ARTHROSCOPY IN OSTEOCHONDRAL PATHOLOGY OF THE ELBOW: INDICATIONS, TREATMENT AND COMPLICATIONS

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The arthroscopic technique has revolutionized orthopaedic surgery in the last forty years, due to the improvement in surgical technique and innovations in technologies. Actually, knee and shoulder arthroscopy are commonly used to treat the most frequent pathologies with mini-invasive approaches demonstrate recovery of function and outcomes. Not the same thing can be said for other joints such as ankle, elbow and hip, where the narrowness of the space makes the technique more challenging. In this study, a brief review of the literature and the history of elbow arthroscopy are described. Indications, surgical technique, risks and complication, tip and tricks, advices and notes to avoid complications are reported. Elbow arthroscopic surgery is a difficult technique that requires a long learning curve, but in an experienced surgeon’s hands, it is a safe and successful methodology when applied with correct indications and cautions.
COMPARATIVE EVALUATION OF MENISCAL PATHOLOGY: MRI VS ARTHROSCOPY

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The meniscal pathology of the knee is one of the clinical realities the orthopedic surgeon must daily confront with. The diagnosis is generally both clinical and instrumental; among the different diagnostic imaging techniques, Magnetic Resonance Imaging (MRI) appears to be the most accurate method regarding sensitivity and specificity for the study of meniscal fibrocartilages and articular cartilage. In an attempt to clarify the roles of MRI and diagnostic knee arthroscopy, we performed a retrospective comparative study of the two methods to assess their sensitivity and specificity in the diagnosis of meniscal pathology. We evaluated 105 consecutive patients with a clinical diagnosis of intra-articular knee pathology who were subjected to MRI examination and subsequently to surgical arthroscopy, recording on a graphic card the surgical and radiographic findings expressed by a blinded expert radiologist. Comparison of MRI and arthroscopy data showed, for the internal meniscus, values of 98.5% sensitivity, 94.7% specificity and 93.8% “K” index for MRI compared to arthroscopy, and of 90%, 98.6% and 90.5% for the external meniscus. These results allow us to state that the diagnostic capacity of MRI appears to be very high and therefore crucial in the planning of the correct surgical treatment of individual patients, thanks to its ability to highlight even small changes affecting intra-articular structures.
Recent studies have reported equivalent outcomes of arthroscopic and open shoulder stabilization. However, surgical strategy for shoulder instability is a challenging and controversial problem for surgeons that have to treat collision sport athletes. In fact, only few studies support the arthroscopic surgery for this group of patients. The aim of this study is to evaluate the outcome of arthroscopic stabilization in a homogenous population of professional young athletes practicing in high-level collision sport. We treated 22 consecutive professional rugby players, with a mean age of 23.6 years, affected by traumatic anterior shoulder instability. All patients underwent arthroscopic Bankart repair with bone suture-anchors. Exclusion criteria were: failed previous shoulder surgery, atraumatic, multidirectional or posterior instability, bone defects greater than 20% of the anterior-inferior glenoid, engaging Hill-Sachs, rotator cuff tears, capsular-ligament avulsion on the humeral side (HAGL). Patients were evaluated according to Constant score, Rowe score and Visual Analogue Scale (VAS) for discomfort and handicap. The mean follow-up was 40.7 months (range, 6 to 87 months). All patients except one were able to return at the same previous sports level at 5 to 6 months postoperatively. Re-dislocation occurred in 3 players for high impact trauma during competition or training. Our results confirm that, also in the collision sport patients, anatomic arthroscopic Bankart repair is a good option for the treatment of traumatic anterior instability without associated lesions.
Osteoarthritis represents an important social economic burden with a high incidence worldwide. Conservative management of knee OA consists in several therapeutic options: pharmacologic therapy such as analgesics, non-steroid and steroid anti-inflammatory drugs, physical therapy, and injective therapy with hyaluronic acid (HA) and platelet-rich plasma injections (PRP). The aim of our study is to evaluate the effect of combined autologous PRP and HHA (Hybrid Hyaluronic Acid) viscosupplementation on clinical outcomes of patients with knee OA, by assessing the subjects before and after injective treatment. The study was conducted on 60 patients with an age between 40 and 70 years old affected by unilateral symptomatic knee osteoarthritis (stage II and III of Kellgren-Lawrence scale) nonresponsive to pharmacologic and rehab treatment. We divided the patients in two groups, and we treated the group A with injection of HHA and group B with HHA+PRP. Each patient received 3 injections at an interval of 1 week for 3 consecutive weeks. The patients were evaluated by the Knee Injury and Osteoarthritis Outcome Score (KOOS) and Visual Analog Scale (VAS) at 3, 6 and 12 months after treatment. Statistical comparison between groups showed a significantly better result for the group B concerning the KOOS value, at 3 months and at 6 months. This difference, although clinically relevant, lost the statistical significance at 12 months. The VAS trend differently showed a significant difference at 3 and 12 months, while at 6 months the superiority of group B did not achieve statistical significance. Few studies investigated the effects of HA+PRP combined treatment for knee OA. Numerous studies demonstrated the efficacy of HA injection therapy in knee OA for a clinical point of view, reducing the pain and improving the quality of life. PRP preparations also improved functional outcome scores compared to hyaluronic acid and placebo in patients affected by knee OA. Based on our results we can conclude that the combined PRP and HHA treatment is not only a safe and efficacious procedure which can provide functional benefit but is also significantly better than HHA injective therapy alone, as demonstrated by the comparison within our cohort.
SPORT ACTIVITY AS RISK FACTOR FOR EARLY KNEE OSTEOARTHRITIS

