Total Knee Arthroplasty in a Patient with Neglected Congenital Patellar Dislocation

İhmal Edilmiş Konjenital Patella Çıkığında Total Diz Protezi

Neglected Congenital Patellar Dislocation / İhmal Edilmiş Konjenital Patella Çıkığı

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Özet

Konjenital patella çıkığı nadir bir deformite olup, geç dönemde başvuru sebebi genellikle diz ekleminin artrozudur. Total diz artroplastisi de (TDA) bu nadir patolojinin tedavi seçeneğidir. Literatürde total diz protezi ile tedavi edilmiş konjenital patella çıkığı ile gonartroz birlikteliği ile ilgili az sayıda bildirim olmakla beraber bunlar arasında da farklılıklar bulunmaktadır. Bu çalışmada 8 yıldır sol diz ağrıları olup son 2 yıl içinde daha da artan konjenital patella çıkığı ile gonartroz birlikteliği olan ve patella yüzey değişimi yapılmadan bağ koruyan total diz protezi ile proksimal ve distal patella dizilim cerrahisi yapılan 55 yaşında bayan hasta sunulmuştur. Ameliyat sonrası birinci yıl sonunda, hareket açıklığı 5°-100° idi. Patellar instabilite ve atlama yok idi. KSS ve fonksiyonel skorlama ameliyat öncesi dönemde 55 ve 15 iken ameliyat sonrası dönemde 83 ve 55 'e yükselmiş idi. Konjenital patella çıkığı ve gonartroz birlikteliğinin TDA ile tedavisi zor olmakla beraber iyi bir ameliyat öncesi planlama ve özenli uygulama ile iyi sonuçlar alınabilir.

Anahtar Kelimeler

Patellar Dislokasyon; Osteoartrit; Diz; Artroplasti

Abstract

Congenital patellar dislocation is a rare deformity and late presentation is usually with knee osteoarthritis. Total knee arthroplasty (TKA) is also a treatment choice of this rare pathology. There are few cases reported gonarthrosis with congenital patellar dislocation treated with TKA. And there are some contradictions in the written literature. This article presents a case of a 55 years old woman who had left knee pain for 8 years that was worsened in last 2 years with gonarthrosis and congenital patellar dislocation treated by cruciate retaining TKA with proximal and distal patellar alignment without patellar resurfacing. At the final follow-up after 1 year ROM was 5°-100°. There was no patellar maltracking or instability. The Knee Society score and functional scores were 55 and 15 preoperatively, improved to 83 and 55 respectively at the postoperative period. Congenital patella dislocation with gonarthrosis is hard to manage by TKA, but it can be handled with a good pre-operative planning with meticulous attention.

Keywords

Patellar Dislocation; Osteoarthritis; Knee; Arthroplasty

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Introduction

Congenital patellar dislocation is a rare deformity and the etiology is unknown and late presentation is usually with gonarthrosis[1,2] The affected side is generally the lateral compartment of the knee with valgus deformity and medial laxity[2,3]. Congenital dislocation of patella can be associated with Down's syndrome, skeletal and cardiac anomalies[1].Total knee arthroplasty (TKA) is also a rare treatment choice in such patients[1,4]. A few cases of gonarthrosis with congenital patellar dislocation treated with TKA are reported in the literature with some contradictions in which constrained or unconstrained TKA, patellar resurfacing or not and realignment of extensor mechanism in practice[1,4-8].

This article presents a case of a patient with varus gonarthrosis and congenital patellar dislocation treated by cruciate retaining TKA with proximal and distal patellar alignment without patellar resurfacing and skin necrosis related to it.

Case Report

A 55-year old woman presented with left knee pain that had nearly 8 years and it was worsened gradually in the last 2 years. She had no difficulty in daily life activities during childhood and adulthood. So, she did not seek medical treatment because the condition was well tolerated.

On physical examination, she had quadriceps atrophy. Patella was palpable at the lateral side of the left knee and had no mobility during flexion and extension. Range of motion (ROM) was -5° to 125° on the left knee.

Radiographs showed patellar dislocation of the left knee with gonarthrosis (Figure 1and Figure 2). Six degrees of varus deformity was present in the knee. Total knee arthroplasty with the correction of extensor mechanism planned for the knee of the patient.



Figure1. Preoperative anteroposterior radiography



Figure 2. Preoperative lateral radiography

A midline longutudinal skin incision made under tourniquet control. Medial parapatellar arthrotomy performed. The patella was located laterally and the femoral groove was absent (Figure 3). The medial retinaculum was thin while the lateral retinaculum was thick. The vastus medialis muscle was found to be stretched over the anterior aspect of the femur. Cruciate retaining femoral and tibial components implanted at first than, the extensor mechanism realigned. Patellar resurfacing was not performed. For the aligment of the extensor mechanism an extensive lateral retinacular release performed. Patella could not be reduced so, the rectus femoris tendon lengthened by Z- plasty. Thereafter, the patella was in the groove during extension but flexion was too limited. Than, the tuberositas tib-

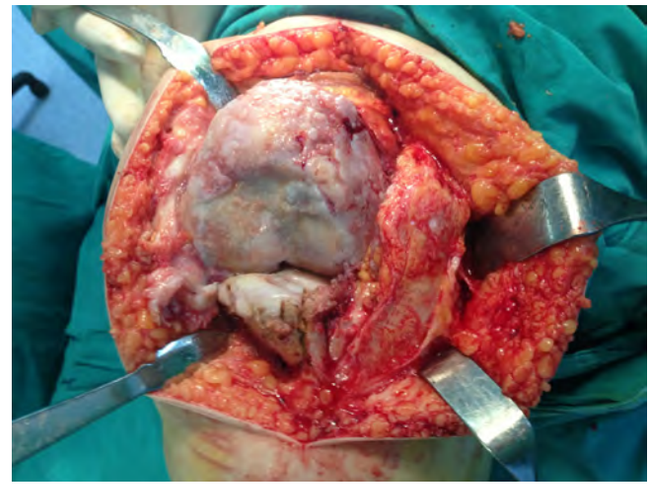


Figure 3. İntraoperative image of the knee joint

ia osteotomy and medialization performed and fixed with two 4.5 mm. cancellous screws. Thereafter, 60° of passive flexion of the knee gained with the hip flexed 90°. The lateral side of the arthrotomy was not closed. Medial plication performed as possible. Lateral side of the vastus medialis muscle sutured to the lateral edge of the quadriceps muscle .

