ÖZGÜN ARAŞTIRMA ORIGINAL RESEARCH

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CEMENTLESS TOTAL HIP ARTHROPLASTY: SHORT AND MID-TERM RESULTS

ÇİMENTOSUZ TOTAL KALÇA ARTROPLASTİSİ: KISA VE ORTA DÖNEM SONUÇLAR

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Öz

Amaç
Eklem kıkırdağının yaş veya travmaya bağlı olarak zarar görmesine bağlı olarak hastanın hareketlerini kısıtlayıcı etki yapan koksartroz gelişebilmektedir. Koksartroz, kıkırdağın değiştirilmesi olan total kalça artroplasti ile tedavi edilmektedir. Bu çalışma ile, koksartrozlu hastalarda çimentosuz total kalça artroplastisinde (TKA) ameliyat sonrası sonuçlarla ilgili kısa-orta dönem sonuçlarımız sunmak ve güncel literatür eşliğinde tartışmayı amaçladık.

Gereç ve Yöntem
Bu çalışmaya 1999 ve 2004 yılları arasında çimentosuz TKA tedavisi gören ve takibi yapılan, ortalama yaşı 54,1±9,6 olan 130 hasta (86 kadın, 44 erkek) dahil edilmiştir. TKA bağlı komplikasyonlar ve sonuçlar, hastaların takip dosyaları, laboratuvar testleri ve radyografilerine dayanarak gözden geçirilmiştir.

Bulgular
Preoperatif (41,75±9.62) ve post-operatif (90,44±7,51) modifiye Harris Kalça Skoru ölçümleri arasında istatistiksel olarak anlamlı fark bulunmuştur (p<0,001). On hastada (%7,6) ameliyat sırasında femur kırığı oluşmuştur. Anterior kalça ağrısı (26 hasta, %20,0) ve ekstremite boy farkı (20 hasta, %15,4) komplikasyonlar arasında en yaygınları olarak kaydedilmiştir. On üç hastada (%10,0) total kalça artroplastisi sonrası heterotrofik ossifikasyon gözlemlenmiş, ancak buna bağlı hareket kaybı gerçekleşmemiştir. Malpozisyon (7 hasta, %5,4), çıkık (3 hasta, %2,3), enfeksiyon (2 hasta, %1,5) ve derin venöz trombozu (1 hasta, %0,8) gözlemlenen diğer komplikasyonlar olmuştur. Asetabular komponentte gevşeme / migrasyon veya kalça hareketini kısıtlayan ağrı takip süresinde hiçbir hastada gözlenmemiştir.

Sonuç
Koksartrozlu hastalarda çimentosuz TKA ile kalça fonksiyonlarında düzelme elde edilmektedir. Bu yöntem ile tedavi edilecek koksartroz hastalarında, hastanın operasyon sonuçlarından memnun kalması, komplikasyonların en aza indirilmesi ve protezin uzun süre dayanması için detaylı bir ameliyat öncesi risk değerlendirmesinin yapılması gerekmektedir.

Anahtar Kelimeler: Koksartroz, artroplasti, total kalça protezi

Abstract

Objective
The destruction of the joint cartilage either by age or trauma can develop coxarthrosis limiting the motion

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of the patient, which is treated by the replacement of the whole joint with total hip arthroplasty. In this study, we aimed to report our short and mid-term results and discuss with the current literature on postoperative results of cementless total hip arthroplasty (THA) in patients with coxarthrosis.

Material and Method
One hundred thirty patients (86 female, 44 male) with a mean age of 54.1±9.6 years who underwent total hip arthroplasty with a cementless prosthesis included in the study. The outcomes and complications of the total hip arthroplasty were reviewed from patient's counseling charts, laboratory tests and radiographs. retro

Results
There was a statistically significant difference between pre (41.75±9.62) and postoperative (90.44±7.51) mean modified Harris Hip Score measurements ($p<0.001$) indicating the successful outcome. Intraoperative femur fracture occurred in 10 patients (7.6%). Anterior thigh pain (26 patients, 20.0%) and extremity length difference (20 patients, 15.4%) were the most common complications observed. Although 13 patients (10.0%) had heterotopic ossification after total hip arthroplasty, none of the patients had limited motion associated with it. Malpositioning (7 patients, 5.4%), dislocation (3 patients, 2.3%), infection (2 patients, 1.5%) and deep venous thrombosis (1 patient, 0.8%) were among the other complications observed. There were no cases with acetabular cup migration or pain limiting hip movement.