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There is wide discussion about the association between sport activity and musculoskeletal disorders, as sports-related joint loading increases the risk of osteoarthritis (OA). The present article reviews the current available literature on the connections between participation in several sports and athletic activities and prevalence of knee OA, especially focusing on early knee OA. The study was based on an electronic search through web databases including Medline, Cochrane and Google Scholar. Articles were retrieved and evaluated, and case series, retrospective studies, case-control studies, prospective cohort studies and randomized controlled trials were considered for inclusion. The main data were extracted and summarized in tables and text. Athletic individuals do show an increased prevalence of knee OA, especially for professional athletes when compared to general population or non-professional athletes. Furthermore, several features related to sport activity were associated to increased risk of early knee OA, such as knee ligamentous injury, concussion, high-impact sports and different team roles. Methodology and results of the included studies are barely comparable, thus preventing the authors to carry out an accurate and systematic comparison of the results of the included studies. Only low level evidence studies are available, and better designed studies, with radiological and functional evaluation of the knee based on internationally validated measures, should be planned. Also, follow-up of patients during and after their life-period of sport involvement should be considered.
VASCULAR ENDOTHELIAL GROWTH FACTOR EXPRESSION AS A BIOMARKER OF PROGNOSIS IN PATIENTS WITH CHONDROSARCOMA, EWING’S SARCOMA AND OSTEOSARCOMA. CURRENT CONCEPTS

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With the advent of the molecularly targeted therapies, identifying molecular therapeutic targets and molecular marker is increasingly important, especially in neoplastic diseases. Several studies show VEGF is involved in neo-angiogenesis in many solid cancers, as breast, lung, renal, gastric carcinomas, through promoting endothelial cell growth and migration. Conversely the relationship between VEGF and tumours of the musculoskeletal system is yet unclear, in particular the role of VEGF has not yet been completely understood in these tumours. Chondrosarcoma, Ewing’s Sarcoma and Osteosarcoma are the tumours of the musculoskeletal system in which the activity of VEGF has been closely studied. The present study aims to give an overview focused on the relationship between VEGF and these three cancers.
HIP MEGAPROSTHESIS IN ONCOLOGICAL SURGERY: OPEN QUESTIONS

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Prosthetic replacement with modular implants has become the most common reconstructive technique of bone loss of the lower limb after tumour resection. The use of the megaprosthesis in bone metastasis, silver-coated megaprosthesis and the use of Trevira tube are not uniform and represent an “open question” about the use of megaprosthesis. The following paper aims to review the current literature in this topic.
POSTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN SKELETALLY IMMATURE ATHLETES

