



Osteochondritis dissecans with subchondral bone cyst of the femoral condyle: a novel surgical technique of treatment

Femoral kondilde subkondral kemik kisti ile birlikte olan osteokondritis dissekans:
Tedavide yeni bir cerrahi yöntem

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Osteochondritis dissecans (OCD) with a large subchondral bone cyst (SBC) is not common. The treatment of this lesion may be unsuccessful with conventional techniques. A novel surgical technique is described for the treatment of OCD with SBC of the femoral condyle. Modified osteochondral multiple autograft transfer following extraarticular curettage and bone grafting of SBC is a promising technique.

Key words: Osteochondral multiple autograft transfer; osteochondritis dissecans; subchondral bone cyst.

Osteokondritis dissekans (OKD)'ın büyük subkondral kemik kisti (SKK) ile birlikte görülmesi sık değildir. Bu lezyonların konvansiyonel yöntemler ile tedavisi başarısız olabilir. Femoral kondildeki OKD'nin ve SKK'nin tedavisi için; SKK'nin ekstraartiküler küretajı ve greftlenmesi sonrası, modifiye osteokondral multipl otogreft transferi uygulanması umut verici yeni bir yöntemdir.

Anahtar sözcükler: Osteokondral multipl otogreft transferi; osteokondritis dissekans; subkondral kemik kisti.

The knee, elbow, and talus are most common sites of osteochondritis dissecans (OCD).^[1] Osteochondritis dissecans together with a large subchondral bone cyst (SBC) is not commonly observed. The treatment of this lesion may be unsuccessful with the conventional techniques.^[2] Therefore, we describe a novel surgical technique for the treatment.

CASE REPORT

A 30-year-old man had complaints of pain and swelling in his right knee. Physical examination revealed a mild swelling and limited range of motion. Radiograms and magnetic resonance imaging (MRI) showed a large bony defect due to OCD with a large SBC of the right medial femoral condyle (Figure 1, 2). He received surgical treat-

ment as described below. The patient is pain-free with a full range of motion and he walks with his knee bearing full weight without any complications since the 6th postoperative week.

Surgical technique

An anterior midline longitudinal incision was used and parapatellar capsulotomy was performed for the arthrotomy. Following the excision of a large intraarticular loose body (30x20 mm), (Figure 3a, b), the large SBC was curetted extraarticularly, and the defect filled with an iliac bone graft (Figure 4a, b). An osteochondral multiple autograft transfer (OMAT)^[3-5] was performed for the treatment of the bony defect (Figure 5a-e). Two cylindrical osteochondral grafts (11 mm in diameter) were obtained from the minimal weight-

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Figure 1. (a, b) X-rays showing large bony defect due to osteochondritis dissecans with large subchondral bone cyst of right medial femoral condyle.

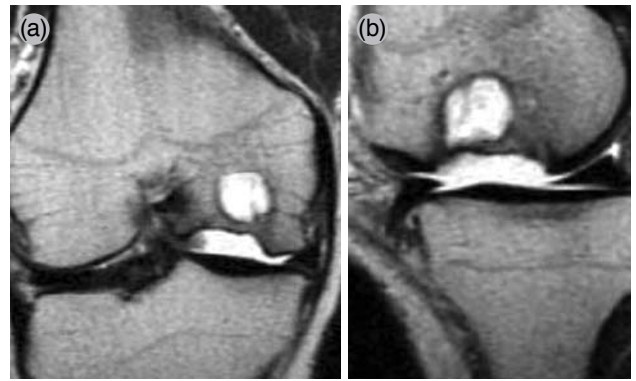


Figure 2. (a, b) Magnetic resonance imagings showing large bony defect due to osteochondritis dissecans with large subchondral bone cyst of right medial femoral condyle.

bearing periphery of the lateral femoral condyle at the level of the patellofemoral joint. Those grafts were transferred to the prepared defect sites on the weight bearing surface. Microfracture was performed for the area without grafts (Figure 5a).