Conclusion
The cementless THA provides improvement of hip function in patients with coxarthrosis. The preoperative risk assessment of the coxarthrosis patients is necessary to ensure patient's satisfaction, minimize complications and provide long-term durability of the prosthesis.

Keywords: Coxarthrosis, arthroplasty, total hip prosthesis

Introduction

The hip joint is the articulation of the pelvis with the femur connecting the axial skeleton with the lower extremity. As such, it is one of the most important joints in the human body, carrying the maximum load while enabling walk, run, and jump. The destruction of the joint cartilage either by age or by trauma can develop coxarthrosis, leading to chronic progressive pain, which may even cause limited motion, and with time, shortening of the extremity length (1-3).

Total hip arthroplasty (THA) is one of the most commonly performed, clinically proven, and successful treatment for the recovery of coxarthrosis since 1960s, where the whole joint is replaced with a prosthesis allowing the restoration of painless movement of the hip joint to regain the patient's quality of life (1-3). By the improvement in prosthesis technologies and the surgical procedures, the 10-year survival rate of THA was reported to be increased from 88% by 1980s to at least 95% as of today (4, 5). The increase in the success rate, on the other hand, is rather controversial due to the lack of prospective studies, longer follow-up of the patients in retrospective studies, and as it depends not only on the surgical outcome, but also the patient satisfaction of the results (5).

Porous-coated, cementless hip prostheses have been used in THA since early 1980s. Currently they are being used in most of the patients undergoing primary THA, since they enable bone fixation, thereby provide long-term stability of the prosthesis (3, 5-7). Yet, the reports indicate that the incidence of the complications associated with THA including intraoperative femur fracture, anterior thigh pain, heterotopic ossification, malposition, dislocation, infection, leg length discrepancy, deep venous thrombosis and acetabular cup migration seem not to be improved through the years (8-11).

Therefore, considering the increasing use of cementless total hip arthroplasty regardless of patient size, age, level of physical activity and bone quality (3), we aimed to report our early and mid-term results and, discuss with the current literature on results of cementless THA in patients with coxarthrosis.

Material and Methods

Study design and patients

Patients who underwent THA with a cementless prosthesis were included in this retrospective study. Patient counseling charts, laboratory tests and radiographs were reviewed for demographic and baseline characteristics of the patients as well as the complications and outcomes observed.

The study was approved by the Institutional Ethics Committee according to the valid legal regulations at the time of the research.

Pre and post-operative parameters
Modified Harris Hip Score (HHS) (12) was used for the measurement of the symptomatic and functional status of the patients. Singh index (13) was used to determine the level of osteoporosis within the femoral neck, and only patients with Singh index above Stage 3 was included in the study. Anteroposterior (AP) and lateral (Lat) plain radiographs of the hip and AP radiographs of the pelvis were obtained before the operation.

Surgical procedure and post-operative follow-up
The choice of the cementless prosthesis was dependent on the level of osteoporosis measured, availability of the prosthesis, suitability for the patient and the experience of the surgeon.

All patients received 1 gr of intravenous 1st generation cephalosporin (Cezol 1g IM/IV, Deva Holding) 1 hour before the surgery and continued for 3 days after the surgery. Subcutaneous low molecular weight heparin (Clexane- 4000 anti-Xa /0.4 ml, Aventis Pharma Sanayi ve Ticaret Ltd. Şti.) for prophylaxis of thromboembolism was began 12 hours after the surgery and continued to 4 weeks post-operatively.

