

International Journal of Orthopaedics Sciences

ISSN: 2395-1958
IJOS 2015; 1(1): 22-25
© 2015 IJOS
www.orthopaper.com
Received: 10-12-2014
Accepted: 19-02-2015

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A rare complication following Unicompartmental knee arthroplasty treated by arthroscopy: A case report

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Abstract

Cement extrusion at Unicompartmental Knee Arthroplasty (UKA) procedure, into the anterolateral compartment of the knee is rare. Complications after a UKA procedure, such as bearing dislocations, polyethylene wear, aseptic loosening and progressive arthritis have been reported. We would like to report a case of cement extrusion into the anterolateral compartment on a patient with UKA. With the direct arthroscopic visualization method this complication was treated successfully. When cementing the prosthesis, it is important to take attention to remove extruded cement, visualize all parts of the knee and wash the surgical area to prevent this complication during UKA.

Keywords: Unicompartmental knee arthroplasty, Cement, Complications

Key Messages: Cement extrusion to the anterolateral compartment is rare but could seriously be disabling, if not treated.

1. Introduction

UKA is one of the main treatment options for isolated medial tibiofemoral osteoarthritis. [1, 2] Complications after UKA, published by many authors, including insert dislocation [3, 4], aseptic loosening [2, 4, 6], infection [4], patellofemoral pain [5], and progressive arthritic changes in the unreplaced compartments [6]. Complications related with the extrusion of cement after UKA are rare, there are only a few reports about complications of cement extrusion at the total knee arthroplasty procedure and extrusion of the cement to the posteromedial compartment after the UKA procedure [7, 8, 9]. To our knowledge this is the first case of bone cement extrusion to the anterolateral compartment which caused pain, a sticking sensation and decreased range of motion after UKA treated with arthroscopic procedure using anterolateral and anteromedial portals.

2. Case History

A 49-year-old woman with medial compartment osteoarthritis had UKA (Biomet Ltd, Bridgend, UK) procedure for her right knee. In her early postoperative Plain Radiographs (PR) the femoral and tibial components were implanted properly and the alignment of the leg was satisfactory but a radiopaque density was noted in the anterolateral compartment of the right knee (Fig. 1 a, b).

To verify the radiopaque density Computer Tomography (CT) was performed and a radiopaque vision was seen at the anterolateral compartment of the knee. (Fig. 2).

On physical examination, swelling was found all over knee with an increased temperature and tenderness at the anterolateral area of the knee, and there was a limitation at the Range of Motion (ROM) (95°). Neurovascular examination was normal. We performed an arthroscopic removal of the cement extrusion material from the anterolateral compartment. Anterolateral and anteromedial portals were used to perform the procedure. Anterior compartment visualization was made by using 30° scope. It was clearly seen a cement particle at the anterolateral area. The grasp was inserted from the anteromedial portal (Fig. 3).

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Fig 1a: Early postoperative anterior posterior roentgenogram.



1b: Early postoperative lateral roentgenogram. Cement is shown with arrow.



Fig 2: Computer tomography scan that shows the cement with arrow on the anterolateral compartment

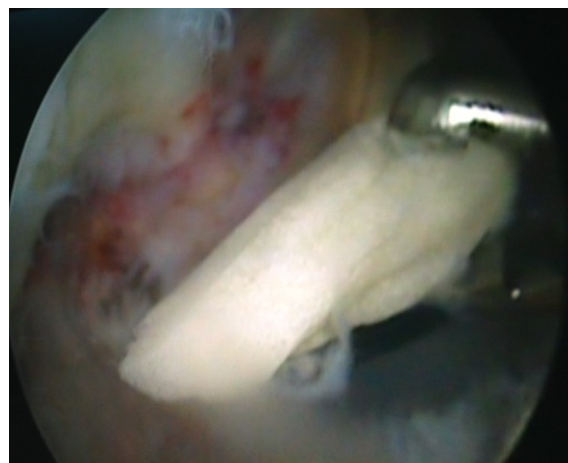


Fig 3: Perioperative cement showed with the arthroscopic technique

Cement particle was removed by using the direct anterior-anterior triangulation method (Fig. 4 a, b).

