Arthroscopic Reduction and Internal Fixation of Tibial Plateau Fractures (MIS Technique) (SS-43). *Sanjay Chaturvedi, MS, DNB, MNAMS*

Summary: Tibial plateau fractures, result of a high-energy trauma and commonly associated with significant soft-tissue and intra-articular injuries. Minimally invasive surgery offers less soft tissue damages, good reduction and stable fixation of the fracture. This study evaluates the combined arthroscopic and radioscopic assisted reduction and internal fixation of tibial plateau fractures 14 out of 16 patients had satisfactory result. Arthroscopic reduction and internal fixation can restore articular congruity with rigid fracture stabilization. 10 patients had associated intraarticular injury treated at the time of arthroscopy. Arthroscopy can provide definitive treatment, less stripping, better visualization, and early return to physical activities with less damage to intraarticular structures.

Tibial plateau fractures are complex lesions capable of causing severe consequences if not appropriately treated. They are often the result of a high-energy trauma and commonly associated with significant soft-tissue and intra-articular injuries. Different therapeutic options can be managed in the treatment of these lesions. Minimally invasive surgery offers several advantages compared to other surgical techniques and allows, with less additional soft tissue damages, good reduction and stable fixation of the fracture.

In this study we assessed the results of the combined arthroscopic and radioscopic assisted reduction and internal fixation of tibial plateau fractures in 16 patients affected by Schatzker type I, II, III, IV fractures. According to Hohl's and Rasmussen's grading system, 14 out of 16 patients scored a satisfactory result. We experienced no complications due to arthroscopy.

Arthroscopic reduction and internal fixation of tibial plateau fractures can facilitate restoration of articular congruity while permitting rigid fracture stabilization. Sixty-four percent of patients had associated intraarticular injury diagnosed and treated at the time of arthroscopy. Arthroscopic reduction and internal fixation provides an accurate assessment of, and allows definitive treatment for, intraarticular injuries associated with tibial plateau fractures. The technique allows less soft tissue stripping than with traditional arthrotomy, better visualization of the articular surface, early return to physical activities, and obviates the need for meniscal detachment and repair.

Arthroscopic Autologous Chondrocyte Implantation: Three New Unique Arthroscopic Techniques Utilizing New Instrumentation (SS-44). *Stephen P. Abelow, MD, Pedro Guillen, MD, Marta Guillen, MD, Isabel Guillen, MD*

Summary: Utilizing newly developed instrumentation autologous chondrocyte implantation can be performed arthroscopically. Arthroscopic MACI can be implanted in sites where suturing of a periosteal flap is difficult or even impossible. An arthroscopic MACI technique can be an effective treatment for large chondral defects with minimally invasive arthroscopic technique as an outpatient procedure.

Abstract: Three new arthroscopic techniques of Autologous Chondrocyte Implantation have been developed. Autologous chondrocyte implantation (ACI) has yielded good to excellent results in greater than 77% of the cases of deep chondral lesions. As a periostal flap must be harvested, sutured in place, and cultred chondrocytes injected underneath the flap, a wide arthrotomy incision is often necessary. Until recently arthroscopic ACI implantation has been difficult or impossible. Matrix/Membrane Autologous Chondrocyte Implantation (MACI) is a new biotechnology allowing the impregnation of autologous cultured chondrocytes onto a bilayer, bioabsorbable, purified porcine collagen I/III membrane. The MACI implant is fixed in place with fibrin glue and can be performed arthroscopically.

New arthroscopic techniques have been developed for MACI implantation. Utilizing specially designed cannulas, the defect is prepared with curettes, templated with a newly designed arthroscopic caliper, and glued in place. Articulated instruments have been developed to insure proper seating of the MACI graft. Another arthroscopic technique utilizing mini suture anchors and a modified arthroscopic cannula allow for the MACI implant to be guided into place by the sutures and then fixed inplace with fibrin glue. Histological sutdies show a hyaline-like cartilage with immature chondrocytes. MRI show progressive loss of subchondral edema. Patients report better than 70% good to excellent results (in spite of very large chondral lesions).

Conclusions: Arthroscopic MACI can be implanted in sites where suturing of a periosteal flap is difficult or even impossible. An arthroscopic MACI technique can be an effective treatment for large chondral defects with minimally invasive arthroscopic technique as an outpatient procedure.

Prospective Evaluation of Osteochondral Defects in the Knee Treated with Biodegradable Scaffolds (SS-45). *Philip A. Davidson, MD, Dennis W. Rivenburgh, PA-C, ATC*