Finally, the defects on the donor site were filled with the bony grafts obtained from recipient area (Figure 5 b-e). Postoperative radiograms and MRI showed that cartilage defect and SBC were filled perfectly (Figure 6, 7).



Figure 3. (a, b) The excision of a large intraarticular loose body (30x20 mm)

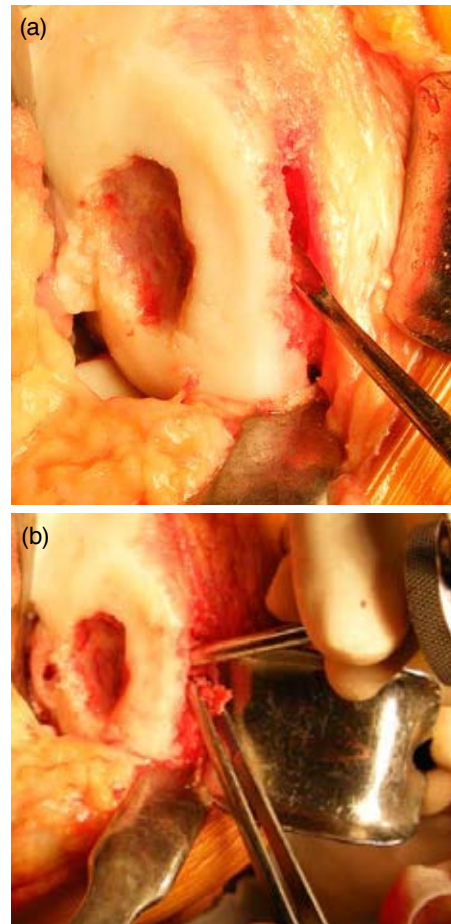


Figure 4. (a, b) The large subchondral bone cyst was curetted extraarticularly, and the defect filled with iliac bone graft.

