

# Intraarticular Injections Of Platelet Rich Plasma In Patients With Knee Pain From Articular Cartilage Origin (Degenerative Chondropathy And Early OA)

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## ABSTRACT

**Purpose:** Platelet-rich plasma (PRP) has been used as an alternative to non-operative treatments for increasing the rate of cure in bone and soft-tissue regeneration, although there are very few clinical studies regarding the treatment of articular cartilage damage. Therefore, our study proposes non-surgical intervention for patients with articular cartilage damage and who are experiencing knee pain caused by this damage. **Study Subjects and Methods:** This study was conducted as a single medical center. It was an uncontrolled, prospective clinical trial, and the study subjects included 44 patients who were suffering from early osteoarthritis and degenerative chondropathy; they were between 18 and 65 years of age and were included in the study regardless their sex. PRP was injected twice intraarticular within an interval of four weeks. The pain scores and functional scores were compared two months, four months, and six months following the second injection was completed, using the VAS, the Lysholm knee scale, and the Cincinnati knee rating system. **Results:** There were no complications related to the PRP injection. The pain experienced by the study patients two months after the PRP injection was reduced compared to the pain felt before the injection, and the reduction in pain after four and six months compared to the pain experienced two months after the PRP injection was statistically significant. From a functional viewpoint, there was a statistically significant improvement in their pain during the entire follow-up period. **Conclusion:** Our study results suggest that PRP injection is an effective and safe treatment for the management of early osteoarthritis and degenerative chondropathy, as seen in this clinical trial.

SP 043

# Treatment Using Cultured Autologous Osteoblasts For Fractures And Avascular Necrosis

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## ABSTRACT

**Background:** We performed a multicenter, open, randomized, clinical study of autologous cultured osteoblast injection for long-bone fracture, to evaluate the fracture healing acceleration effect and the safety of autologous cultured osteoblasts. **Methods:** Sixty-four patients with long-bone fractures were randomly divided into two groups, i.e. those who received autologous cultured osteoblast injection and those who received no treatment. The sum of the difference in the callus formation scores after four and eight weeks, was used as the first efficacy variable. **Results:** The autologous cultured osteoblast injection group showed fracture healing acceleration of statistical significance, and there were no specific patient complications when using this treatment. **Conclusion:** Autologous cultured osteoblast injection should therefore be considered as a successful treatment

## Wide Resection of Sacral Chordoma

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### ABSTRACT

**Purpose:** The study was carried out to report the results of wide resection in sacral chordoma using posterior approach and gauze packing technique. **Materials and Methods:** The study was carried out between 1990 and 2002; there were 21 patients who underwent the operation. Fourteen patients were male and 7 were female. Their ages ranged between 29 and 75 years. Most of the patients presented with sacral mass, pain and neurological deficit. Total sacrectomy and bone reconstruction were carried out in 12 patients. Subtotal sacrectomy was carried out in the rest 9 patients. All patients were followed up for at least 7 years. **Results:** All survived after the operation. Operative time ranged between 5 and 10 hours. All patients needed blood transfusion which ranged between 4 and 11 units. After the operation, all patients had a certain degree of bowel and bladder dysfunction. Five patients had local complication including infection in 3 patients with wound disruption, and 2 patients with seroma. During the follow up, 3 patients, 14%, had tumor recurrence and one of the patients expired. The rest 18 patients were still tumor free at the 7 year follow up. **Conclusion:** Wide resection via posterior approach and gauze packing technique could be used for management of sacral chordoma with acceptable results.

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 FP 09

## The Study of Medullary Canal Decompression In Reducing Cardiopulmonary Complications in Long Stem Hip Replacement of Long Bone Metastases

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### ABSTRACT

**Background:** Metastatic bone disease affects more than 1.2 million new patients annually. The femur is the most common long bone affected, with 25% involving the proximal third of the femur. For cases involving the femoral head, neck, and intertrochanteric area, the long stem cemented hip replacement is an important surgical option for fracture management and management of impending fractures. An important complication of this technique is the development of cardiopulmonary embolism. This study was conducted to evaluate the effectiveness of distal femoral canal decompression in reducing the risk of cardiopulmonary events. **Method:** A total of 32 patients with metastatic disease of the proximal femur who underwent long stem hip replacement were recruited in a randomized study. A conventional technique was used in 16 cases (without decompressing the medullary canal). Another 16 patients had the medullary canal decompressed distally. This was done via a trocar which was connected to a vacuum suction which was inserted into the distal femoral canal. A four Chambers Transesophageal Echocardiography was performed for all patients intraoperatively to detect the quantity of emboli passing through the heart. **Results:** Patients who were operated on with the vacuum technique were haemodynamically more stable and developed significantly less cardiopulmonary events during reaming of the femoral canal, insertion of the femoral stem and relocation of the hip joint. **Conclusion:** Distal femoral decompression of the femoral canal is effective in reducing embolism to the heart and reducing the incidence of cardiopulmonary events.

