

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

Mohd Ariff S, Zulmi W*, Faisham W I*, Nor Azman M Z*, Nawaz Hussain M A*

Department of Orthopaedics, Traumatology and Rehabilitation, International Islamic University Malaysia, Gombak, Malaysia

*Department of Orthopaedics, Universiti Sains Malaysia, Kota Bahru, Malaysia

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.

ONCOLOGY 1

SP 046:	Allograft Reconstruction Of Primary Bone Tumours In Children <i>Wan Faisham Nu'man Wan Ismail (Malaysia)</i>	37
SP 047:	Soft Tissue Sarcoma In Children <i>Chye Ping Ching (Malaysia)</i>	37
SP 048:	Growing Endoprosthesis UMMC Experience <i>Vivek Ajit Singh (Malaysia)</i>	38
SP 049:	Benign Bone Tumours In Paediatrics <i>Sa'adon Ibrahim (Malaysia)</i>	38
SP 050:	Bone Sarcomas In Children <i>Pan Kok Long (Malaysia)</i>	39

PAEDIATRIC DEFORMITY

SP 051:	Treatment Options In Blount's Disease <i>Saw Aik (Malaysia)</i>	-
SP 052:	Tibial Plateau Elevation and Epiphysiolysis In Severe Blount's Disease <i>Ismail Munajat (Malaysia)</i>	39
SP 053:	Femur Deformity In Osteogenesis Imperfecta: Option Of Treatment <i>Abdul Razak Sulaiman (Malaysia)</i>	40
SP 054:	Application of Hip Spica Cast in Paediatric <i>Chua Yeok Pin (Malaysia)</i>	40
SP 055:	Early Outcome of Serial Casting In Patients with Congenital Talipes Equinovarus <i>Roshan Gunalan (Malaysia)</i>	41
SP 056:	A Literature Review Of The Clinical Evidence Of Orthotic Effectiveness For Paediatric Flatfeet <i>Edmund K H Lee (Malaysia)</i>	41

Allograft Reconstruction Of Primary Bone Tumours In Children

Wan Faisham Wan Ismail

School of Medical Sciences, Universiti Sains Malaysia

ABSTRACT

Primary malignant bone tumor in children is rare. The optimum management includes chemotherapy, surgery with or without radiotherapy. The mainstay of surgical treatment is to achieve wide oncological margin surgery either by salvaging the limb or amputation. Challenges of bony reconstruction in children due to their continuing growth and subsequently led to limb-length inequality. Various method described includes expandable prosthesis and biological reconstruction We described the used of allograft to reconstruct the bony defect as osteoarticular reconstruction or arthrodesis. The weight bearing stresses in children is less and bone incorporation is better, thus minimized early complication compare to adult. Allograft reconstruction allows preservation of adjacent bone growth plate and minimized growth disturbances. The predicted limb inequality was managed by single epiphysiodesis contralateral limb. The oncological outcome and functional result discussed.

SP 047

Soft Tissue Sarcoma In Children

P C Chye

Unit Of Orthopaedic Oncology, Dept Of Orthopaedic Surgery and Traumatology, Hospital Kuala Lumpur, Malaysia

ABSTRACT

Sarcomas in children represent a distinct set of tumours that diverge in both incidence and histology from those in adults. The soft tissue sarcomas of childhood are a heterogenous group of malignancies primarily of mesenchymal cell origin. They account for approximately 8% of childhood malignancies and half of them are rhabdomyosarcoma. The remainder of childhood soft tissue sarcomas are collectively categorized as “non rhabdomyosarcoma soft tissue sarcomas” which is an umbrella term covering various entities with different biologies and clinical behavior. Over the past three decades, multi institutional clinical trials in Europe and United States have shed significant light on the optimal management of rhabdomyosarcoma which has been associated with significant improvement in survival. However, similar guidelines have been lacking for the group of “non rhabdomyosarcoma soft tissue sarcomas” due to their different pathogenesis, cytogenetic changes and clinicopathological behaviour that underlie the radically different diagnostic and therapeutic approaches used for their management.

Growing Endoprosthesis UMMC Experience

Vivek Ajit Singh

Orthopaedic Oncology Unit, Department of Orthopaedic Surgery, University Malaya Medical Center,
Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Limb salvage surgery in the skeletal immature is a challenging task due their growth. Growing or lengthening endoprosthesis is commonly used to overcome this limb length discrepancy. These are custom made prosthesis that allows lengthening of the limb as the child grows. But the usage of these prosthesis is not without problems. **Result:** Since 2006 we have done 20 such cases at our center. There are 13 males and 7 females. 19 cases of Osteosarcoma and 1 case of Ewings sarcoma. 13 cases of femur, 6 cases of tibia and 1 case of humerus. These patients have undergone numerous lengthening and have encountered complications such as stiffness, infection and periprosthetic fractures. The overall result of the usage of the growing prosthesis is encouraging. **Conclusion:** The usage of growing prosthesis is a feasible option in the skeletally immature children.