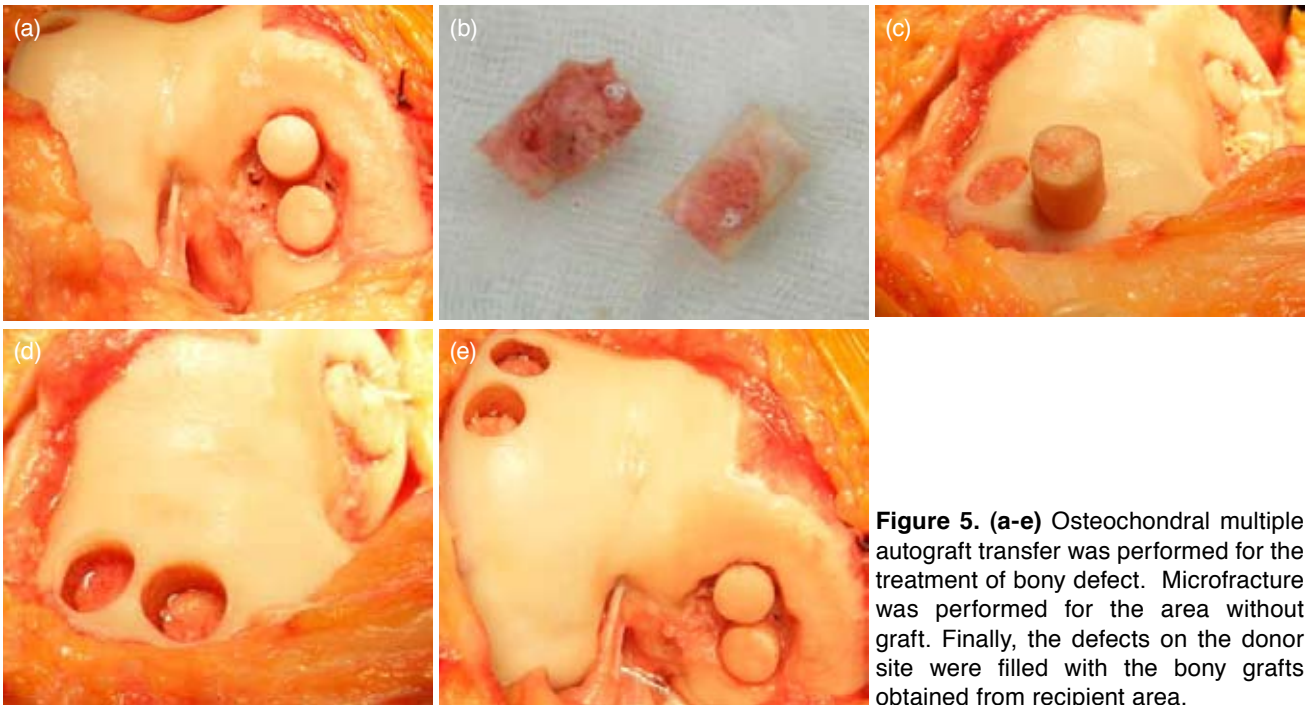


Figure 5. (a-e) Osteochondral multiple autograft transfer was performed for the treatment of bony defect. Microfracture was performed for the area without graft. Finally, the defects on the donor site were filled with the bony grafts obtained from recipient area.

DISCUSSION

Small cystic lesions can be treated by arthroscopic microfracture or abrasion arthroplasty and the existence of a small cyst in an osteochondral defect lesion may not affect the postoperative prognosis.^[6] However, the outcome of treatment for large cystic type-5 lesions is poor when the conventional grafting, debridement or microfracture techniques are employed.^[2]

We obtained successful results in our patients with OMAT for the treatment of cartilage defects of the knee joint in our short-term and long-term follow-up.^[3-5]

For subchondral cystic lesions of the medial femoral condyle in horses, a debridement followed by the drilling of the defect bed was performed on 23 lesions of 18 horses. Complete follow-up information was obtained for 39 horses, of which

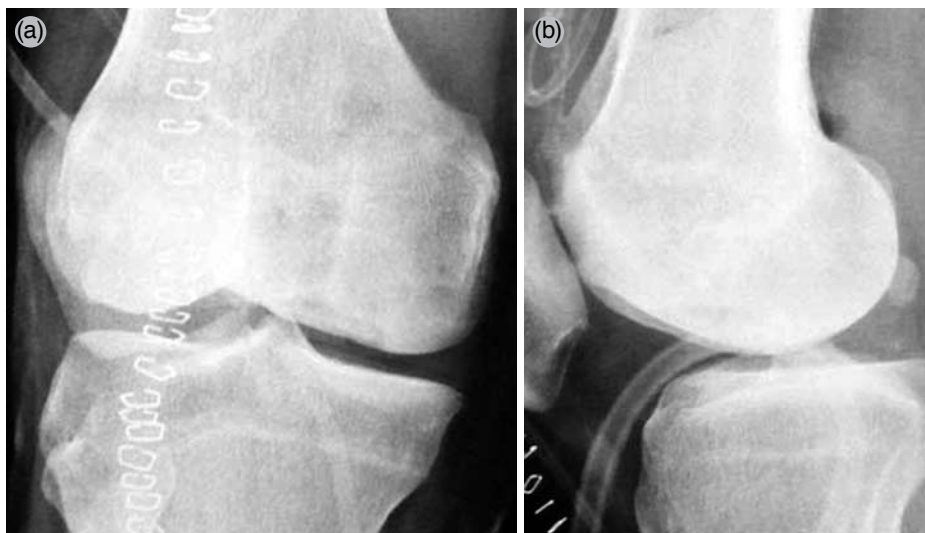


Figure 6. (a, b) Postoperative radiograms showed that cartilage defect and subchondral bone cyst were filled perfectly.