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Posterior cruciate ligament rupture is a rare knee ligamentous injury in skeletally immature patients with unfused growth plates. Despite being very uncommon, it still represents a significant challenge in terms of decision-making and treatment choice. The purpose of this case series was to report subject and objective outcomes (IKDC, TAS, LYSHOLM, KT2000) after PCL reconstruction in two teenage elite football players aged 15 and 16 respectively, who underwent surgical repair in July 2017 using for the femoral and tibial fixation of the PCL graft (hamstring tendons) respectively a curve cross-pin system and interferential screw. At fifteen months follow up, both athletes had returned to normal, pre-injury, competing levels with no leg discrepancy.
SHOULDER PERIPROSTHETIC FRACTURE IN ELDERLY PATIENT: A MINIMALLY INVASIVE OSTEOSYNTHESIS AND “OFF-LABEL” TREATMENT WITH TERIPARATIDE. A CASE REPORT AND LITERATURE REVIEW


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A case of shoulder periprosthetic fracture in elderly patient. The patient underwent a minimally invasive osteosynthesis and “off-label” treatment with teriparatide. An 80-year-old woman patient following an accidental fall reported a transverse displaced diaphyseal fracture of the right humerus, distal to the stem of the inverse prosthesis. The patient suffering from severe osteoporosis and chronic ischaemic heart disease. The patient underwent fracture osteosynthesis surgery using a Hoffmann III mono-axial external fixator. Teriparatide administered at a dosage of 20 micrograms/day, for four months. At six months from the beginning of the hybrid treatment, a complete healing of the fracture was observed radiologically and clinically. It is possible to affirm that the use of teriparatide off-label has a positive and additive effect in promoting the healing of fractures.
MODULAR DUAL MOBILITY CUPS WITH MULTIHOLE METAL BACK IN TOTAL HIP
ARTHROPLASTY REVISION: A SYSTEMATIC REVIEW

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Dislocation after hip revision is a frequent complication; amongst the strategies to prevent dislocation dual
mobility (DM) implants are gaining popularity. We want to evaluate the reliability of non cemented DM cups
with multihole metal back and chrome-cobalt liner called Modular Dual Mobility (MDM). We performed a
systematic review and selected 5 studies with a total of 285 hips who underwent revision surgery with MDM
implants. The mean survivorship rate of the 5 studies was 92.46% (range 90–96%). 267 prosthesis (93.6%)
were still implanted at the last follow-up; the mean weighted follow up was 38.7% (range 24-48). We found
13 mechanical complications in 285 hips (4.5%). Five of them were treated conservatively; the other 8 were
treated with re-revision. Nine of these complications were dislocation and recurrent instability; 2 of them
were associated to metallosis and adverse local tissue reaction. There was 1 patient that had episodes of
subluxation; 2 cases of impingement and 1 case of metallosis. Zero intraprosthetic dislocations (IPD) occurred
in 285 hips. A 93.6% survivorship is a good result for MDM implants, considering that most of patients had
important bone loss and went through multiple revisions. The rate of dislocation is very low compared to
the mean rate of dislocation in revision hip surgery. In our review, fretting is a rare complication but it can
lead to ALTR and metallosis. For this reason, MDM implants have to be used in selected cases at high risk of
dislocation. In conclusion MDM is a great option for decreasing dislocation rate in hip revision, but a longer
follow-up and a greater number of cases is needed to assess its reliability.
CHARACTERIZATION OF HUMAN COSTAL CARTILAGE: IS IT AN ADAPTABLE TISSUE AS GRAFT FOR ARTICULAR CARTILAGE REPAIR?

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Several techniques and different biological or artificial tissues have been proposed as graft to restore articular defects. However, among the numerous and heterogeneous procedures proposed over time, the current literature findings are not conclusive. The aim of the current study is to evaluate if human costal cartilage can be suitable as graft for restoring articular cartilage defects. Knee articular cartilage and costal cartilage samples were obtained respectively from patients that underwent anterior cruciate ligament reconstruction (samples from notch plasty) or knee joint replacement and ear reconstruction or rhinoplasty through rib graft. The samples were stained with hematoxylin eosin, safranine-O, Gomori paraldehyde-fuchsin and Von Kossa for light microscopy. Immunohistochemistry was performed using anti-collagen I, II, IV and anti-SOX9 antibodies. Furthermore, samples were analyzed by transmission electron microscopy (TEM). In both cartilage, the cells are arranged in quite similar layers and the matrix show the same hyaline appearance: presence of type II collagen and sulphated glycosaminoglycans, and absence of type I collagen and SOX-9. The bigger difference between the two hyaline tissues is the presence of perichondrium that surrounds all the specimens of costal cartilage. It consists of two separate layers where the inner one seems to get thinner with aging. The results show that rib cartilage seems to be an adapt tissue as graft for articular cartilage repair from a histological point of view. However, to date its therapeutic potential remains to be clearly defined by animal and clinical studies.
MODULAR IMPLANT DESIGN AFFECTS METAL ION RELEASE FOLLOWING METAL-ON-METAL HIP ARTHROPLASTY: A RETROSPECTIVE STUDY ON 75 CASES