All operations were performed under general anesthesia via posterior approach by two experienced surgeons particularly on hip arthroplasty. The patient was placed in the lateral decubitus position, and the involved limb was draped freely to facilitate dislocating the hip and to permit maneuverability of the limb to improve visualization throughout the procedure. Hemovac drains were used in all patients after bleeding control and removed at the 24th hours postoperatively.

Early post-operative exercises began immediately as possible as after the consciousness was regained in bed. During the stay in hospital all patients had the same rehabilitation program consisting of ankle pump, ankle rotations, bed-supported knee bends, buttock contractions, abduction exercises, quadriceps set, and straight leg raises with the accompanying of the physiotherapists. The patients could sit by the bed side and stand shortly with the aid of walker on the day after the operation with the help of physiotherapists and began standing exercises consisting of knee raises, standing hip abduction and extension. Weight bearing was not restricted and allowed as the patient could tolerate. Stair climbing exercises were began at the post-operative 3rd day. The patients were discharged usually at the 5th day after regaining the ability of standing and, walking alone with the aid of walker if there were no complications requiring hospitalization.

Radiographic measurements according to the Callaghan's radiographic follow-up measurements (14) were obtained during the scheduled follow-up visit at the 6th week, 3rd month, 6th month, 12th month, and annually by the surgeons who performed the surgery. At the last follow-up, -which was carried out by the performing surgeons and the doctors performing the study- presence of radiolucency in acetabulum was evaluated with the 3-staged scale (Zone I-II-II) as described by De Lee and Charnley (15), whereas presence of radiolucency in femur was assessed with the 7-staged scale (Zone 1 to VII) as described by Gruen et al. (16). (Figure 1)

Statistical analysis
Statistical analysis was performed by the SPSS software package for Windows (Statistical Package for Social Sciences, version 22.0, SPSS Inc., Chicago, Illinois, USA). Visual histograms and analytical methods (Kolmogorov-Simirnov/Shapiro-Wilk's test) were used for the determination of normal distribution. Continuous variables were defined as the mean ± standard deviation. Categorical variables were defined as numbers and percentages. Paired samples t-test was used in comparison the mean of hip score indexes between repeated measurements. Fisher exact test were used to compare pre- and postoperative proportions of modified HHS of the patients. A p value < 0.001 was considered as statistically significant.

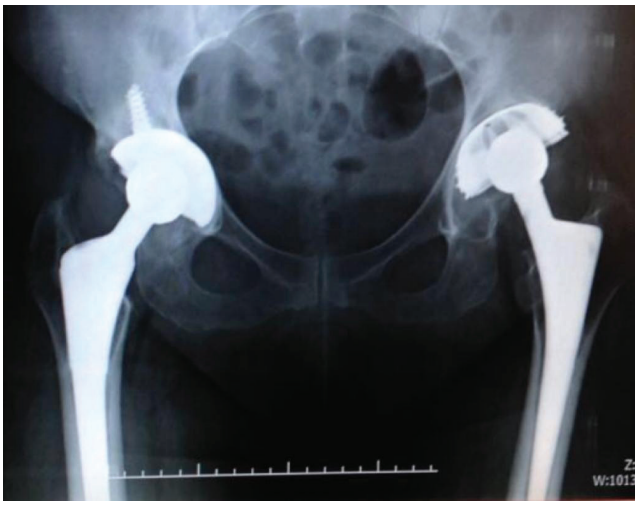

Figure 1. :
Post -operative mid - term radiograph of a female 69 years old patient. Bilateral secondary coxarthrosis due to DDH. Right hip operated in our clinics. Osteolysis seen in the Gruen zones of 1 and 7. Patient had no complaint at the last follow-up.

Results

A total of 130 patients (86 female, 44 male) with a mean age of 54.1±9.6 years were included in the study. The etiology was primary coxarthrosis in 70 patients (53.8%) followed by, coxarthrosis secondary to developmental dysplasia of the hip (DDH) (Crowe type 1-3) (11 patients, 8.5%), avascular necrosis (10 patients, 7.7%), ankylosing spondylitis (10 patients, 7.7%), Perthes disease sequel (9 patients, 6.9%), femoral neck fracture – had coxarthrosis earlier (6 patients, 4.6%), posttraumatic arthritis (6 patients, 4.6%), rheumatoid arthritis (4 patients, 3.1%) and osteoarthrosis after osteotomy (4 patients, 3.1%) in a total of 60 patients (46.2%).

