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Ablation of a Patellar Button by Arthroscopy

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Abstract

Fracture of the patella after total knee arthroplasty is an infrequent complication. In the presence of poor remaining bone stock, avascular necrosis, removal of the implant with partial or complete patellectomy is recommended. Arthroscopic removal of a loose body or cement extrusion has been recently attempted successfully in very few cases, where loose and mobile cement fragments were involved and were often removed piecemeal. The authors experienced an unusual case of a patient a 69-year-old woman who, after having fallen down, presented a comminuted patellar fracture. We recommended an external orthosis and a temporary limitation of activity. Four months later, the patient complained. An X-ray revealed a necrosis of the proximal fragment and a lowering of the patellar button with the distal bone fragment. The removal of the patellar button was performed by arthroscopy. Conservative treatment can be successful for this patients and the removal of the patellar button loosening via arthroscopy appears to be an attractive technique to be used in similar cases.

Keywords

Knee, Patellar Button, Loosening, Arthroplasty

1. Introduction

Patellar fractures after total knee arthroplasty may be due to trauma or stress fractures. Operative treatment usually is required for patellar fracture associated with extensor disruption and for those associated with a symptomatic loose implant [1] [2]. Treatment options range from nonoperative methods to open reduction and

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internal fixation, component resection and patelloplasty, and partial or complete patellectomy [1]-[3]. Decision making concerning optimal treatment can be complex. Surgical options depend on the quality of the remaining patellar bone stock. Some of the options that can be used for managing the patella in revision knee arthroplasty include patellectomy, resection of the patellar component leaving an unresurfaced patellar bone remnant [3]-[6]. Arthroscopic removal of a loose body or cement extrusion has been recently attempted successfully in very few cases, where loose and mobile cement fragments were involved and were often removed piecemeal [7]-[9]. We report on arthroscopic removal of the loosening patellar button.

2. Case Report

A 69-year-old woman fell down in her garden 2 years after a total knee arthroplasty (NexGen® Legacy® Zimmer, Inc.) for a three-compartmental arthrosis. She presented with a painful hemarthrosis. An X-ray revealed a comminuted patellar fracture, without extensor disruption. We recommended an external orthosis and a temporary limitation of activity. Four months later, the patient complained of pain and swelling while climbing the stairs. The patient still had knee mobility, with 125˚ of flexion and complete extension. An X-ray revealed a necrosis of the proximal fragment and a lowering of the patellar button with the distal bone fragment (**Figure 1**). We decided to remove the patellar button by arthroscopy.

The fibrous tissue was removed using a shaver (TPS Shaver System, Stryker) and a radiofrequency system (VAPR, Johnson & Johnson Gateway® U.S), enabling the release of the button from the articulation by a small internal incision (**Figure 2** and **Figure 3**). This was carried out using an arthroscopy device and a translucent light through the skin. A plain radiography was realised the following day (**Figure 4**) and immediate mobilisation was permitted, as was walking with the assistance of two crutches, and a knee extension orthesis was worn for 6 weeks. Six months later, the patient recovered without further complications and is now walking unaided. She retained good flexion of 120˚ with no instability, and his most recent knee score was 80.

3. Discussion

Total knee arthroplasty, a very successful method to treat degenerative alterations of the knee, is used with increasing frequency worldwide due to aging populations and the desire to preserve quality of life [1] [6]. The patellofemoral joint continues to be problematic in revision knee arthroplasty. Some studies have found that

Figure 1. Lateral view of the knee showing the fracture of the patella. White arrow: translucent patellar component.

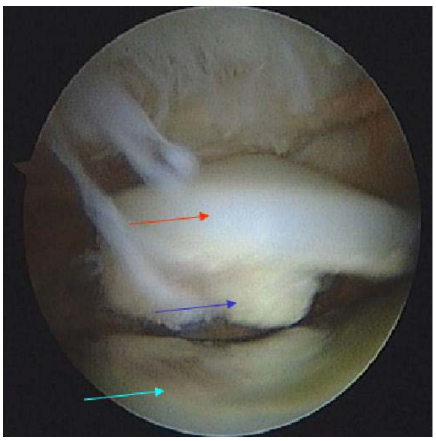

Figure 2. Arthroscopic intra-articular view. Red arrow: articular part of the patellar component; blue arrow: medial peg of the patellar component; cyan arrow: femoral component.

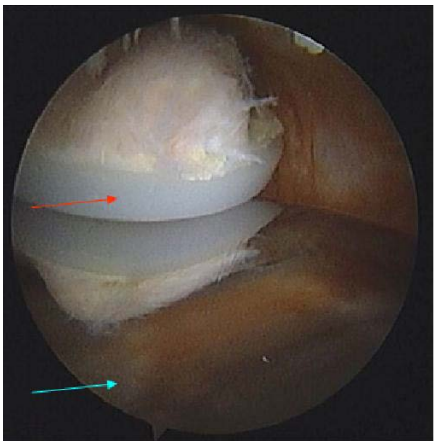

Figure 3. Arthroscopic intra-articular view: Red arrow: patellar component; cyan arrow: femoral component.

Figure 4. Lateral view of the knee day one after the removal of the patellar component.

patellofemoral complications after total knee arthroplasty are associated with the use of the patellar component [1]-[3]. These complications include fracture and patellar component loosening [1]-[5] [10]. Patellar complications after knee arthroplasty are uncommon but often potentially serious. In addition, fewer treatment options are available for patients that have undergone patellar resurfacing [1]-[3]. Management of the patella in the revision setting is challenging and controversial [1]-[5]. Operative treatment often is required if symptoms are sufficiently troublesome. Surgical options depend on the quality of the remaining patellar bone stock. Fractures with good remaining bone stock may be treated with revision of the patellar component or with resection of the component and patelloplasty [1]-[5]. In the presence of poor remaining bone stock, osteonecrosis as our patient, removal of the implant with partial or complete patellectomy is recommended [1] [2]. While revision of the patellar component when technically possible is preferable to resection of the component and leaving the patella unresurfaced [3].

The use of arthroscopy to remove a loose body or soft tissue in the case of clunk syndrome or patellofemoral soft tissue impingement is well-described in scientific literature [3]-[5]. Arthroscopic removal of retained cement may be performed successfully without complications [8]-[13]. Thus, arthroscopy appears to be an effective technique for resolving complications caused by the loosening patellar button with minimal postoperative morbidity and for facilitating early rehabilitation. In our case, the patient had no pain during walking one day postoperatively.

This report also illustrates options for the management of this complication. The standard treatment involves revision. Conservative treatment can be successful for this patients and the removal of the patellar button loosening via arthroscopy appears to be an attractive technique to be used in similar cases. Our patient preserved good range-of-motion and a good knee score and ambulates independently.

4. Conclusion

Revision of the patellar component may be difficult particularly in the face of loss of patellar bone stock. While revision of the patellar component when technically possible is preferable to resection of the component and leaving the patella unresurfaced. Conservative treatment can be successful for this patients and the removal of the patellar button loosening via arthroscopy appears to be an attractive technique to be used in similar cases.

Conflict of Interest

None.

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