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Metal-on-Metal (MoM) total hip arthroplasty (THA) has been associated to wear and metal-ions release, controversially related to a variety of clinical complications. Little is known about the relevant design-dependent parameters involved in this process. The present study investigated the correlation between metal ion release in blood and revision rate as a function of: (i) specific MoM implant modular design parameters, (i.e. acetabular cup and femoral head diameters, taper adapter material and size, femoral neck material and modularity and stem size); (ii) MoM bilaterality. Co and Cr ions concentration levels in blood of 75 patients were retrospectively-evaluated with a mean follow-up of 4.8 years (range: 1.8-6.3). Patients were divided in a unilateral and a bilateral group. Statistical analysis was performed to find any significant difference related to acetabular cup diameter, femoral head diameter, taper adapter material/size, neck material/size and stem size. The bilateral MoM group had 4-times higher metal ion levels in blood than the unilateral one (p=0.017 only Cr), related to a higher revision rate (30% vs 20%): differences were 10-times higher particularly with a 48 mm femoral head diameter (p=0.012) and a Ti-alloy neck (p=0.041). Within the monolateral group using a shorter taper adapter and a shorter neutrally-oriented neck demonstrated higher ion levels (p=0.038 only Cr and p=0.008 only Co, respectively). The aforementioned design-features and MoM bilaterality are important risk-factors for metal-ion release in modular MoM THA.
Nowadays several studies demonstrate the influence of chemical and physical stimulation to bone and cartilage exist. The first studies date back to the 50s and for a long time, they did not have a strong impact on clinical practice. In recent times, however, the findings arising from these studies are increasingly used to address clinical problems such as osteoarthritis or non-unions. The aim of this article is to make a review of the literature of the state of the art about physical and chemical influences on bone and cartilage.
A 27-year-old girl suffered a tibial fracture with an extensive bone defect due to a major trauma. At first, she was treated with a plate with the purpose to obtain a fibula-pro-tibia transfer, without any improvement. At one-year-follow up, a non-union due to mechanical hardware failure was shown by x-ray. Thus, a second surgery was performed: the ipsilateral fibula was tightly wedged between the preserved proximal and distal third of tibia with an external fixator. We report a follow up of 1 year after the reconstruction that allowed a good bone healing and a remodeling with also further ossification of the periosteal sheath of the fibula.
Abstract DNA holds genetic information in the nucleus of eukaryotic cells; and has three different functions: replication, storage of hereditary information, and regulation of cell division. Most studies described the association of single nucleotide polymorphism (SNP) to common orthopaedics diseases and the susceptibility to develop musculoskeletal injuries. Several mutations are associated with osteoporosis, musculoskeletal ailments and other musculoskeletal deformity and conditions. Several strategies, including gene therapy and tissue engineering with mesenchymal stem cells (MSC), have been proposed to enhance healing of musculoskeletal tissues. Furthermore, a recent technique has revolutionized gene editing: clustered regulatory interspaced short palindromic repeat (CRISPR) technology is characterized by simplicity in target design, affordability, versatility, and high efficiency, but needs more studies to become the preferred platform for genome editing. Predictive genomics DNA profiling allows to understand which genetic advantage, if any, may be exploited, and why a given rehabilitation protocol can be more effective in some individual than others. In conclusion, a better understanding of the genetic influence on the function of the musculoskeletal system and healing of its ailments is needed to plan and develop patient specific management strategies.
Menisci act like shock absorbers and transmit load across the tibiofemoral joint by increasing congruency during movements or body weight load. This leads to decreasing the resultant stress on the articular cartilages. The meniscus has a dense extracellular matrix (ECM) composed of water, different types of collagens, and proteoglycans, such as decorin, aggrecan and biglycan. Decorin (DCN) regulates collagen fibrillogenesis acting on collagen fibrils diameter and fibrils orientation to achieve the proper assembly of its network. This work investigates the spatial disposition of this fundamental protein in pig meniscus’ matrix by immunohistochemistry and western blot analysis. DCN shows an increasing trend, moving from neonatal to adult pig menisci. Adult meniscus, in porcine species, is the only one that could be considered fully mature and functional, and, even if an increasing trend is seen, no precise phenotypical switch points are seen in the age stages considered in this study.
This study investigated the prevalence of hyponatremia during the hospital stay, in a cohort of elderly patients with hip fractures who underwent surgery within 48 h from admission. Records data were retrieved from the database of the San Giovanni di Dio e Ruggi d’Aragona Hospital of Salerno, Italy. All elderly patients (≥65 years old) with a documented hip fracture that underwent surgery within 48 h from admission, between 2016 and 2018, were included and divided in 4 subgroups according to their sex and type of fracture. Serum sodium concentration were monitored during the hospital stay and collected at admission, before surgery, after surgery and at discharge. The overall prevalence of hyponatremia was 23.99% (n=71/295), (24.3%, n=57/234 for female patients and 22.9%, n=14/61 for male patients). The percentage of hyponatremic patients with an intracapsular hip fracture was 27.17% (n=25/92), and 22.66% (n=46/203) in patients with an extracapsular hip fracture. The highest value of mean serum sodium concentration (139.2 mmol/L±4.4 SD) was found at the hospital discharge phase, and the lowest value (138.4 mmol/L±4.3 SD) was found during the pre-surgery phase. The lowest mean value of serum sodium was found before surgery, while the highest was after surgery. This could suggest that the early operative treatment and the accurate in-hospital monitoring are effective to treat or prevent this condition.
RESIDUAL MOBILITY AFTER REMOVAL OF INSTRUMENTATION IN PATIENT, WITH TYPE A2-A3 VERTEBRAL FRACTURES, TREATED WITH PERCUTANEOUS PEDICLE SCREW FIXATION

