Abstract  We report a study of 2 surgical approaches to the knee in 42 consecutive patients undergoing a total arthroplasty. They were divided into 2 groups. In Group 1 (n=17) the knee was exposed through classic medial parapatellar arthrotomy and in Group 2 (n=25) the knee was approached through the fibers of the medial vastus. Preoperative assessment did not reveal any statistical differences between the groups, and blood loss, operation time, biochemistry values and radiographic evaluation were also similar. However, a higher number of lateral releases, a loss of knee extension and a reduced range of motion were significantly associated with classical parapatellar arthrotomy. As the number of operative or postoperative complications was not increased, we recommend the mid-vastus approach for total knee arthroplasty.

Introduction
Total knee arthroplasty has been traditionally performed through a classic medial parapatellar approach, either by dividing the fibers of the medial patellar retinaculum a few millimeters away from their patellar insertion, or by detaching it from its insertion on the patella. Both methods also involve a section of the quadriceps tendon in the direction of its fibers.

Several other approaches for primary surgery have been described. Two of these are of special interest: a sub-vastus or “southern” approach in which the medial vastus is split and thus the integrity of the quadriceps tendon is preserved, and a lateral approach, which is indicated for patients with a significant valgus deformity [1,11].

A new approach, called a trans- or mid-vastus approach, has recently been published. It differs as it involves splitting of the medial vastus in the direction of its fibers, which arise from the proximal and medial margin of the patella. This then allows the patella to be “evverted” [6,7,8,16].

Due to the increase in patellar forces resulting from the body’s weight while walking, climbing stairs or squatting, patellar complications arise from defects either in the performance of the surgical technique or from defects in the design of the procedure. These complications may result in an increase in mechanical patellofemoral forces.

We have made a retrospective study of our total knee arthroplasty patients in whom 2 different approaches to the joint were used.

Materials and methods
Between 1996 and 1997 the same surgical team performed a total of 42 total knee arthroplasties. The same implant and instrumentation was used in all cases (Interax, Howmedica, Rutherford). The posterior cruciate ligament was always preserved and cementation was used for fixation. The mid-vastus approach was employed in 25 patients and the standard medial parapatellar approach in 17 patients.
With the knee in a flexed position on the operating table, the skin is incised in the mid-line. Scarpa’s fascia is exposed on the medial side of the knee as far as the medial patellar retinaculum. The medial vastus is then split 4–5 cm in the direction of its fibers (Fig. 1). The approach is continued distally to the level of the anterior tibial tuberosity by section of the medial patellar retinaculum a few millimeters away from its patellar insertion. The muscular attachments of the medial vastus to the patella are preserved in order to facilitate closure (Fig. 2).

In order to obtain total mobilization of the patella it is important to divide completely the suprapatellar bursa and the femoropatellar ligament. This will allow adequate exposure of the knee joint (Figs. 3, 4).

The knee should be flexed during closure so that sutures can be inserted with the tissues under tension. This will avoid separation when the joint is moved. The muscle fibers should be lightly sutured without tension.

All patients received the same anti-thrombosis and antibiotic prophylaxis, and patients were excluded either as a result of the etiology of their knee problem or because of the presence of any previous pathology. A tourniquet was always used and was released after closure of the incision. Drainage was maintained for 48 h, knee movements were allowed after 24 h and walking with sticks after 2 days. The results were assessed clinically, functionally and radiographically.

Preoperative examination included age, sex, operated side, weight, height, range of motion, varus-valgus deformity or flexion deformity, severity of radiographic changes (Ahlbäck degree), femoro-patellar degeneration, patellar subluxation, preliminary diagnosis, haemoglobin and haematocrit, and clinical scoring according to the American Knee Society scale.

A prospective follow-up protocol was used for each patient and the following data were recorded: intra-operative data (lateral release of external patellar retinaculum), immediate postoperative data (blood loss), haemoglobin and haematocrit on day 3, ability to reach total active extension of the knee by day 5, and the range of knee motion at discharge. Scoring for each patient after 1, 6 and 12 months was recorded according to the American Knee Society clinical evaluation protocol (range of motion, pain at rest or while walking, walking time, ability to stand up from a chair, walk up and down stairs, residual flexion, instability and extension lag).