Partnership straight femoral stems were used in 33, ABG anatomic femoral stems in 20, Zweymüller SL femoral stems in 20, Osteonics straight femoral stems in 20, Zimmer straight stem in 15, Wright straight femoral stems in 8, Depuy AML straight femoral stems in 5, OTI straight stems in 5, Group Lepin straight stems in 2 and Corin straight stems were used in 2 patients.

Cementless acetabular cups provided with the femoral stem and, UHMW-polyethylene were used in all patients with 28 mm cobalt- chromium (Co-Cr) femoral heads. After the press-fit implantation the acetabular cups secured with 2 or 3 screws in all patients.

Mean follow-up was 28.6 months (6 to 52 months). Pre-operative mean modified HHS was 41.75±9.62 and, whereas post-operative mean modified HHS was 90.44±7.51. There was a statistically significant difference between pre-and post-operative mean modified HHS ($p<0.001$, Table 1).

Anterior thigh pain was the most common complication observed which was encountered in 26 patients (20.0%). There was no correlation between the etiology of the coxarthrosis and anterior thigh pain. Considering the most used stems, in the Partnership straight femoral stem group anterior thigh pain was observed at 7 patients, in Osteonics straight femoral stem group at 5 in Secur-fit group, at 3 in Secur-Fit plus max group patients, in ABG anatomic femoral stem group at 3 patients, in Zimmer straight stem group at 3 patients and, 1 in Zweymüller SL femoral stem group. The median time of pain onset was post-operative 15 months (4-35 months) and, relieved during the follow-ups. At the latest follow-ups, it was seen that anterior thigh pain not influencing HHS.

Intra-operative femur fracture occurred in 10 patients (4 female, 6 male) (7.6%), where 6 were type A, 2 were type B, and 2 were type C according to Vancouver classification. (17). There was no relationship between fracture and stem design statistically ($p>0.05$). Vancouver type A fractures were occurred in 2 primary coxarthrosis patients, 2 in post -femoral neck fractures THA patients, 1 in avascular necrosis patient and 1 in ankylosing spondylitis patient. There was no dominancy of any patient group considering Vancouver type A fractures. Both of the Vancouver type B fractures were occurred in primary coxarthrosis patients. Vancouver type C fractures were occurred in secondary coxarthrosis due to RA and DDH patients respectively. These fractures were fixed with cerclage wiring technique and cable plate system in Vancouver type C patients during the surgery. There was no dominancy of any patient group considering periprosthetic intra-operative fractures. Full or partial weight bearing according to the fracture type restricted for 6 to 8 weeks until visible callus seen in three cortices. All healed without any complication.

Post-operative dislocation occurred in 3 primary coxarthrosis patients (2.3%) within the first post-operative year. One of them was managed by closed reduction followed by abduction orthosis for 4 weeks, another by acetabular cup replacement and the last one by acetabular insert realignment.

Post-operative leg length discrepancy (LLD) was among the most common complications and observed in 20 patients (15.4%) (Table 2). The difference was 1 cm in 14 patients (10.8%), 2 cm in 3 patients (2.3%), 3 cm in 2 patients (1.5%), and 5 cm in 1 patient (0.8%). One centimeter of LLD observed in primary coxarthrosis group (7 patients), DDH (5 patients) and Perthes (2 patients) groups. Two centimeters of LLD observed in primary coxarthrosis group (1 patient), and DDH (2 patients). Three centimeters of LLD observed in DDH (1) and Perthes (1) groups. Five centimeters of LLD observed in 1 patient in DDH group due to high hip center and femoral stem distal migration.

Post-operative mean acetabular cup angle was $47.2^0 \pm 8.7^0$, (35^0-55^0) in 123 patients. Acetabular cup malposition was observed in 7 (5.4%) patients and dislocation was occurred in two. None of the patients had acetabular cup migration and, retro acetabular osteolysis. Additionally, none of the patients complained about pain limiting their hip movements.