# Quantitative Assessment Of Ultrasound Guided Biopsy Taken From Hypoechoic and Hyperechoic Areas In A Heterogenous Soft Tissue

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## ABSTRACT

Soft tissue sarcomas represent less than 1% of all malignancies. Hence the challenges in diagnosing them. Imaging is a crucial step in the assessment of these tumours which may exhibit a heterogenous image on MRI. Histopathological study of a biopsy taken from the lesion is required for the final diagnosis. This study was done to quantitate the histopathological yield of the trucut biopsies taken from hypo- and hyperechoic areas in a single tumour. A cross sectional study was carried out involving 20 patients with musculoskeletal heterogenous soft tissue tumours. For every patient, 2 trucut ultrasound guided biopsies were planned. A suitable area for each biopsy (a hypoechoic and a hyperechoic) was chosen. The reflected sound wave intensity was measured using the Region Of Interest concept and the QLAB software measurement installed in the ultrasound device by two radiologists. Each of them took the measurement twice for inter- and intraobserver comparison. A difference of at least 8 decibels was considered to be a cutoff point to differentiate between the hypo- and hyperechoic readings. A histopathological study was performed. The slide with the highest percentage of the tumour tissue was considered a representative for the specific area of the tumour. Statistical analyses were carried out, first, to show whether there was a significant inter- and intraobserver differences in the recorded reflected sound wave intensities. Second, to show the significance of the difference in the percentage of tumour tissue when comparing the samples from the hypo- and hyperechoic areas generally in all tumours and specifically for each diagnosis. In this study there was no significant inter- or intraobserver differences in the recorded readings of reflected sound waves. In 10 cases, the hypoechoic area samples were superior to the other group and in one case both samples were equal. Of the forty samples taken, 33 had a tumour tissue percentage of more than 70%. This study confirms the reliability of ultrasound to detect the heterogeneity of soft tissue tumours. It also shows that there is no significant difference in the histopathological yield of samples taken from hypo- or hyperechoic areas in a heterogenous tumour.

FP 11

# Oxidative Stress And Anti Oxidant Levels In Primary Bone And Soft Tissue Sarcomas

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## ABSTRACT

**Background:** Oxidative stress (OS) results when the production of ROS exceeds the capacity of cellular antioxidant defences to remove these toxic species. In tumour development, ROS are considered to be DNA-damaging agents that increase mutation rate and promote oncogenic transformation. Malignant tumours of connective tissue or sarcomas account for approximately 1% of all cancer diagnoses in adults and around 15% of paediatric malignancies per year. Information about oxidative stress and antioxidant levels in patients with sarcomas are conflicting. This study was undertaken to investigate the relationship between oxidative stress and anti oxidants in primary bone and soft tissue sarcomas before and after treatment. **Method:** We recruited 94 cases of newly diagnosed sarcoma cases and 47 old sarcoma cases who had completed treatment and were disease free. Malondialdehyde (MDA) and protein carbonyls levels were determined to assess their oxidative stress levels in primary bone and soft tissue sarcomas. Antioxidant status was determined using a catalase (CAT), superoxide dismutase (SOD), thiols and trolox equivalent antioxidant capacity (TEAC). **Result:** In pre-treatment samples, both groups of sarcoma patients showed significant increase in oxidative stress (plasma and urinary MDA and serum protein carbonyl level at  $p < 0.05$ ). Significant decrease was noted in antioxidant levels (TEAC, thiols, CAT and SOD levels account for  $p < 0.05$ ). There was no significant difference in oxidative damage noted between both the sarcomas ( $p > 0.05$ ). Post-treatment samples indicate a significant decrease in urinary MDA levels ( $p < 0.05$ ) with no significant changes in plasma MDA and serum protein carbonyl levels. The antioxidants evaluated in this study (SOD, total thiols and TEAC) were significantly increased. Catalase activity did not show any significant difference between the two groups. **Conclusion:** This study on oxidative stress and antioxidant levels in both primary bone and soft tissue sarcomas before treatment clearly indicated an increase in oxidative stress and decrease in antioxidants in a similar extent of damage. Oxidative stress and antioxidant status in both sarcomas after treatment (chemotherapy/radiotherapy) suggest no significant changes in plasma MDA, protein damage and CAT activity. The overall extent of lipid peroxidation noted in the urine was significantly decreased with a significant increase in SOD, total thiols and TEAC levels.