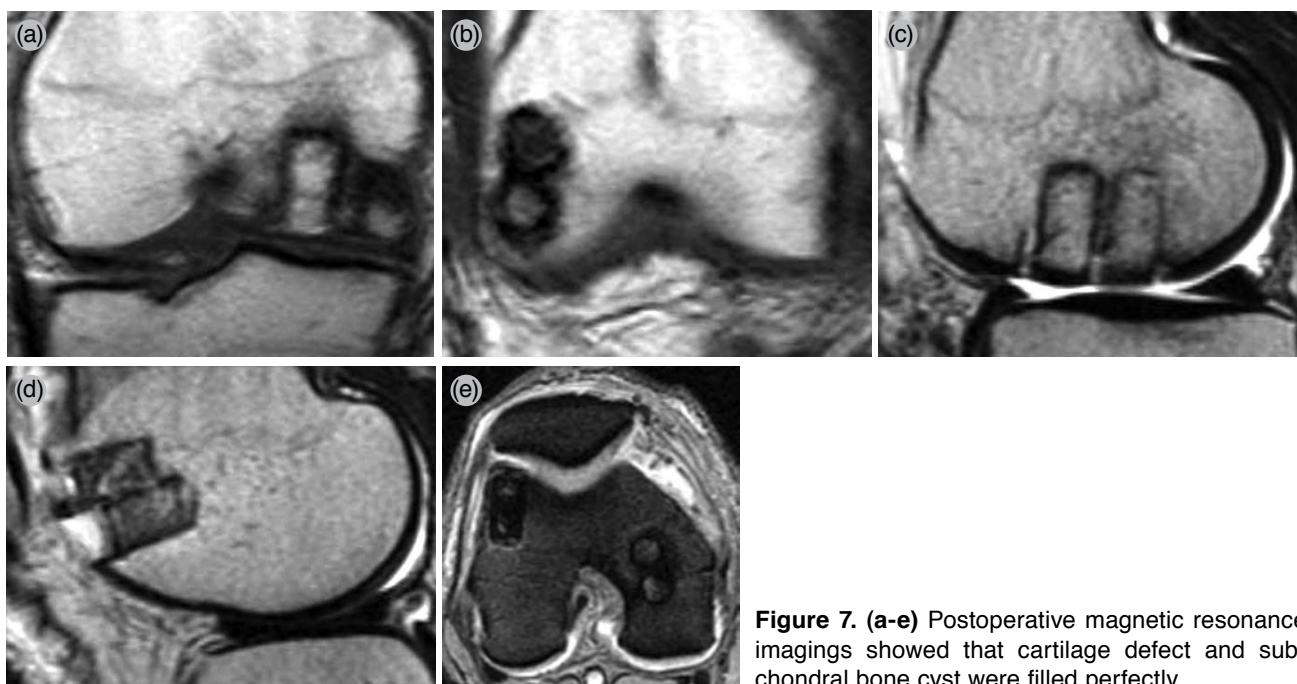


Figure 7. (a-e) Postoperative magnetic resonance imagings showed that cartilage defect and subchondral bone cyst were filled perfectly.

22 (56%) had a successful and 17 (44%) an unsuccessful result.^[7]

Osteochondral multiple autograft transfer following intraarticular curettage and bone grafting of SBC can cause instability of the osteochondral autografts. For this reason, we preferred the extraarticular approach. The stability of the grafts turned out perfect with this technique. This was the first novelty we observed with this technique.

The defects on the donor site are filled with fibrous tissue during the healing process with any surgical technique either OMAT or mosaicplasty. This process takes about six months' time. The bony grafts obtained from the recipient area are not used routinely for any purpose. In our case, the defects on the donor site were filled with the bony grafts obtained from recipient area. We performed this technique with the assumption that these bony grafts will be beneficial for a faster and better healing of the defect in the donor area. This was the second novelty of our technique.

In conclusion, a modified OMAT following extraarticular curettage and bone grafting of SBC

is a promising technique for the treatment of OCD with an SBC of the femoral condyle.

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