Heterotopic ossification (HO) was seen in 13 patients (10.0%). Eight of the patients were male. According to the Brooker classification (18), Grade I ossification was seen in 8 patients [4 male] (6.2%), Grade II in 3 [2 male] (2.3%), and Grade III in 2 [2 male] patients

(1.5%). None of the patients had limited motion related to heterotopic ossification.

Considering the coxarthrosis etiologies in the present study, heterotopic ossification was developed in 8 of 70 primary coxarthrosis -3 of them was ankylosed hips, 2 of 6 post-traumatic coxarthrosis, 1 of 4 the patients who had osteotomies earlier, 1 of 6 femoral neck fractured, 1 of 11 DDH patients.

Infection occurred in 2 patients (1.5%). One of them was managed with debridement, whereas the other patient underwent revision surgery. Deep venous thrombosis (VTE) was seen only in 1 patient (0.8%) (Table 2).

Discussion

Cementless prostheses are currently preferred over cemented types due to long-term stability (3, 5-7). 10 -year survival rate of THA is 100% in some series (1,4). Despite the high success rates, whether cemented or cementless, prosthesis may potentially result in several complications in early or late postoperative period and demand for revision hip arthroplasty increasing by 137 %. (19)

According to our experience on cementless THA despite the complications, such as anterior thigh pain and leg length discrepancy- the most seen complications- THA is a very high patient satisfactory surgery with very good functional outcome considering improvement in HHS.

Thigh pain following THA is a common problem with a rate of 1.9%-40.4% and, is associated with patient dissatisfaction by causing limitation of activities due to pain linked to the cementless femoral component (4,20). This issue first introduced by Callaghan et al. in 1988 (21) and, possible causes of thigh pain are

Table 1 Pre- and post-operative mean modified HHS of the patients

Modified Harris Hip Score	Preoperative (n, %)	Postoperative (n, %)	p value
<60	122 (93.8)	0 (0)	
60-69	7 (5.4)	4 (3.1)	
70-79	1 (0.8)	6 (4.6)	<0.001[a]
80-89	0 (0)	39 (30.0)	
>89	0 (0)	81 (62.3)	
Mean	41.75±9.62	90.44±7.51	<0.001[b]

[a] Fisher exact test, [b] Paired samples t-test p<0.001 is statistically significant

Table 2 Post-operative complications

Complication	Number of patients	Percentage of patients
Anterior thigh pain	26	20.0
Extremity length difference	20	15.4
Heterotopic ossification	13	10.0
Intraoperative femur fracture	10	7.6
Malpositioning	7	5.4
Dislocation	3	2.3
Infection	2	1.5
Deep venous thrombosis	1	0.8
Acetabular cup migration	0	0
Pain limiting hip movement	0	0

excessive micromotion, modulus mismatch between bone and prostheses, elastic modulus, size, architecture of the proximal femur, unnoticed intraoperative fractures and aseptic loosening of the stem (4,22). Whereas it was shown that fibrous ingrowth and stem subsidence highly correlate with the thigh pain, it is still an unsolved problem (4,20,22-24). This issue is also controversial when short stems are compared to conventional stems and, reported as 25% mild to severe pain in short stem designs similar to the conventional stems. We do not have any experience on that issue. Some surgeons encounter anterior thigh pain as a serious complication and some encounter as a self -resolving phenomenon and does not affect functional outcomes (20,22).Thigh pain was the most common post-operative complaint in the present study with a rate of 20% and mostly in straight femoral stems which were proximally coated (25 of 26) in parallel line with the current literature. Interestingly, patients who had delayed hip arthroplasty had more prone to anterior thigh pain (20). But we did not encounter this issue in the present study. We could not identify any risk factors for the thigh pain, but results are similar with the current literature and, we favor it as a self-resolving phenomenon as stated by Jo et al. and, fortunately, it is usually an intermittent, self -limiting phenomenon and does not need medication (22).