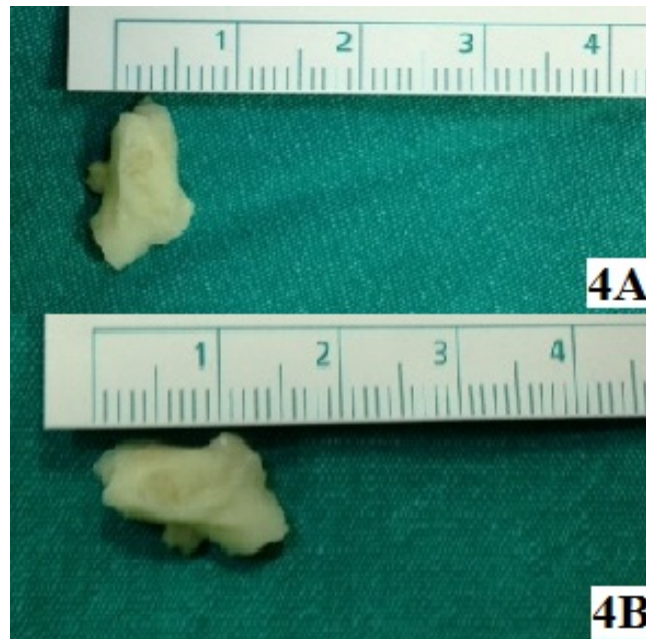


Fig 4a, b: Size of the cement particle

Postoperative CT and PR showed complete removal of cement debris from The anterolateral compartment (Fig. 5 a, b, c).

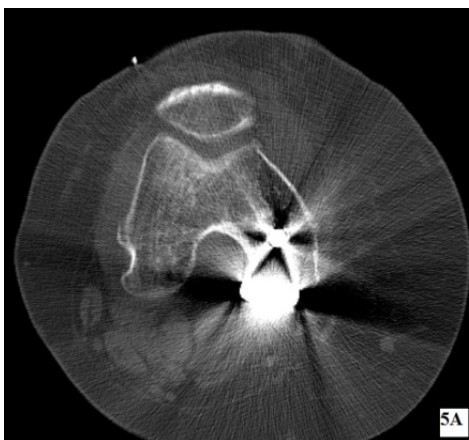


Fig 5a: Early postoperative computer tomography scan after arthroscopic procedure,



Fig 5b: Early postoperative lateral roentgenogram after arthroscopic procedure,

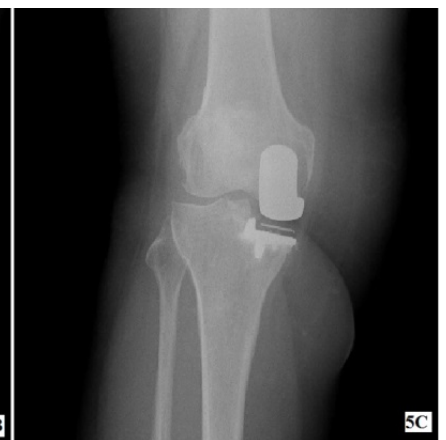


Fig 5c: Early postoperative anterior posterior roentgenogram after arthroscopic procedure

The patient was allowed to have weight bearing on the first postoperative day. At third month follow-up examination, the patient was pain free and didn't have any discomfort. The patient had a full knee ROM (135°). Haematological and biochemical investigations (complete blood count, prothrombin time, activated partial thromboplastin time, erythrocyte sedimentation rate, and C-reactive protein) were in the normal ranges.

3. Discussion

UKA was first developed in the 1950s by McKeever and MacIntosh. In 1978 the meniscal bearing was introduced by Goodfellow. UKA is could be a solution for the treatment of

medial compartment osteoarthritis of the knee due to its long and short term satisfactory results [10, 11]. The advantages of UKA include smaller incision with minimally invasive surgery, preservation of bone stock, better knee ROM and kinematics, shorter rehabilitation period, less blood loss and decreased hospital admission theologically but because of limited vision of the surgical area and due to extraction; soft tissue damage could increase. [10] There are only a few reports about complication of cement extrusion at UKA procedure and this is the first report about cement at the anterolateral compartment. In our case, cement extrusion into the anterolateral compartment caused pain which was starting over the anterolateral area of the knee with a trapped feeling and a

clicking at the knee, after UKA. The symptoms that should put light on cement extrusion in UKA are: (1) serious pain over the anterior aspect of the knee increasing with activity, (2) pain with full flexion, less pain with during extension (3) a radiopaque vision on PR and CT as was seen in this case.

In minimal invasive surgery the vision of the surgeon is limited. During cementing period of tibial or femoral component, cement may pass out into the anterolateral compartment of the knee. At the time of surgery, this cement could be undetected because of limited vision of the surgical area. Surgical area has to be investigated for any particles and should be lavaged. To our knowledge this is the first case treated with arthroscopic method for removing cement fragments from the anterolateral compartment of the knee. As a result, attention should be taken to (1) Removing completely the extruded cement (2) Washing the surgical area (3) Visualizing all compartments of the knee through limited vision of the minimal invasive incision for preventing this complication during UKA. This complication is rare but could be seriously be disabling, if not treated.

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