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Percutaneous techniques for treatment of thoraco-lumbar fractures type A2 and A3 are widely used. These techniques are considered temporary fixations and instrumentation must be removed with fracture healing. The aim of the study is to analyze clinical results, motility of treated segments and any loss of correction after the removal of instrumentation. We evaluated 36 patients who underwent surgery for removal of the instrumentation. Standard and dynamics x-ray before surgery and at 1 and 12 months after surgery were obtained. Radiographic evaluation was performed by comparing loss of correction after removal of the instrumentation, residual mobility of fractured vertebra, upper and lower level with values defined by Dvorak. For clinical assessment were used SF-12, Oswestry Disability Index (ODI) and Visual Analog Scale (VAS), administered before surgery and at 1 and 12 months after the removal. We analyzed a total of 108 levels in 36 patients. After removal of the instrumentation a normal range of motion was restored in the proximal and distal segment of the fracture, while at level of fractured segment we noticed a decrease in motility. Clinically, patients had a significant decrease in VAS and ODI at 1 month after removal. Our study shows that percutaneous fixation for treatment of thoraco-lumbar fractures type A2 and A3, allows to preserve motility of the treated segments after the removal of the instrumentation until 12 months. The removal of instrumentation is associated with good clinical results without of loss of correction in treated segment.
A THORACIC PAIN OF DIFFICULT DIAGNOSIS. UNUSUAL LOCALIZATION OF
OSTEOID OSTEOMA

