

Blood loss and transfusion rate in patients undergoing two-stage exchange in infected total knee arthroplasty

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Two-stage exchange in infected total knee arthroplasty is a reliable technique, but it has a high rate of blood loss. The study aims to compare the pre-operative and post-operative haemoglobin levels, the rate of transfusion, and the blood loss in two-stage exchange. From July 2018 to July 2019, eighteen patients underwent two-stage exchange of their infected total knee arthroplasty. Local and systemic tranexamic acid was administered in both surgical stages. Calculated blood loss was 2246 mL (range 1528 – 2850) in the first stage and 2388 mL (1873 – 2829) during reimplantation, respectively. The corresponding transfusion rate was 55 % and 67%, respectively. With the numbers available, these differences were not significant. In conclusion, this study shows that the blood loss and transfusion rate are similar during the two stages of exchange knee arthroplasty for infection.

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The role of six biomarkers in diagnosis of hemophilic arthropathy: review of the literature

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The aim of our narrative review of the literature is to identify the role of six important biomarkers: synovial fluid thrombomodulin, fibroblast-like synoviocytes, synovial tissue growth factor , vascular endothelial growth factor in synovium and peripheral blood, urinary C-terminal telopeptide of type II collagen, and synovial fluid tumor necrosis factor alpha. These urinary, serum and synovial biomarkers illustrated should be evaluated in patients with hemophilic arthropathy for early diagnosis of hemophilic arthropathy, because they have important implications in the development of arthrofibrosis, altered inflammatory response and bleeding. Moreover, better knowledge of their biological activity is important to identify possible new biological treatment options.

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Use of synthetic cartilage implant (Cartiva®) for degeneration of the first and second metatarsophalangeal joint: what is the current evidence?

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Polyvinyl alcohol hydrogel implants (also known as Synthetic Cartilage Implant or Cartiva® have been described in the treatment of degeneration of the first and second metatarsophalangeal joint (MTPJ). We reviewed literature to report characteristics of devices on the market and investigate their efficacy and safety. Following the PRISMA checklist, the Medline and Scopus databases were searched, including studies reporting use of Cartiva® for treating joint degeneration of the first and second MPTJ. Studies were searched for surgical technique, postoperative protocol, clinical scores, complications and reoperations. We found that, although some studies suggest that the use of Synthetic Cartilage Implant (Cartiva® is effective in the treatment of hallux rigidus in providing symptoms relief without sacrifice of joint motion, the redundancy of cohorts reported in studies and the frequency of conflict of interest reported by authors weaken the strength of evidence available and warrant further studies. Regarding the treatment of the second MTPJ ailments, no recommendation can be formulated to date due to the lack of primary studies.

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Foot and ankle measurements on cone beam weightbearing computed tomography

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Over the last years, an increased number of studies have reported the use of cone beam weightbearing computed tomography (WBCT) in the assessment of foot and ankle pathology. This new technology has enabled to overcome the limits inherently related to two-dimensional radiographs (superimposition bias, operator-related bias, rotation bias) and to obtain images reproducing the bones and joints anatomy during physiological standing with a low radiation dose. We performed a review of the current literature to summarize the evidence about the use of 2D or 3D measurements on WBCT images in various foot and ankle conditions. Our aims were to describe measurements proposed so far and to report data on reliability and validity from primary authors.

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Ultrasound-guided collagen injections in the treatment of supraspinatus tendinopathy: a case series pilot study.

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Aim of the present pilot study was to verify, for the first time ever, the effects of collagen injections in patients with chronic supraspinatus tendinopathy. Eighteen patients with chronic supraspinatus tendinopathy were treated with a series of 4 type I porcine collagen ultrasound-guided injections, at weekly intervals. The effects were verified at 2-week, 1-month and 3-month follow-up by means of shoulder scoring systems and sonography. A very strong evidence ($p < 0.001$) of a statistically significant main effect amongst the multiple clinical observation was found. Ultrasound imaging highlighted improvement in the structural integrity of the tendon. Compared to other injection therapies, collagen injections proved to be at least equally effective, faster acting and safer.