## Functional Outcome of Patients Undergoing Reconstruction Surgery Of Orthopaedic Oncology in UMMC

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### ABSTRACT

There are various techniques used in the treatment of musculoskeletal tumours. With the advance of current orthopaedics, limb salvage surgery has become a popular choice of treatment. But does limb salvage give a functionally better outcome compared to amputation? A study was undertaken at UMMC, Kuala Lumpur. Musculoskeletal Tumour Society Score (MSTS) was used to assess functional outcomes. A total of 140 cases were performed from May 2007 to Dec 2011. Forty-four of the cases involved the upper limbs and 96 cases involved the lower limbs. Of this, there were only 6 amputation cases, with 96 undergoing limb salvage surgery with reconstruction. Cases involved were GCT, osteosarcoma, chondrosarcoma, Ewing's and pleomorphic sarcoma. The mean MSTS score for total cases was  $23.6 \pm 3.9$  rating  $78.8\% \pm 12.6$ . Surgery using biological construct was shown to have the best functional outcome ( $80.5\% \pm 7.6$ ), followed by endoprosthesis ( $78.5\% \pm 13.5$ ) and amputation ( $72.8\% \pm 11.7$ ). Lower limb surgery yielded a slightly better outcome with a mean score of  $23.6 \pm 4.2$ , rating  $79.8\% \pm 12.9$  as compared to upper limb surgery  $23.4 \pm 3.1$ , rating  $76.8\% \pm 11.4$ . The breakdown of scores for surgeries involving the lower limb are: proximal femur ( $69.4\% \pm 30.9$ ); distal femur ( $85.7\% \pm 10.6$ ); proximal tibia ( $82.8\% \pm 12.7$ ); distal tibia ( $79.2\% \pm 19.9$ ). The breakdown of scores for other surgeries are: the shoulder region and humerus ( $73.3\% \pm 12.8$ ); forearm and wrist region; ( $80.3\% \pm 10.0$ ); and elbow region ( $80.0\% \pm 3.3$ ). We conclude that limb salvage surgery with reconstruction for musculoskeletal tumours is justified as they have reasonably good functional outcomes.

## Limb Salvage In Osteosarcoma Using Autoclaved Tumour-Bearing Bone

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### ABSTRACT

Decades of limb salvage surgery for bone tumours has established that the use of tumour prostheses gives the best results in terms of function and comparative paucity of complications. Most studies on tumour prostheses are from centres that are located in more developed countries. In poorer countries, these prostheses are simply not affordable. Autoclaved tumour-bearing bone is a more affordable alternative, requiring only material and instrumentation used for fracture treatment. **Objective:** This study seeks to show that the use of autoclaved tumour-bearing bone is an affordable alternative to expensive tumour prosthesis, requiring only material and instrumentation used for fracture treatment. **Method:** This study is a retrospective case series involving 18 patients with primary malignant tumours of the limb bones from 1998 to 2008 who were treated with wide excision and reconstruction using the patients' own autoclaved bones removed during tumour excision. Four patients were lost to follow up and another 4 died from the disease or complications of chemotherapy, leaving 10 patients for this study. At surgery, the tumour-bearing bone was autoclaved at 120 degrees Celsius for 10 minutes and the remaining soft tissue and joint cartilage were excised upon removal from the autoclave machine. The autoclaved bone was reinserted in the original tumour bed and held in place by plates or intramedullary nails. During follow up, plain radiographs (2 views) were taken. Union was adjudged to have taken place when bridging callus was seen on 3 cortices. **Results:** Union occurred in 7 patients over an average duration of 12 months. Two patients had non union associated with implant failure. One patient did not show union at 17 months and is still being followed up. In relation to complications, one patient (humerus) had a fracture through the autoclaved bone. One patient had infection which cleared after treatment. Another patient developed chronic osteomyelitis and at the last follow up, still had a discharging sinus. Two patients had local recurrence. **Conclusion:** Autoclaved tumour grafts is an inexpensive method to limb salvage surgery. It provides a reconstruction independent of external resources without sacrificing appropriate oncological principles. A painless and stable limb is achievable if the short and medium term complications can be averted or surmounted.

# Surgical Margins and Oncological Outcomes of Hemipelvectomies for Bone and Soft Tissue Tumours - A Decade of HUSM Experience

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## ABSTRACT

**Background:** Safe surgical margins are difficult to achieve when performing surgical resections for bone and soft tissue tumours involving the pelvis. We evaluated whether safe surgical margins could be achieved and if oncological outcomes could be predicted based on microscopic marginal status. **Method:** We analyzed 53 consecutive patients surgically treated throughout a 10-year span at a single referral centre between 2001 and 2010. Various clinicopathologic factors were analyzed in relation to the oncological outcomes of overall survival and local recurrence. **Results:** Majority of cases were primary tumours (90%). Chondrosarcoma (n = 11) and osteosarcoma (n = 10) were the most common diagnoses. Eighteen patients underwent external hemipelvectomy and 35 patients were subjected to internal hemipelvectomy resection of various types. Average age was 40.12 years (range: 12-79 years). Average follow up is 10.4 months (range: 0-108 months). Thirty-seven patients underwent macroscopically wide resection but only 46% had clear marginal statuses. **Conclusion:** Positive surgical margins had a weak adverse prognostic effect, which was more pronounced for those patients escaping an early relapse. Other prognostic factors and relation to the oncological outcomes are further outlined in the article.