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Osteoid Osteoma (OO) is a benign tumor that can affect any age, but it occurs mostly in adolescents. Only few cases are reported in early infancy but very rare in advanced age. From our series of OO of the spine, we selected a rare case that combines many unusual features that makes diagnosis very difficult. A case of a painful thoracic syndrome in an old female patient due to an OO localized in the inferior edge of the left pedicle of T11 with engagement of the foramen was reported. The age of the patient, the absence of any typical clinical and diagnostic signs, such as nocturnal pain or side effects to NSAIDs administration, are unusual at presentation of OO. She presented instead, a type of pain to the chest that was stabbing, fulminating and radiating. The interest of the case is due to the association of a variety of clinical aspects that stimulate discussion as well as to the role of the modern investigative diagnostic process.
Hip fractures are associated with a 20% one-year mortality and a 50% loss of function. Over 700,000 deaths are estimated to occur annually worldwide following hip fractures. Concern exist regarding which is the best implant for extracapsular fractures fixation. For a correct positioning of the cephalic screw, a new plate (O’Nil Anteversa® mini-plate, Intrauma, Torino, Italy) with a fixed 8° of anteversion in the axial plane was developed. A total of 22 patients with an intertrochanteric fracture underwent surgery with Anteversa® mini-plate between October 2016 and April 2017. Data collected included patients’ age at surgery, gender, fracture type, operative side, surgeon, type of implant, TAD, CalTAD and TADCalTAD. All patients underwent clinical and radiographic evaluations according to the AO Surgery Reference classification. The mean TAD, CalTAD and TADcalTAD for the entire population of study were, respectively, 20.18±7.5 mm, 20.45±7.25 mm, and 40.62±14.44 mm. The mean TAD, CalTAD and TADCalTAD of those patients who experienced mobilisation of the cephalic screw were, respectively, 20.26±5.87 mm, 19.53±5.47 mm, and 39.8±11.16 mm. Three patients experienced mobilisation of the cephalic screw, and none of these had a TAD greater than 25 mm, a CalTAD greater of 25 mm or a TADcalTAD greater than 50 mm. This type of device meets the essential requirements for a correct treatment of intertrochanteric fractures in elderly patients. However, the excessive need of attention in each step, and the consequent increased time of surgery, could be seen as a limitation for its use.
FUNCTIONAL OUTCOME AND MULTIDIMENSIONAL EVALUATION OF PATIENTS WITH MUTARS® RECONSTRUCTIONS POST LOWER LIMB TUMOR RESECTION AND REHABILITATION: PRELIMINARY RESULTS

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Modular prostheses are commonly used to reconstruct defects of the distal femur and proximal tibia after bone tumor resection. Improving patient’s autonomy and giving them a better quality of life are the main goals. Post-surgical rehabilitation is very relevant after surgery. The aim of this paper is to study the short and mean time functional outcomes in patients treated with Mutars® reconstructions after proximal and distal lower limb tumor resection with a multidimensional analysis and a standardized stabilometric examination. Twenty-one patients (7 male and 14 women, mean age and standard deviation: 61.76±14.68) affected by primitive bone tumor (28.6%) or metastatic bone tumor (71.4%), treated with MUTARS® reconstructions after proximal (71%), distal (23.8%) and both (4.8%) lower limb tumor resections, accepted to take part to the study. They were evaluated after one week (T0), one month (T1), three months (T2), six months (T3) and one year (T4) after surgery with standardized clinic evaluation and with multidimensional validated scales. Visual Analogic Scale (VAS during active movement), Short Physical Performance Battery (SPPB), Eastern Cooperative Oncology Group (ECOG), Karnofsky Performance Status (KPS), MusculoSkeletal Tumor Society rating (MSTS), Toronto Extremity Salvage Score scale (TESS). Patients underwent to an instrumental standardized stabilometric test after one month from surgery and in following evaluations to measure standing balance. Patients underwent to a rehabilitation program during three months after surgery. There was a significant improvement of hip flexion range of movement (p level: 0.008), and gait modalities (without aids) after three months from surgery (p level 0.02). There was a significant reduction in VAS after one month of surgery (p level 0.00). It was observed an increase of the SPPB value at T3 (p level 0.01), of MSTS and TESS at T2. Balance stabilometric evaluation did not showed significant increase at each timing also if Romberg perimeter decrease progressively. These preliminary results showed that, oncological patients, affected by bone tumors or metastasis, surgical treated with MUTARS® implant and admitted to the rehabilitation programs, can improve their gait modalities and functional daily life outcomes, until three months from surgery. A large sample will allow, necessary to define standardized rehabilitation protocols after oncological orthopedic surgery, in order to introduce guidelines that can be applied routinely.
EVALUATION OF QUALITY OF LIFE AND STATIC BALANCE IN POSTMENOPAUSAL OSTEOPOROSIS WOMEN AFTER TAI CHI CHUAN PRACTICE: AN OBSERVATIONAL RANDOMIZED CASE CONTROL STUDY

