Results of Arthroscopic Partial Meniscectomy for Lateral Discoid Meniscus Tears Associated with New Technique

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Purpose: To introduce and evaluate the clinical results of a new arthroscopic technique for partial meniscectomy of symptomatic lateral discoid meniscus using a knife.

Materials and Methods: From March 2005 to October 2010, 60 knees of 58 patients underwent arthroscopic partial meniscectomies for lateral discoid meniscus. The average age was 28.9 years (range, 12 to 63 years), and average follow-up was 26 months (range, 8 to 72 years). In this procedure, using a No. 11 knife holder inserted through the high far anteromedial portal, a stab incision on the anterior meniscal horn and following piecemeal meniscal excision were made. Clinical results were assessed using the scale of Ikeuchi and Lysholm score.

Results: Meniscus shape was complete in 32 knees (53.3%) and incomplete in 28 knees (46.6%). The shape of tears in complete type lesions was horizontal cleavage in 17 knees (53.1%), flap or complex degenerated tears in 10 knees (31.2%) and radial tears in 5 knees (15.6%). Clinical results assessed using the scale of Ikeuchi were excellent in 38 (63.3%), good in 13 (21.6%), fair in 8 (13.3%) and poor in 1 knee (1.6%). The average Lysholm score was improved from 82.8 preoperatively to 95.4 postoperatively.

Conclusions: Our new arthroscopic technique in lateral discoid partial meniscectomy suggests convenient methods and successful clinical results.

Keywords: Lateral meniscus, Discoid, Meniscectomy

Introduction

The discoid meniscus was first described by Young in 1889, and the prevalence has been reported to range from 0.4% to 20% depending on the method of investigation, selection criteria and the patient population. Considering the important function of the meniscus, partial meniscectomy, rather than total meniscectomy leading to late radiographic degenerative change, has been preferred in the treatment of discoid meniscus with tear. Many methods of partial meniscectomy have been introduced, such as open excision, piecemeal arthroscopic excision, morcellation excision and semiarthroscopic technique. Current treatment commonly involves arthroscopic partial meniscectomy to reshape the meniscus, referred to as saucerization, in conjunction with repair of any detached or unstable fragment. Hayashi et al. and Vandermeer and Cunningham suggested the one-piece technique, but did not present an appropriate surgical technique in detail. Kim et al. described an arthroscopic one-piece excision technique for 30 cases of treatment of symptomatic lateral discoid meniscus in 1996, and presented good clinical results. Ogata suggested an arthroscopic two-piece excision technique rather than Kim et al.’s one piece technique. However, these procedures are difficult to perform because of the confined working space within the compartment, and the difficulty in determining the width of the retained rim. In addition, these one- or two-piece techniques require enlargement of the portal to accommodate removal of a large meniscal piece. On the other
hand, an arthroscopic piecemeal excision is technically easy, but is a time-consuming procedure and poses the risk of damage to the articular surface due to frequent use of instruments. The purpose of this study is to introduce a new surgical technique for arthroscopic partial meniscectomy of the symptomatic lateral discoid meniscus and investigate clinical results. Our hypothesis was that this surgical technique for lateral discoid meniscus would be a simple, easy method that leads to good clinical results.

Materials and Methods

1. Subjects

Seventy-six cases of 74 patients who underwent arthroscopic meniscectomies for symptomatic lateral discoid meniscus from March 2005 to October 2010 were retrospectively investigated. All cases were diagnosed preoperatively by magnetic resonance imaging (MRI), and were classified using the system of Watanabe et al. which was based on the degree of coverage of the tibial plateau and stability (complete, incomplete and Wrisberg types). Surgical arthroscopic treatment was recommended for symptomatic discoid menisci such as locking, catching, clicking, other mechanical symptoms, pain and effusion only when conservative methods of treatment such as rest and nonsteroidal anti-inflammatory drugs had failed. We excluded 16 cases of 16 patients that underwent total meniscectomy, concomitant suture repair of the peripheral meniscal tear or partial meniscectomy in conjunction with ligament surgery in this study. Therefore, 60 cases of 58 patients were available for evaluation and follow-up using clinical and physical examination. The mean age of the 58 patients was 28.9 years (range, 12 to 63 years), and there were 23 men and 35 women. The surgery was performed on 34 right and 26 left knees, and two of the patients had bilateral lesions. Review of the patients’ medical records allowed determination of the presenting complaint in the affected knee, as well as the duration of symptoms and presence or absence of an acute precipitating injury. Tears of the discoid meniscus were classified with respect to the shape of the tear, including some kind of horizontal cleavage with or without peripheral tear, radial tear, complex degenerated tear or flap tear. This classification was based on preoperative MRI and intraoperative arthroscopic findings.

2. Surgical Technique

All arthroscopic procedures were performed by a single surgeon (ISS). In this procedure, a high lateral patellofemoral axillary portal and a standard anteromedial portal in a 70° flexion of the knee were used (Fig. 1). After the joint was distended, a routine arthroscopic examination was performed through the aforementioned portals using a 30° arthroscope. For better visualization of the lateral compartment, an assistant applied consistent varus stress to the joint. Visualization and probing of the meniscus was performed to check the status and tear pattern of the meniscus (Fig. 2). Then, we made a high far anteromedial portal, located approximately 1.5 cm medial to the standard anteromedial portal, after determining the passway by inserting a spinal needle and viewing its entry into the anterior portion of the lateral discoid meniscus (Fig. 3). The incision of the high far anteromedial portal was aligned in a transverse direction.