



Treatment of capitellar osteochondritis dissecans with a tendon graft: a case report

Tendon grefti ile kapitellar osteokondritis dissekans tedavisi: Olgu sunumu

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A 14-year-old girl who was engaged in farming was admitted with the complaints of right elbow pain and limited range of motion in the elbow joint. Plain radiograph revealed capitellar osteochondritis dissecans. After the loose fragment was removed from the capitellum and the defect was curetted, a palmaris longus tendon graft harvested from the same hand was implanted into the capitellar defect. Elbow joint was immobilized for three weeks. Magnetic resonance imaging showed that tendon graft was successfully adapted into defect. The range of motion was preserved and she had no pain in the elbow joint. In conclusion, we suggest that tendon autograft can be used in the treatment of capitellar osteochondritis dissecans.

Key words: Elbow joint; osteochondritis dissecans; tendons.

On dört yaşında çiftçilik ile uğraşan kız çocuğu sağ dirseğinde hareket kısıtlılığı ve ağrı yakınmaları ile başvurdu. Düz radyografide kapitellar osteokondritis dissekans görüldü. Kapitellumdaki serbest cisim çıkartılıp defekt kürete edildikten sonra, aynı kolun palmaris longus tendonundan elde edilen greft kapitellar defekte yerleştirildi. Dirsek eklemi üç hafta hareketsiz tutuldu. Manyetik rezonans görüntüleme, tendon greftinin defekte başarılı bir şekilde uyum sağladığı görüldü. Dirsek hareketi korundu ve hastanın dirsek ekleminde herhangi bir ağrısı kalmadı. Sonuç olarak, tendon otogreftinin kapitellar osteokondritis dissekansında kullanılabileceğini düşünüyoruz.

Anahtar sözcükler: Dirsek eklemi; osteokondritis dissekans; tendonlar.

Osteochondritis dissecans (OCD) of the capitellum is defined as the separation of the osteochondral fragment and it often occurs in adolescents.^[1,2] The true cause and optimal treatment capitellar OCD are unknown.^[3]

Multiple operative procedures have been described. Surgical treatment includes drilling of the lesion, fragment removal with curettage or drilling of the residual defect, fragment fixation, mosaicplasty, and autologous chondrocyte implantation.^[1,3-5] The surgical treatment of localized cartilage defects are primarily aimed at stimulation of biological repair.^[6]

Tendons can live in joints and are durable materials. Tendon autografts can be used in osteochondral defects of joints.^[7] Tendons are easily placed in narrow elbow joints because of their flexibility. We report the case of a patient with capitellar OCD who was treated using a palmaris longus tendon autograft.

CASE REPORT

A 14-year-old girl who was engaged in farming presented with complaints of right elbow pain of about two year. There was tenderness and pain over the capitellum. The elbow joint motion had decreased especially in extension.

Plain X-ray showed capitellar OCD. Surgical treatment was performed under general anesthesia. A posterolateral incision was used for the elbow joint under tourniquet. The capsule was opened and the capitellum was exposed. Loose fragments in the joint were removed and the cavity was curetted. The palmaris longus tendon was harvested from the same hand. The graft was formed spherically by hand and easily placed into the capitellar defect. No sutures were used for fixation. The capitellum was reshaped with the tendon graft. The elbow joint was



Figure 1. Capitellar osteochondritis dissecans is seen on plan X-ray (black arrow).

immobilized for three weeks and then active joint motion was started. Control magnetic resonance imaging (MRI) showed that the tendon graft was successfully implanted in the capitellar defect. The patient did not have any pain about the elbow 12 months postoperatively.

DISCUSSION

Multiple operative procedures have been described for treating capitellar OCD. Surgical treatments include drilling of the lesion, fragment removal with or without curettage or drilling of the residual defect, fragment fixation by a variety of methods, reconstruction of osteochondral autograft, autologous chondrocyte

implantation, and closing wedge osteotomy of the lateral condyle.^[3]

Tendons can be used in osteochondral defects. They can survive durably and well in joints. Tendon grafts can easily be placed in narrow elbow joints because of their flexible material. The capitellar joint surface is restored with a tendon graft by the radial head because the radial head conforms to the capitellum.

Mosaicplasty is a very good option for treating advanced capitellar OCD lesions in teenage athletes.^[1,8] In this technique, growth plate injury is possible and two joint procedures are done.

In our technique, growth plate injury is not done. A considerable disadvantage in performing mosaicplasty is the potential adverse effect on the donor site.^[1] In addition it is difficult to obtain a spherical capitellum. Our technique is not a two-joint procedure and a spherical capitellum is easily obtained.

Arthroscopic treatment is a technically demanding procedure.^[2-4] Technically, a tendon graft procedure does not require a periosteum or collagen membrane cover and microsuturing. Thus, the surgical time to implant the tendon graft is shorter.^[9]

There are some limitations to this study. First, the follow-up period was only one year. Second, neither an arthroscopic second-look observation nor histologic examination of the grafted area was performed.