Intraoperative femur fracture and dislocation of the prosthesis are among the most important complications reported for THA (25,26). The incidence of intraoperative femur fracture was even reported to more in women undergoing cementless total hip arthroplasty because of smaller sizes of the femora than men (27), but we did not encounter any gender and etiology dominancy in our series. And additionally, we did not find any statistical relationship between the stem design and periprosthetic femoral fracture. Intra-operatively, with cementless THA it is important to achieve immediate component stability to reduce early micromotion and encourage bony ingrowth or on growth. This can be achieved by 'scratch fit' in the diaphysis and in this quest for component stability fracture of the proximal femur can occur with a rate of 1.5% to 27.8% (28). Stem design is associated with the risk of intra-operative femur fracture. Intra-operative femoral fractures can be lowered by broach-only tapered, wedge- shaped stem designs (28). In the present study wedge shape stem design was used only in 20 of 130 (7.8%) and, fracture occurred only in 1 patient considering this design which is too low to judge. It was also reported that, advent of minimally invasive or muscle-sparing approaches have an incidence of 6.5% intra-operative femur fracture particularly at the beginning of the learning curve (29). Intraoperative femur fractures seen in 7.8% of the patients in our series and mostly was Vancouver type I. Occurrence of Vancouver type I in patients with femoral neck fractures may due to the fissure previously during the initial trauma. DDH is a high risk for periprosthetic fracture due to low canal – femur ratio (30). In the present study seen with a rate of 18% in DDH group. Considering the current literature incidence of periprosthetic fracture is negatively correlated with increased weight and height and also with osteonecrosis (30). There is no clear relationship between the periprosthetic fracture incidence and other hip pathologies leading coxarthrosis. No relationship observed with the stem design and fracture. All fractures were addressed with cerclage wire technique as suggested by the literature (27) to reduce the risk of crack propagation and to achieve long-term stability of the prosthesis. Because, wire or cable increases the hoop stress resistance of the proximal femur and reduce the risk of crack propagation (28). Moreover, no negative effect on prosthesis survival was seen in our cases related to this complication. On the other hand, there is always a considerable risk of nerve or vascular injury during the wiring or cabling (28).

Dislocation following hip arthroplasty is extremely traumatizing for patients and one of the main reasons of the revision arthroplasty with a rate of 22% followed by mechanical loosening with a rate of 20% according to the current literature (31). Several factors which are patient, procedure, and implant related have an effect on dislocation after hip arthroplasty (25). Dislocation incidence is higher in patients with neuromuscular compromises and additionally in patients older than 80 years of age due to loss of proprioception (25). Prior femoral neck fractures and anatomical variations of the hip are also highly related to dislocation (10,25). Surgical approach, positioning of the components, soft tissue tension and, surgeon's experience is also affecting the incidence of dislocation. Posterior approach has a rate of 3.23% and, transgluteal approach has a rate of approximately 36% of dislocation due to abductor insuffiency. Head- neck ratio and head diameter have an effect on impingement and / or dislocation (25-27,32). We have not encountered a problem related to approach. Dislocation encountered in 2.3% of the patients in the present study related to acetabular malposition in two of seven acetabular malpositioned patients and due to excessive adduction and flexion of the hip in one. Stable cup positioning is with an inclination of $40^0 \pm 10^0$ and an anteversion of 10^0 to 20^0 theoretically. But it is usually positioned between the angles of 10^0 and 30^0 and not all are dislocated (25). This issue and additionally only in 2 of 7 dislocation had been seen in our malpositioned pa-

tients shows that this is not the only factor and related to many other components together such as femoral component anteversion and soft tissues (25).