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Heterotopic ossification around the lesser trochanter of the femur simulating a malignant lesion. A case report with long-term follow-up and revision of literature.

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We report the case of a 28-year-old female who complained of groin pain and restricted range of motion of the hip for the previous two months. A plain radiograph, CT scan and MRI of the pelvis showed a bone mass of uncertain origin around the lesser trochanter, simulating malignancy. An open biopsy was performed to obtain a correct diagnosis. The histological examination excluded a malignant lesion. Two months later, the mass was surgically excised and at follow-up, 9 years after surgery, the patient was completely asymptomatic, without any radiographic sign of recurrence. This is a rare case of heterotopic ossification of the proximal part of the femur, that appeared without any significant trauma or other predisposing risk factors; because the lesion led us to suspect a malignant disease, an open biopsy was needed to make the diagnosis. From an accurate review of the literature, heterotopic ossifications mimicking a malignant lesion that appeared without any predisposing factors are extremely rare.

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Infection rate of intramedullary nailing for treatment of lower limb polyostotic fibrous dysplasia.

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Polyostotic fibrous dysplasia (PFD) generally cause deformities and fractures of femur and tibia and surgery is often required. The current surgical treatment for deformities is based on single or multiple osteotomies followed by stabilization with intramedullary nails, which are commonly used also for fractures. One of the most common surgical complications of intramedullary nailing is represented by surgical site infection with possible extension to the whole skeletal segment. In the present study we evaluated the incidence of surgical site infections in 44 patients affected by PFD in which 91 femurs or tibiae underwent intramedullary nailing to treat deformities or fractures. We never observed any infection of the operated femurs or tibiae until the final follow-up. The only post surgical infection was present in a patient with monomelic involvement at the contralateral non affected limb, which was surgically treated for limb length inequality, by femur shortening osteotomy stabilized by an intramedullary nail. The most likely hypothesis to explain the complete absence of infections in these patients may be related to the high local concentration of profilactic antibiotic in the highly vascularized fibrodysplastic bone.

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Staphylococcus Aureus Panton-Valentine Leukocidin causing hip osteomyelitis, thrombophlebitis and necrotizing pneumonia in an immunocompetent child

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Panton-Valentine leukocidin (PVL) represents an important virulence factor for many strains of Staphylococcus aureus. PVL is an exotoxin causing leucocyte destruction and tissue necrosis. We report on a case of osteomyelitis involving the hip joint with thrombophlebitis complicated by necrotizing pneumonia and life-threatening septic shock. The child required advance respiratory support for 14 days with circulatory support for 7 days in ICU (intensive care unit), surgical drainage via arthrotomy of hip joint and second-line antibiotic treatment for 1 month. Among a wide literature, in Europe over half of Panton-Valentine St. Aureus (PVL-SA) is MSSA. Investigations for PVL are not always available determining an under-recognition of the episodes. Data on prevalence of PVL-SA in Italy are scarce. With this clinical report, we emphasize the recognition of clinical features that must lead to suspect PVL-SA osteomyelitis in children, providing their adequate management.

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Diluted povidone-iodine irrigation prior to wound closure in primary and revision total joint arthroplasty of hip and knee: a review of the evidence

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Periprosthetic Joint Infection (PJI) of the Hip and of the Knee is a tremendous complication associated with high patient morbidity, cost, and increased health care resource utilization. Over the last few years, several perioperative strategies have been developed in the hopes of reducing the risk of early superficial and deep surgical site infection (SSI). One of the most performed intraoperative treatments to reduce the risk of SSI in total joint arthroplasty is the use of dilute povidone-iodine (DPI) irrigation prior to wound closure. For this reason, we believed a systematic review of the literature was needed to better understand the current literature on the efficacy of dilute betadine in reducing PJI. The search terms for this systematic review was performed for keywords “betadine”, “povidone-iodine”, “lavage”, “irrigation” and “arthroplasty”. A total of six studies were included, four of these reported the outcome of primary total joint arthroplasty, and two of these reported the outcome of revision total joint arthroplasty. Some studies reported that the use of DPI is effective to reduce the incidence of infective complications, meanwhile other studies did not find differences when DPI was used. More studies must be addressed to provide the efficacy of DPI irrigation.