İmmediate weight bearing allowed post operative first day with a brace of angle restrictions of 0°-10° for 3 weeks. The flexion increased gradually by 30° at each 3 weeks. Restrictions of motion terminated after consalidation of osteotomy had seen after 2 months post operatively . After two and half months post operatively skin necrosis occured on the lateral side of the skin incision over the patella. Full thickness skin graft from the left thigh performed for the skin necrosis (Figure 4).



Figure 4. İntraoperative image of the skin necrosis before grafting

At the final follow-up after 1 year ROM was 5°-100°. Quadriceps strength was rated 5/5. The patient had a mild pain at the stairs only. There was no patellar maltracking or instability; however, radiographs showed minimal lateral patellar displacement on the anteroposterior view (Figure 5 and Figure 6). The Knee Society score and functional scores were 55 and 15 preoperatively, improved to 83 and 55 respectively at the postoperative period.

Discussion

The etiology congenital patella dislocation is unknown[2]. In adulthood gonarthrosis may develop and mostly the lateral compartment of the knee is affected[2]. TKA is a treatment choice of the pathology[4]. Because of the rarity long –term sequelas are not well described and there are only a few reports in the literature with some contradictions[2,4-8]. The first case treated by TKA was reported by Marmor in 1988[7]. The extensor mechanism was not replaced and he proposed that if the patient compansated well the replacement of extensor mechanism should be avoided[7]. Also, Pradhan did not reconstruct the extensor mechanism in a case of treatment of bilateral congenital patellar dislocation with total knee arthroplasty[6]. Pradhan had to revised the right one with a constrained knee



Figure 5. Postoperative anteroposterior radiography



Figure 6. Postoperative lateral radiography

prosthesis, because of dislocation of the knee joint and the reason was excessive soft tissue release around especially at the lateral side of the knee and resection of posterior cruciate ligament[6]. Pradhan recommended that, if an excessive soft tissue release had been done, constrained type prosthesis should be considered first[6].

Proximal or distal realignment is required to relocate the extensor mechanism[2]. Proximal realignment of extensor mechanism could be achieved by Z-plasty or Vulpius techniques[3,4,6]. Quang et al. reported a new technique of V-W quadricepsplasty in 2010[2]. Their concern about the technique was loss of knee flexion because of positioning of extensor mechanism anterior to the plane of knee motion[2].

Tibial tubercle osteotomy is also not enough alone and associated with high risk of nonunion, soft tissue discomfort and skin necrosis while some reported good results of this technique [2,3,5]. Artificial ligament for medial patellofemoral ligament reconstruction is a way of to gain normal patellafemoral tracking also[5,8].

Patellar resurfacing also corrects the hypoplastic patellar surface and medially positioning of the patellar implant will be helpfull for patellar tracking[4] .

Usually, posterior substituting TKA with was used in these cases but we performed cruciate retaining TKA without patellar resurfacing. But, we had to resurface the patella. We thougt that the skin necrosis was associated with the thickness of the patella and furthermore, the medialization of the extensor mechanism caused the tension over the skin. This complication must be kept in mind while performing this surgery.

This pathology is hard to manage, but it can be handled with a good pre-operative planning either patella resurfaced or not and if needed, distal realingment of the extensor mechanism can be performed as well as proximal realingment or together with meticulous attention.

Competing interests

The authors declare that they have no competing interests.

References

1. Oh KJ,Yoon JR, Yang JH. Total knee arhroplasty in a pseudoachondroplastic dwarfizm patient with bilateral patellar dislocation. Knee 2013;(20):45-8.
2. Dao Q, Chen DB, Scott,RD. Proximal patellar quadricepsplasty realingment during total knee arthroplasty for irreducible congenital dislocation of the patella. J Bone Joint Surg Am 2010;92 (14):2457-61.
3. Hau RC, Newman JH. Knee replacement for osteoarthritis secondary to chronic patellar dislocation and trochlear dysplasia. Knee 2008;15 (6):447-50.
4.Tunay S, Ozkan H, Köse O, Atik A, Basbozkurt M. Total knee arthroplasty in a patient with neglected congenital patellar dislocation. Orthopedics 2009;32(10)45-8.
5. Matsushita T, Kurado R, Kubo S, Mizuno K, Matsumoto T, Kurosaka M. Total knee arthroplasty combined with medial patellofemoral ligament reconstruction for osteoarthritic knee with preoperative valgus deformity and chronic patellar dislocation. J Arthroplasty 2011;26(3): 505. e17-20.
6.Pradhan RL, Watanabe W, Itoi E, Yamada S, Shimada Y, Sato K. Total knee arthroplasty in bilateral congenital dislocation of the patella- a case report. Acta Orthop Scand 2001; 72(4):422-4.
7. Marmor L. Total knee arthroplasty in a patient with congenital dislocation of the patella: Case report. Clin Orthop 1988; 226:129-33.
8. Sato H, Ishibashi Y, Tsuda E, Sasaki K, Toh S. Total knee arhroplasty for gonarthrosis with patellar dislocation. J Orthop Sci 2005;10(6):656-60.

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