

MiniMAX stem: preliminary results of a new anatomic stem implanted using the anterior approach

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Introduction We analyse clinical and radiological results of 146 patients who were operated on cementless hip arthroprosthesis with MiniMAX[®] anatomic stem (Medacta International SA), between October 2007 and December 2010, through an anterior approach.

Materials and methods The prosthesis was chosen because it is designed following the modern concepts of shape and anchorage, which must be performed between femur and metallic implant to optimize “fit and fill”. It is an anatomic stem prosthesis. The contemporary acetabular shell implant was done using the cup Versafitcup[®] CC (Medacta International SA), as press-fit, with a ceramic insert. All surgeries were performed by using AMIS[®] technique (Anterior Minimally Invasive Surgery, Medacta International SA). The anterior approach is the only technique that follows a path both intermuscular and internervous and therefore considerably reduces the risk of damaged periarticular structures. To facilitate the surgical phases and to make the surgery reproducible, we add an integrative extensor device to the standard operating table: the AMIS[®] Mobile Leg Positioner which allows hip flexion, extension, abduction, adduction and internal and external rotation. The use of this device allows the reduction of: (1) theatre assistants required throughout the procedure; (2) surgical phases reproducibility.

Results We found the following relevant advantages: no muscles cut, significantly shorter rehabilitation, a small skin scar, decreased postoperative pain, less blood loss, reduced hospital stay, no dislocation, faster return to daily activities. In the short-term, the stem is radiographically well integrated in the bone with a good metaphyseal grip. No loosening has been highlighted. Two revisions were performed because of suspected infection.

Discussion The curved design of the stem on both surfaces, sagittal and frontal, facilitates the insertion through a small incision. Also dimensions, which are shorter respect to other prosthetic patterns, are suitable for a minimally invasive approach. The clinical result of lack of thigh pain in all examined cases confirms the choice of a specific and unique tip design optimised to guide the prosthesis insertion into the femoral canal and to avoid distal interference.

Conclusions Very good efforts in the short-term support a good synergy in choosing the implant of this anatomic stem with anterior approach.