This procedure is a simple, rapid, and inexpensive way to manage osteochondral defects. In addition, it is easy, safe and does not require special instruments or implants. We can conclude that a tendon autograft is a very good option for treating advanced capitellar OCD.

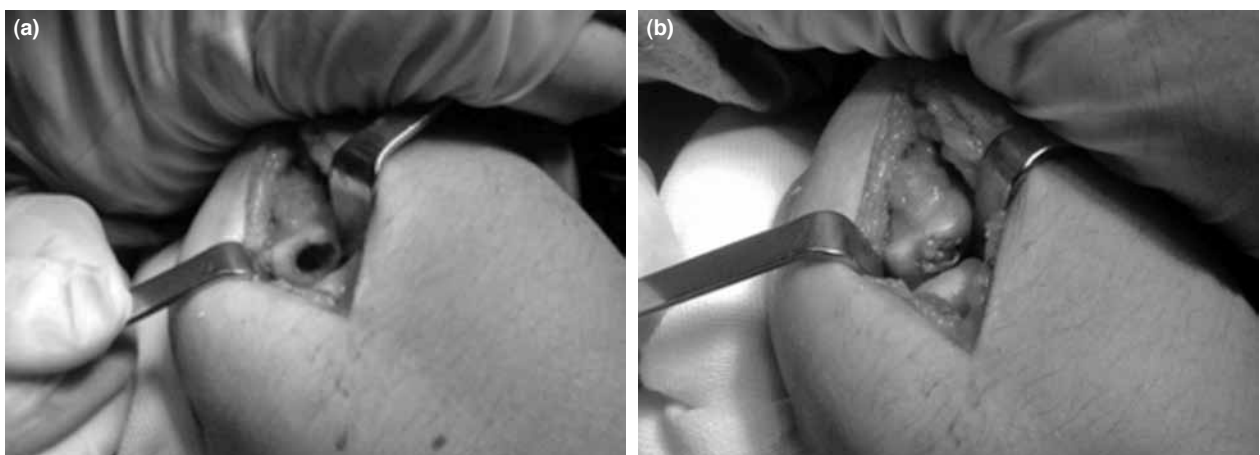


Figure 2. (a) Loose fragments in the joint were removed and cavity was curetted. (b) Graft was done spherically with hand and placed into capitellar defect easily.



Figure 3. Control magnetic resonance imaging showed that the tendon graft was successfully implanted to capitellar defect (black arrow).

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REFERENCES

1. Iwasaki N, Kato H, Ishikawa J, Masuko T, Funakoshi T, Minami A. Autologous osteochondral mosaicplasty for osteochondritis dissecans of the elbow in teenage athletes. *J Bone Joint Surg [Am]* 2009;91:2359-66.
2. Takeba J, Takahashi T, Hino K, Watanabe S, Imai H, Yamamoto H. Arthroscopic technique for fragment fixation using absorbable pins for osteochondritis dissecans of the humeral capitellum: a report of 4 cases. *Knee Surg Sports Traumatol Arthrosc* 2010;18:831-5.
3. Baker CL 3rd, Romeo AA, Baker CL Jr. Osteochondritis dissecans of the capitellum. *Am J Sports Med* 2010;38:1917-28.
4. Moon YL, Kim DH, Ha SH. Arthroscopic treatment of osteochondritis dissecans of the elbow in adolescents. *Eklem Hastalik Cerrahisi* 2005;16:171-4.
5. Atik OS, Esen E, Tokgöz N, Ataoglu B, Taşkesen A. Osteochondritis dissecans with subchondral bone cyst of the femoral condyle: a novel surgical technique of treatment. *Eklem Hastalik Cerrahisi* 2009;20:174-7.
6. Custers RJ, Saris DB, Dhert WJ, Verbout AJ, van Rijen MH, Mastbergen SC, et al. Articular cartilage degeneration following the treatment of focal cartilage defects with ceramic metal implants and compared with microfracture. *J Bone Joint Surg [Am]* 2009;91:900-10.
7. Turhan AU, Aynaci O, Turgutalp H, Aydin H. Treatment of osteochondral defects with tendon autografts in a dog knee model. *Knee Surg Sports Traumatol Arthrosc* 1999;7:64-8.
8. Takahara M, Mura N, Sasaki J, Harada M, Ogino T. Classification, treatment, and outcome of osteochondritis dissecans of the humeral capitellum. Surgical technique. *J Bone Joint Surg [Am]* 2008;90 Suppl 2:47-62.
9. Brittberg M. Cell carriers as the next generation of cell therapy for cartilage repair: a review of the matrix-induced autologous chondrocyte implantation procedure. *Am J Sports Med* 2010;38:1259-71.