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Intramedullary antibiotic coated nail in tibial fracture: a systematic review

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Implant-associated infections remain one of the main problems in trauma surgery, particularly for treatment of open tibial fractures. The role of systemic antibiotic prophylaxis is now established and accepted, but recent literature also seems to emphasize the importance of local antibiotic prophylaxis. Antibiotic coated nails play a crucial role, allowing at the same time the prevention of infections and favoring the stabilization of fractures. These devices appear to be a clinically effective and safe solution. The purpose of the study was to investigate the role of antibiotic coated nails in the treatment of tibia fractures. A literature review was performed on MEDLINE through PubMed to identify scientific publications relevant to the use of antibiotic coated nails in tibial fractures. Primary outcomes were infection rate and bone union rate. This review present numerous limits due primarily to the small number and different nature of studies published, the heterogeneity of the devices used.

Ankle fracture and necrotizing fasciitis: a common fracture and a dreadful complication

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Necrotizing fasciitis is a dreadful complication of the soft tissue. This pathology could be triggered by many factors, such as a fracture. We present a case of case of a necrotizing fasciitis in ankle fracture.

Predictable risk factors for infections in proximal femur fractures

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Proximal femur fractures are increasing, together with the aging of world population. One of the complications worsening this condition is infection. In this study, we try to identify risk factors that can lead to infection. We identified 122 patients with femoral neck fracture. The occurrence of infectious events was recorded (respiratory, urinary, superficial wound and periprosthetic infection). There were 15 infections, mostly urinary and pulmonary, and all were treated using antibiotics. No statistical differences were found between infection and control group regarding waiting time for surgery, mean time of surgery, age, kind of fracture, type of surgery. Fever onset >38° within 72 hours from surgery was statistically correlated with early infections. Future studies must be led to identify risk factors for infection and to create a strategy to prevent this possibly lethal complication.

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A rare case of post-traumatic infected pilomatricoma of the finger of the hand diagnosed after performing radioiodine therapy

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We present the clinical case of a young woman with pilomatricoma of the finger, a very rare location. The patient got infected after receiving radioiodine therapy to treat a thyroid carcinoma. Given the patient's high functional requirements we choose a minimal treatment which allowed her to maintain a sufficient functionality.

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Posterior approaches in malleolar fracture: when, why and how

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The treatment of posterior malleolus fractures has radically changed over the last few years, therefore this study aims to summarize the current evidence on the usefulness of posterior approaches in the management of malleolar fractures. The main elements that suggest the use of a posterior approach to the ankle are: the posterior malleolus fragment shape and size; the presence of loose bodies at the fracture site; the possibility to obtain an anatomic fixation of the fracture; the presence of a posterior ankle subluxation; the eventually osteochondral impaction of the tibial plafond and the mechanical stability of the joint (9). The postero-lateral approach has been widely used to treat these fractures, but the posteromedial approach should be considered in specific cases. The anatomic reduction of these fractures leads to joint stability, with a consequent lesser occurrence of post-traumatic arthritis and better functional outcomes.

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Humeral shaft butterfly fractures managed with intramedullary nail: could the third fragment features predict the fracture healing time?

