

# SUPERCAP APPROACH IN HIP REPLACEMENT AFTER FEMORAL NECK FRACTURES

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**Introduction:** Prosthesis in femoral neck fracture always has higher complications rate than election's procedure. Among these complications is the dislocation. In the strategies to reduce the risk of dislocation there is the use of tissue-sparing approaches that preserve integrity of the capsule. Among these is the approach type SUPER-Cap. Since 2003, micro-posterior approaches, including Supercap, PATH and Super-Path, diffused rapidly. Stephen B. Murphy introduced the Superior Capsulotomy as an elective procedure. Although they are not an evolution of previous surgical techniques but totally new approaches, they are considered by the Authors the end point of a continuum, started with the standard posterior surgical access followed by the mini-invasive technique and the micro-approaches. The similarity with the previous techniques is considered extremely important for the learning curve, because the surgeon can learn progressively less invasive procedures without totally changing the classic technique, and eventually, he can rapidly go back to a more invasive operation he is more familiar with. After 2006, the number of patients has increased beyond 1500. Despite the numbers none of the patients had an emergency surgery for hip fracture but all the procedures where elective. In this case series, we evaluate our experience with the Supercap approach in traumatology, assessing clinical outcomes and the learning curve.

**Materials and methods:** 52 patients with a fracture of proximal femoral were treated with total or emi-arthroplasty using the Supercap approach. 41 patients were available to be included in this study. 33/41 were women (80%), avg age 83 y, 51% were left femoral fracture. 37 patients had intracapsular fractures, while 4 were basicervical and one of which was classified as intertrochanteric during surgery. These parameters were evaluated: prosthesis model implanted, need of blood transfusion during surgery and in the post-op, anesthetic technique, time of surgery, possible complications, hospital lenght stay, HHS/OHS one year after surgery, and x-ray evaluation (Complication, mobilization, length differences) one year after surgery.

**Results:** Bipolar emi-arthroplasty replacement was chosen in 70% of the patients. Cement fixation was always used. No surgical navigation was employed. Cup inclination angle typically ranges from 30° to 50°. No dysmetria more than 1 cm. Femoral head size diameter were 28 mm in 55% patients, 36 mm in 27,5% and 22,25 mm in 17,5%. Finned stem were used in 100% of patients and modular neck were always used, 80% straight and in 20% with 8° var/val. Cup used were mostly 50 and 48 mm. Only 55% of patients underwent surgery within 48 hours from hospital admission due to the need of a multidisciplinary clinical evaluation in patients with critical comorbidity. Subarachnoid anesthesia was provided in 75%, otherwise general anesthesia, and in one case spinal was converted in general anesthesia. No intra-operative fractures, neuro-vascular lesions or cup slipping were recorded during surgery. Duration of surgery was in a range of 60-125 minutes, with a reduction of avg duration in the last operations performed (90 min vs 100 min). Blood transfusion was in average 0.8 blood

units during surgery (0-4) and 1,6 after surgery (0-4). Hospital length stay was in average 9.7 days (range 7-15) due to high comorbidity in our patient.

**Conclusions:** The supercap approach proved safe, without intraoperative complications and the learning curve was short. There are no differences in terms of morbidity and morbidity after surgery compared with the posterolateral approach in use at our institution. There were no mechanical complications in the post operative and in follow up. In conclusion, the supercap approach can be easily used also in traumatology, with the advantage of preserving tissues, external rotators and the posterior capsule: thus reducing the risk of dislocation related to the access.