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Post-menopausal osteoporosis women are at increased risk for skeletal fractures with higher mortality and lower quality of life. Some studies have reported fall risk reduction in the elderly after Tai chi practice. Tai chi is a weight bearing mind-body exercise that has been reported to positively influence bone mineral density and improve postural control in different pathologies. The aim of this observational randomized case control study is to evaluate the effect of Tai chi on balance and quality of life in postmenopausal women with osteoporosis. A total of 98 postmenopausal osteoporosis women, aged 70.6±8.2 years (mean and standard deviation), (mean T-score of the hip and spine were -2.9±0.92 and -2.8±1.08), have been recruited in outpatients University Physical Medicine and Rehabilitation Hospital between June 2016 and September 2018. They have been randomized to a Tai group (56 patients, mean age 71.61±7.97 years) practiced 6-month Tai chi program, two times week, plus standard care or to a Control Group (42 patients, mean age 69.71±8.61 years) practiced usual care. Patients with oncological, neurological, cognitive, vestibular and visual diseases were excluded. Patients were evaluated at baseline (T0), prior Tai chi and after 6 month (T1) with 36-Item Short Form Health Survey (SF-36), and a stabilometric-standardized exam performed for the evaluation, respectively, of the quality of life and the static balance. The groups were homogenous at baseline. T1 evaluation showed better results in Tai chi group, in SF36 Physical functioning (p level: 0.021), Physical health pain (p level: 0.020), Physical composite score (p level: 0.003) scores, compared with control group. There were not significant differences between groups in stabilometric analysis. Tai chi group showed significant better stabilometric values at T1 compared with T0 in mean anterior-posterior (p level: 0.001) and medio-lateral (p level: 0.019) velocity, in perimeter (p level 0.001), and in the area of the ellipse (p level 0.006) in a within group analysis. Tai chi seemed to be effective in improving physical aspects of quality of life, in postmenopausal women with osteoporosis. Standing balance seems to increase after 6 months Tai chi program, in post-menopausal also if results were not significant. Further studies will be useful to measure effects of a Tai chi longer practice, as literature suggests, and a possible reduction of falling risk and fractures.
ONSET OF Rhabdomyolysis AND ACUTE RENAL FAILURE AFTER MINIMALLY INVASIVE SURGERY FOR TRAUMATIC SPINE FRACTURE: A CASE REPORT

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SINGLE-VERSUS DOUBLE-INTEGRATED SCREWS IN INTRAMEDULLARY NAILING SYSTEMS FOR SURGICAL MANAGEMENT OF EXTRACAPSULAR HIP FRACTURES IN THE ELDERLY: A SYSTEMATIC REVIEW

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Approximately 50% of all hip fractures are extracapsular and typically treated with extramedullary or intramedullary fixation. Modern intramedullary nails used for internal fixation of extracapsular fractures are generally cephalomedullary nails secured by at least one cephalic screw. Different designs have been developed, varying in length, diameter, neck shaft angle, number of cephalic screws or blades, ability to slide and/or compress, ability to control rotation, construction materials and insertion-point. Articles published in all languages up to January 2019, are listed in PubMed and Scopus electronic databases about the association between the number of cephalic screws and the rate of complications and functional outcome. Twenty articles were included following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Sliding hip screws (SHS) were the standard of care for hip fractures from the 1950s to the 1990s, but presently intramedullary nails are more commonly used. There has been a more than 20-fold relative increase in the utilization of intramedullary nails since 1999. With the emergence of value-based healthcare, there is a growing interest of how best to provide high-quality care in a clinical and cost-effective manner, acknowledging limited healthcare budgets. The present systematic review assessed the long-term outcomes of the most commonly used nails using double cephalic screws compared with single screw devices in patients with unstable intertrochanteric fractures. The development of new technologies may allow a lower incidence of complications, a reduction in operative time and a lower intraoperative blood loss.
PUBLIC OSTEOLYSIS SIMULATING A MALIGNANT LESION. A CASE REPORT WITH LONG-TERM FOLLOW-UP