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To assess the impact of the radiological features of the third fragment on the outcome of humeral shaft fractures type 12-B managed with endomedullary nails. We retrospectively evaluated a series of 80 patients, divided into 3 groups, according to the fracture healing time: within 6 months (group-A), between 6 and 12 months (group-B) or fracture non-union after 12 months (group-C). In 26 patients out of 80 the fracture healing was observed at 6 months follow-up; in 47 out of 80 at 12 months after trauma and in 7 out of 80 no fracture healing was observed at 12 months follow-up. Regression analysis showed that the third fragment displacement and angulation are the most important features that affect the fracture healing. The mean third fragment dislocation (cut-off: 12 mm) is the main parameter to influence the fracture healing within or in more than six months.

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A comparative study of combined intravenous and topical administration of tranexamic acid with topical tranexamic acid alone for blood loss reduction after primary uncemented total hip arthroplasty

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The aim of the present study was to evaluate the efficacy of topical versus combined (intravenous + topical) tranexamic acid (TXA) to reduce perioperative blood loss after uncemented primary total hip arthroplasty (THA). Seventy-five patients were randomized in three comparable experimental groups: 1) topical TXA (3 g in 50 ml of saline solution); 2) intravenous + topical TXA (3 g topical + 2 g in 100 ml of saline solution intravenously); 3) controls. Pre- and post-operative hemoglobin (Hb) levels and hematocrit (Hct) values along with the rate of blood transfusion in the 3 groups were compared. The intravenous + topical TXA group demonstrated higher Hb levels and Hct values at postoperative day one (Hb = $p < 0.05$, Hct = $p < 0.001$), postoperative day three (Hb = $p < 0.05$, Hct = $p < 0.001$), and discharge (Hct = $p < 0.01$) compared to the control group. The intravenous + topical group had a lower transfusion rate compared to the control group (0% vs 20%, $p = 0.014$). With the numbers available, no difference in postoperative Hb level and transfusion rate emerged between topical TXA and control group.

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New plates with polyaxial locking system and PSI technique in medial open-wedge high tibial osteotomy: preliminary results

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Medial open-wedge (MOW) high tibial osteotomy (HTO) is proven treatment option, indicated in medial unicompartimental knee osteoarthritis (OA) and in varus OA. New devices and techniques were developed in last years, such as Activemotion plates with polyaxial locking system (Dualtec System[®], NewClip-Technics) and PSI technique. We describe outcomes and rate of complications in patients treated with Activemotion plates and PSI technique. From January 2019 to August 2019 a sample of 77 cases (72 NCT plates, 5 PSI technique) was observed, evaluating the rate of complications and the return to activity. The rate of complications is 2.6% and the mean time to return to activity is 10 weeks. MOW HTO with Activemotion plate has showed good results with a low rate of complications. About PSI technique, the preliminary results are excellent, but we need to increase the sample.

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Volar distal radius vascularized bone graft vs non-vascularized bone graft: a prospective comparative study

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The pseudoarthrosis (PSA) of scaphoid leads to alteration in load transfer in the wrist joint. Its treatment aims to achieve consolidation to improve clinical complaints and prevent post-traumatic arthritis. The indication for using vascularized bone grafts is still controversial. This prospective comparative study aimed to compare consolidation rate and time to healing of scaphoid PSA treated by volar distal radius vascularized bone graft vs non-vascularized iliac bone graft. Nine patients underwent vascularized grafting of scaphoid PSA. These patients were compared to a control group consisting of twelve patients treated with iliac crest-free bone graft. PSA consolidation was obtained in 8 of 9 patients (88%) and 9 of 12 patients (75%) in the study and control group, respectively. The difference in consolidation rate was not significant. Two of three patients with AVN of the proximal pole in the study group (66%) went to consolidation. In the control group no patient with AVN obtained bone consolidation. This difference almost reached statistical significance ($p = 0.083$). The mean time to consolidation was 8.6 weeks (range 8-11) and 11.7 weeks (range 10-16), respectively, in the study and control group. This difference was significant ($p < 0.05$). In conclusion, the distal radius vascularized graft led to satisfactory consolidation rate of PSA in the current study, even in cases of AVN of the proximal pole. Moreover, the vascularized bone graft resulted in shorter healing time compared to the non-vascularized graft.

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