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O11.6 CLINICAL APPLICATION OF A HIGH FREQUENCY ELECTRIC KNIFE WITH COBLATION TECHNOLOGY FOR TEMPOROMANDIBULAR JOINT ARTHROSCOPIC SURGERY

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A high frequency electric knife with Coblation technology has been used in the fields of neurosurgery and orthopaedic surgery. Coblation, derived from "cooler, controlled ablation", is a patented process employing bipolar radiofrequency technology to achieve precise and rapid tissue removal with minimal thermal damage to collateral tissue. This study examined the efficacy and safety of this instrument to arthroscopic surgery of the temporomandibular joint (TMJ). We clinically applied a high frequency electric knife, ArthroCare Multi-electrode System (tip angle; 0 degrees, tip diameter; tissue penetration depth; 0.12 mm), to arthroscopic surgery of the TMJ. This system was used in 33 joints of 25 patients, 5 males and 20 females with a mean age of 48 years. The range of mouth opening improved from 27 mm before surgery to 44 mm after surgery, the visual analogue scale score of pain during jaw movements decreased from 67 to 3. There was no obstruction of the surgical field by bleeding during detachment or separation of intra-articular tissues, and the operation time was shortened. These factors improved the efficiency of surgery of the TMJ. More efficient and less invasive arthroscopic surgery could be performed with this system than with methods used previously. Our experience indicated that the Coblation surgery compared with earlier surgical approaches, and findings from our series indicate that recovery and rehabilitation are considerably accelerated. This system, which improves the safety and efficiency of surgery, is expected to be applicable also to arthroscopic surgery of the TMJ.

O11.7 A NEWLY ARTHROSCOPIC DISC SUTURING FOR TREATING STAGE III OF TEMPOROMANDIBULAR JOINT INTERNAL DERANGEMENT

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The purpose of this study was to evaluate effectiveness of a newly arthroscopic disc suturing for treating stage III of internal derangement. 353 patients (415 joints), whose stages of ID were from stage II to V, underwent a newly arthroscopic disc suturing during the period of April 2001 to December 2003. Of them, 146 patients (164 joints) were in stage III. The diagnosis was established by physical examination, MRI, and diagnostic arthroscopy. The treatment outcome was judged by Dr. Sanders' criteria for success. Postoperative MRIs were taken at varying intervals between 7 days and 28 months in 46 patients (58 joints). The successful rate was 90.41% (132/146). In successful group, the interincisal opening increased from preoperative 23.01 ± 5.93 mm to postoperative 37.69 ± 3.29 mm ($P < 0.001$). The pain scores reduced from 29.76 ± 23.35 to 3.71 ± 7.91 ($P < 0.05$). In unsuccessful group, the cases were 14, it was too small to evaluate. In 58 joints of postoperative MRIs, 58.62% (34/58) was normal disc position, and 27.59% (16/58) was partial improvement. The disc positions were improved in 86.21% (50/58). There was no significant difference between clinical evaluation and MRI findings ($P > 0.05$). TMJ disc suturing is an achievable goal of arthroscopy for stage III of ID. The anatomic relocation of the disc is necessary to resolve stage III of ID.

O11.8 TREATMENT OF TMJ OSTEOARTHRITIS BY SODIUM HYALURONATE: 85 CASES AND FOLLOW-UP

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Assessment of the efficacy of intra-articular infiltration (IAI) of sodium hyaluronate (SH) in patients with TMJ osteoarthritis (OA). OA of TMJ are usually treated with bite splint, NSAID or steroid for years. OA is a degenerative process of synoviocytes leading to decrease the concentration and molecular weight of SH, and an increase of free radical. The purpose of SH-IAI is to create a more physiological ambience in the TMJ. We treated 85 patients with OA diagnosed both clinically (joint crepitus, preauricular pain, functional impairment) and with MRI (flattening, subchondral sclerosis, irregular surface). Patients received 5

weekly cycles of IAI (1 mg of SH-Hyalgan-Fidia for each articular site after 40 ml ringer-lactate articular washing, for hydraulic relaxation and removal of catabolites. All the parameters considered improved (pain, mandibular function and movements, chewing capacity) and patients showed the maximum benefit 6 months after infiltration. Transient complications were observed such as, dysesthesia, temporary bleeding (a 19G needle is used for IAI) and intraoperative pain. The benefits progressively decreased after 12-18 months. IAI of SH with IA lavage is a valid treatment for TMJ-OA. This technique is easy to be performed, has a low cost of materials, is well tolerated by patients, there is no need of long training period for physician. The cycle of IAI of SH should be repeated after 12-18 months.

References

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O11.9 PREVENTION OF CICATRICIAL STENOSIS OF THE EXTERNAL AUDITORY MEATUS IN TMJ SURGERY

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In TMJ surgery the retroauricular approach both reduces the risk of facial nerve palsies and offers good esthetic results compared to the preauricular approach. Nevertheless, it is not widely used, as it is supposed to induce cicatricial stenoses of the external auditory meatus. This prospective study evaluates the results of a technique which aims at avoiding this complication by use of a special suturing procedure and the application of ready-made meatal plugs. Between 1999 and 12/2004 we performed 195 retroauricular approaches. Chondrotomy close to the bony external foramen was strictly avoided. The external auditory meatus was sutured by 5 to 6 interrupted sutures (monofilament 3/0 polyglactone 25, e.g. MonocrylTM), which were pre-laid at the transected external auditory meatus, gripping both the mucosal and cartilaginous, respectively the submucosal layers. These pre-laid sutures were fixed as a final step after multilayered wound closure of the ear concha. In addition, an anatomically shaped meatal plug (polyvinyl, e.g. Ohropax Color Plux STTM) was inserted for ten days. The patients were advised to continue the application for at least 8 to 12 weeks at night-time. So far 74 out of 195 retroauricular approaches were examined, mean 7.2 months postoperatively (SD 2.43). Cicatricial narrowing was assessed calculating the lumen reduction according to the loss in diameter of the meatus. In females e.g., a reduction of 1.5 mm led to a narrowing of 50%, in males a loss of 2 mm. Three out of 74 approaches (4%) showed a high grade narrowing up to 50% of the auditory meatus. One was due to an aberrant periarticular ossification, in another case a female patient had not worn her meatal plug because of poor fit. In all three cases surgical correction was necessary. Moderate lumen reductions (reduction about 25%, i.e. loss of diameter about 1 mm) were found in 9 approaches (12%), however showed no adverse functional consequences. Minor reductions (up to 0.5 mm) presented in 17 cases (23%), 45 retroauricular approaches (61%) were free of cicatricial narrowing. Meatal stenoses can be prevented effectively using pre-laid sutures, which allow an exact multilayer closure of the external auditory meatus, in combination with meatal plugs. Considering the lower rate of nerve complications, cicatricial stenosis of the external auditory audit should not be sustained as an argument against the retroauricular approach.