outcome scores postoperatively [55–57, 59, 60].

Finally, a history of previous multiple knee interventions is reported to adversely affect the outcome of patellofemoral arthroplasty, increasing the risk of stiffness and the need for postoperative manipulations and arthrofibrotic debridement [52, 53].

Side Summary

The optimal indication for patellofemoral arthroplasty is the presence of high-grade, isolated patellofemoral osteoarthritis secondary to the presence of predisposing factors for patellofemoral instability, which severely affects daily activities of a non-obese patient, aged less than 60 years.

6.5.3.2 Technical Considerations

When facing patellofemoral arthritis, two anatomic situations could be encountered; the first is when patellofemoral arthritis develops in a context of normal patellofemoral anatomy, whereas the second is when patellofemoral OA is associated with patellofemoral dysplasia.

Patellofemoral Osteoarthritis without Dysplasia

In the setting of high-grade isolated patellofemoral OA, patellofemoral joint replacement represents the best therapeutic option. In the absence of anatomical abnormalities, the arthroplasty does not need the association of other procedures, like osteotomy of the tibial tubercle.

Patellofemoral Osteoarthritis with Dysplasia

Since the dysplasia of patellofemoral joint has not been corrected, the instability of the patellofemoral joint persists associated with chronic retraction of lateral retinaculum and loosening of the medial one. In this setting, a partial or total arthroplasty represents an interesting solution since it allows the correction of both trochlear and patellar dysplasia. Therefore, the application of a trochlear cutting patellofemoral arthroplasty allows the correction of trochlear dysplasia by removing the whole supratrochlear prominence and the correction of the extensor mechanism malalignment by setting the mediolateral and rotational positioning of the component. In this way, the TT-TG may be diminished by a slight lateralization of the femoral component without any procedure on the tibial tubercle (Fig. 6.6).

Concerning the patellar correction, it is mandatory to preserve an acceptable thickness of the patella with a minimum of 13–14 mm, in order to reduce the risk of patellar fracture. Moreover, if prosthetic patella is slightly undersized, it permits to correct both patella alta and patella infera by placing the prosthetic button relatively at the most distal or proximal part of the native patella and the malalignment by setting the mediolateral positioning of the patellar implant. During the resurfacing of the patella, a lateral release is not always necessary because generally lateral osteophyte removal is sufficient, since it constitutes a sort of a lateral facetectomy from the inside, allowing decompression of the lateral compartment.

Side Summary

In the presence of osteoarthritis secondary to patellofemoral instability or associated with predisposing factors for patellofemoral instability, the aim of a patellofemoral arthroplasty is not only to treat the arthritis but also to perform a "metallic trochleoplasty," correcting the trochlear dysplasia and the extensor mechanism malalignment.

Fig. 6.6 Treatment of patellofemoral OA and correction of trochlear dysplasia and extensor mechanism malalignment with a trochlear cutting patellofemoral arthroplasty

Take Home Message

A better understanding of pathophysiology of patellofemoral disorders has led to a renewed interest in the use of patellofemoral arthroplasty. A very careful patient selection is mandatory in order to reduce failure rate. The optimal indication for patellofemoral arthroplasty is the presence of high-grade, isolated patellofemoral osteoarthritis secondary to the presence of predisposing factors for patellofemoral instability, which severely affects daily activities of a non-obese patient, aged less than 60. In the presence of predisposing factors for patellofemoral instability, the aim of a patellofemoral arthroplasty is not only to treat the arthritis but also to perform a "metallic trochleoplasty," correcting the trochlear dysplasia and the extensor mechanism malalignment.

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