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Pubic osteolysis is a rare pathology characterized by a painful radiographic destructive changes in the pubic rami, pubis or pubic symphysis that often follows a post-traumatic event. The etiology is unclear but it is a benign lesion, frequently misinterpreted as malignant. We report a case of a 54-year-old woman with pubic osteolysis mimicking a malignant lesion, diagnosed after open bone biopsy, conservatively treated without any sequelae and followed-up 10 years after the end of treatment. Although in the majority of the reported cases, a previous trauma has been commonly referred, in our case the patient did not refer to any cause before the onset of clinical symptoms. Knowledge of this entity is important to avoid invasive diagnostic procedures, costly investigations or overtreatment.
CORRELATION OF PRE-OPERATIVE PLANNING TO SURGICAL CORRECTION OF OPENING WEDGE HTO: A RADIOGRAPHIC STUDY UTILIZING A MANUAL MEASUREMENT METHOD

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High tibial osteotomy (HTO) utilizing a medial opening wedge has become a common and effective surgical technique for treatment of isolated medial compartment knee osteoarthritis secondary to varus malalignment. To reduce the risk of under- or overcorrection, accurate preoperative planning is important. This is a radiographic study to evaluate the reliability of preoperative measurement on full-length weight-bearing X-rays (FLWBXr) compared to post-operative X-rays after healing. In addition, we calculated if the intraoperative opening wedge performed was consistent with the preoperative calculation and the postoperative correction. Three independent observers measured preoperative and postoperative FLWBXr at three different times. The angle of varus deformity; the angle to correct and the wedge needed to achieve desired alignment: the angle achieved postoperatively, and the postoperative mechanical axis deviation were measured. Intra- and inter-rater reliability showed high values for all the investigated parameters. The discrepancy between the calculated wedge and the wedge actually used in surgery ranged from 1 mm of over-correction to 3 mm of undercorrection, averaging -1.3 mm. The mechanical axis crossed the tibial plateau an average of 53% ±12.7. Clustering the data by the plate type statistically significant differences were found for preoperative varus alignment, advocated correction, intraoperative correction and post-op alignment. The Dugdale method can be considered highly reliable. Possible factors affecting the final correction are: surgeon’s desire not to overcorrect in young patients and minimal osteoarthritis; measurement errors; variability in the method the FLWBXr is performed. In addition, the under correction could be the result of some collapse with time or the correction could be affected by the fixation system. Further investigation should include complete post-operative evaluation of outcomes and assess the role of these potential factors and their relationship to correction. Level of Evidence: Level III, Retrospective study.
TALAR EXOSTOSIS (EPHYSEAL DYSPLASIA): CASE REPORT OF POSTERIOR ARTHROSCOPIC EXCISION

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The aim of this study is to describe the results of a consecutive set of patients treated in acute for the surgical repair of medial collateral ligament (MCL) tears with a mean follow up of 63.78±43.25 months (4-136). This is a retrospective observational study. From January 2011 to December 2016, 56 patients within the average of 31.75±13.27 (13-55) years old at the time of injury underwent medial compartment repair in an acute setting. The sample size of our study is therefore made up of 26 patients. Patients have been evaluated with functional scores: IKDC (international knee documentation committee evaluation form), the KOOS (Knee injury and osteoarthritis outcome score) and clinical assessment. The Tegner Activity Score was evaluated retrospectively at the 12 months follow-up. The mean KOOS value at the final follow-up were 91.25±9.65 (72-100) for pain, 85.68 ± 12.34 (57-100) for the symptoms category, 94.5±8,07 (75-100) for the activity of daily life, 71.87±22.86 (35-100) for the sport category and 76.37±18.55 (38-100) for the quality of life. At the last follow up the mean IKCD value was 77.68±15.95 (55-98). The mean difference in the Tegner Activity Score between the preoperative time and the postoperative time was 1.06±1.12 with a 95% Confidence Interval 0.46-1.66. The functional outcomes underline how the surgical approach to the medial capsule-ligament compartment of the knee is a reliable treatment to restore excellent joint function. Level of evidence III retrospective observational study

ACUTE TREATMENT OF MEDIAL COLLATERAL LIGAMENT TEARS: SHORT TO MID-TERM RESULTS

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