The goal of a successful THA is maximize the impingement free range of motion, creation of appropriate offset and equalize limb length discrepancies (33). Post-operative leg length discrepancy was among the most common complications in the present study and observed in 15.4% of the patients mostly with in 1 (14 of 20) cm and were well adapted. One patient in the study group – DDH coxarthrosis, high hip center- had a leg length discrepancy of 5 cm managed by shoe lift. Considering the etiologies, DDH was the most seen group regardless of the implant. Patients who had preoperatively longer legs, perception of limb length equality when operative leg shorter, significant > 3cm limb length discrepancy and fixed pelvic obliquity are at risk for true or perceived limb length discrepancy. In the present serie there is only 1 patient more than 3 cm of LLD. As stated by Sculco et al. true LLDs are often asymptomatic (33). Leg length discrepancies can be managed by careful pre and intraoperative examination and planning as well as intraoperative execution and soft tissue stability testing (33).

Heterotrophic ossification is an important postoperative complication compromising the success of the arthroplasty (33). The incidence of heterotrophic ossification following THA varies from 5 to 87% and the incidence of clinical significance (Brooker grade II to IV) is about 0.5%-12.3% (34,35). The development of heterotrophic ossification is usually evident 6 weeks after surgery and usually clinically insignificant, but some may experience decreased hip range of motion and function (35). Male gender, previous hip surgery, prosthesis type, surgical approach, ankylosed hips are the risk factors for heterotrophic ossification (34,35). But the prophylaxis has also remarkable complications such as malignancy and gastrointestinal tract intolerance (34). Cemented implants have higher risk for HO via contamination of surgical field and bone marrow (14,34). And, also endosteal bone compaction of uncemented femoral stems have an effect on lowering the risk of HO (33). In the present study, 10% of the patients developed heterotopic ossification, whereas the incidence of severe cases was lower as compared to the reported in earlier studies (34,35). There was no statistical significance between the genders (8M/5F). This rate can be considered normal since cementless stems were used. Considering the literature, ankylosed hips are highly related to development of HO (34). In the present study there were only 3 however, the number of cases is less than a judgement. No heterotopic ossification developed in patients with RA. This may be related to the NSAIDs used, but there is no exact consensus on this issue. However, in patients taking aspirin have a protective effect on HO developing, we had no data about this issue (34). Lateral approach, anterior approach in some series and, more soft tissue damage, particularly revision surgeries are highly associated with HO (33). Posterior and gentle approach to the soft tissue due to primary surgery “might be related to the lower rate in the present study. And, additionally none of the patients had limited motion due to heterotopic ossification.

Postoperative infection is one of the serious complications associated with total hip arthroplasty (36,37). Postoperative infection rates are highly variable depending on the type of the infection, onset of symptoms, patient’s health status and the treatment. Prevention or treatment of the infection either by debridement or antibiotics, or the removal of prosthesis if necessary is important to limit mortality and economical losses (36). In the present study, only 2 patients (1.5%) has postoperative infection, and only in 1 of these cases the patient underwent revision surgery.

Postoperative VTE including deep venous thrombosis and pulmonary embolism is among the complications with high incidence rate of 15%-20% and even can be 60% when considering asymptomatic patients after total hip arthroplasty (38-40). The patients who had metastatic cancers, stroke, sepsis and COPD are highly associated with postoperative VTE and overall median incidence of VTE was 0.60 and pulmonary embolism was 0.41 in the USA between 2003-2012 (40). In the present study, DVT was observed only in one patient (0.8%), whereas none of the patients had postoperative pulmonary embolism. The VTE is an independent multifactorial risk factor for mortality after arthroplasty (40). The low rate of deep venous thrombosis in this study does not reflect the real rate of VTE, because some may be misdiagnosed or asymptomatic as stated by Suzuki et al. and had favorable out-come without therapeutic anticoagulation. Considering the risk factors is the best to lower the incidence of VTE (39, 40).

Conclusion

In the light of the written literature and according to results of the present study, cementless total hip arthroplasty is a very successful surgery, increasing the quality of life. Yet the improvement in pain and the hip function depends on the overall health status of the patient, most of the complications associated with THA as cited in the previous reports are still valid.

Among them anterior high pain and leg length discrepancy are the most commonly observed complications among the patients reported here contrary to the literature. Nonetheless we believe, necessitates the overall risk assessment of the coxarthrosis patients to be treated with total hip arthroplasty in order to ensure patient's satisfaction of the surgery and long-term durability of the prosthesis.

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