Posttraumatic Monocondylar Gonarthrosis: Does Monocondylar Sleigh Arthroplasty Increase Joint Function and Quality of Life?

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Abstract

Background: The aim of this study was to evaluate if monocondylar knee arthroplasty increases the range of motion and life quality in patients with monocondylar posttraumatic gonarthrosis.

Patients and Method: 38 patients with monocondylar posttraumatic gonarthrosis were treated between January 1990 and December 1995. Gonarthrosis was predominantly caused by fractures of the lower leg (50.0%) following by fractures of the thigh (23.7%) and traumatic knee damages (26.3%). The average age of patients treated was 63.4 years and thus lower than in patients with nontraumatic monocondylar gonarthrosis.

Results: Monocondylar knee arthroplasty did not increase the range of motion but the range of walking distance and quality of life measured by pain character and pain intensity. Rated by the “Knee Society Score” the average number of points was 166.2 (max. 200 points). Rated by the “Hospital of Special Surgery Score” the average number of points was 75.7, corresponding with a good result (70–84 points).

Conclusion: Monocondylar knee arthroplasty in patients with monocondylar posttraumatic gonarthrosis leads to increased life quality, decreased pain level, increased level of activity and preserves joint function.

Key Words

Monocondylar posttraumatic gonarthrosis · Monocondylar knee arthroplasty

Introduction

80% of all people > 55 years suffer from gonarthrosis. But: every fifth patient suffering from gonarthrosis is < 60 years. Next to the idiopathic form (70%) rheumatoid and posttraumatic gonarthrosis occur almost equally (15–12%) [1, 2].

When conservative/functional therapy fails, surgical treatment is requested enclosing either arthroscopy, tibial osteotomy or arthroplasty as well for pagonarthrosis as for monocondylar posttraumatic gonarthrosis.

In the beginning of the 90s Rand & Ilstrup [3] and Sisto et al [4] found out that mid- and long-term results of arthroscopy are limited [3, 4]. That is why arthroscopy plays a secondary role in the treatment of monocondylar posttraumatic gonarthrosis. High tibial osteotomies show promising midterm results, long-term results are worse compared to arthroplasties [5, 6]. Advantages of monocondylar sleigh arthroplasties are minimal loss of bone stock, sparing of the crucial ligaments and the femoropatellar joint. Additionally short operation time, low morbidity and good postoperative...
range of motion are reasons for monocondylar sleigh arthroplasties [7, 8]. Long-term results don’t reach the same high level as total knee arthroplasties [9]. Important for successful arthroplasty therapy with monocondylar sleigh arthroplasties is strict indication and selection of patients.

**Patients and Method**

Between January 1990 and December 1995 at the University Hospital “Bergmannsheil Bochum” 38 patients (22 male, 16 female) with an average age of 63.4 years (60–89 years) were treated by monocondylar sleigh arthroplasties (Protek; Allegretto®) because of monocondylar posttraumatic gonarthrosis (Figure 1). In 50.0% (n = 19) monocondylar posttraumatic gonarthrosis was caused by high tibial fractures, affecting the alignment of the knee, in 26.3% (n = 10) monocondylar posttraumatic gonarthrosis was caused by traumatic affections of the anterior crucial ligament and menisci, 23.7% (n = 9) patients suffered from femoral fractures (Tables 1 and 2). 47.7% (n = 18) had posttraumatic varus deformity, 42.1% (n = 16) posttraumatic valgus deformity and in 10.5% (n = 4) no axis deformity was provable. Latency period between trauma and implantation of monocondylar sleigh arthroplasty was averaged 26.1 years (1–39 years) in femoral fractures and averaged 18 years (1–50 years) in tibial fractures. Suffering from ligamentous or meniscal affections it took averaged 25.3 years (1–56 years) from trauma to monocondylar sleigh arthroplasty. Preoperative range of motion, range of walking, pain character and pain intensity are mentioned in Tables 3 to 7.

Following clinical diagnostics (physical examination, neurological status of the lower extremities, “Doppler-sonography” of arteriae tibialis posterior and dorsalis pedis on both sides) radiological diagnostics were proceeded (spot-film radiography of the knee anterior-posterior and in lateral projection, stress radiography anterior-posterior in valgus and varus, X-ray of the whole leg in anterior-posterior projection to figure