 SP 049

Benign Bone Tumours In Paediatrics

Saadon Ibrahim

Hospital Sultan Ismail, Johor Bahru, Malaysia

ABSTRACT

Most bone tumors in children are benign. Some common types of benign tumors are: unicameral bone cyst, aneurysmal bone cyst, eosinophilic granuloma, enchondroma, osteochondroma, chondroblastoma, osteoid osteoma, non-ossifying fibroma and fibrous dysplasia. Occasionally, bone infections, stress fractures, and other non-tumor conditions can closely resemble tumors. Benign pediatric bone tumors range from static lesions, such as nonossifying fibromas, which remain essentially unchanged throughout childhood, to locally aggressive lesions, such as aneurysmal bone cysts, which continue to expand until treated. Most benign bone tumors have characteristic radiographic features and can be diagnosed with plain radiographs. It is important to be familiar with the radiographic appearance of the most common benign bone tumors. Benign bone tumors often are discovered incidentally, and recognition of benign lesions on plain radiographs can avoid unnecessary advanced imaging and invasive diagnostic studies. An overview of the presentation, clinical and radiographic features, and management of the most common benign pediatric bone tumors will be presented below. **Clinical evaluation** — Benign bone tumors often are asymptomatic and discovered incidentally during evaluation for trauma or another condition. When they are symptomatic, benign bone tumors may present with localized pain, swelling, deformity, or pathologic fracture. In most cases, the differential diagnosis of these lesions can be narrowed based upon the age of the child, the involved bone, the location of the lesion within the bone, and other general radiographic characteristics. **History** — Certain aspects of the history may be helpful in narrowing the differential diagnosis of a benign-appearing bone tumor.

Bone Sarcomas In Children

K L Pan

Universiti Malaysia Sarawak, Sarawak General Hospital, Kuching, Malaysia

ABSTRACT

Paediatric bone sarcomas constitute 6-10% of all childhood cancers, with an incidence of 5.5 cases per million each year. The most common bone sarcomas diagnosed in children are osteosarcoma (53%) and Ewing's sarcoma (42%). Other sarcomas are rare and include chondrosarcoma, adamantinoma, chordoma and bone lymphomas. Multi-disciplinary treatment with modern imaging has allowed long-term survival in some, with reasonable function from limb-salvage surgery. Delay in diagnosis remains a problem in Malaysia. Patients with various treatment regimes and surgical reconstructions will be presented, together with their attendant difficulties and complications.

SP 052

Tibial Plateau Elevation and Epiphysiolsis In Severe Blount's Disease

Ismail Munajat

Hospital Universiti Sains Malaysia, Kota Bahru, Malaysia

ABSTRACT

In patients with progressive Blount's disease early surgical treatment is advised. The recurrence following the surgical treatment of Blount's disease has been documented. Medial tibial plateau elevation is one of the treatment in severe Blount's disease. Clinical and radiological assessment of the knee was used for elevation of medial tibial plateau in severe tibia vara. Significant depression and incongruity of the joint surface demonstrated preoperatively may warrant medial tibial plateau elevation in order to improve joint congruity and restoration of a more normal configuration of the articular surface of the proximal end of the tibia. In stage IV or greater, realignment valgus osteotomy combined with medial physeal resection with placement of interposition material to avoid rebridging of the bar is another reasonable treatment options. This option may avoid recurrence and repeated osteotomies. In young patient, medial epiphysiolsis may result in less significant limb length discrepancy and shortening compared to lateral epiphysiodesis and total physeal closure.

Femur Deformity In Osteogenesis Imperfecta: Option Of Treatment

A Razak Sulaiman

School of Medical Sciences, Universiti Sains Malaysia, Kota Bharu, Malaysia

ABSTRACT

Femoral deformity is due to multiple fracture malunion. The recommended treatment is multiple osteotomy and intramedullary nail fixation which is known as Sofield-Millar procedure. It is meant to control fractures and correct deformity. Ambulation was neither principal result nor primary objective of the original description. Recently, there has been contradicting evidence whether the procedure helps in improving the ability to ambulate. However, it has been shown to improve ability to ambulate with administration of pamidronate. Some author prefer to treat fracture and deformity with closed method before doing operative correction when the child is 5 years or older. Others suggest the procedure to be done as early as 6 month old to avoid cyclical immobilization leading to further weakening of bone. Technique of multiple osteotomy has progressed from original procedure through wide and extensive exposure to a semiclosed intramedullary roding. Expandable nail has been used to replace Rush rod to overcome multiple surgery during growing period. As alternative, technique of using double rush rods are still useful to cut the cost. Rigid intramedullary locking nail like humeral nail can be used in adolescent patient.

 SP 054

Application of Hip Spica Cast in Paediatric

Y P Chua, A Saw, Roshan Gunalan, S R Kanthan

Department of Orthopaedic Surgery, University of Malaya, Kuala Lumpur, Malaysia

ABSTRACT

Background: Hip spica cast is often needed in infants with developmental hip dysplasia (DDH) and in infants/young children (<5-6 years) with femur fractures or after hip/pelvis surgery. Application of the hip spica cast involves positioning the trunk and lower limbs in the correct position while the plaster cast is being applied. A conventional supporting frame is only able to support the patient's trunk and doctors have to rely on an assistant to hold the lower limbs until the cast is completely hardened. It usually takes 30 minutes for the whole process but it is a tiring procedure. Occasionally, the procedure has to be repeated due to undetected loss of alignment that can happen during the application. **Objective:** To develop a support frame that can support the patient's trunk and lower limbs during application of hip spica cast which can facilitate the use of an image intensifier for checking the position of the hips before and after the application of the spica cast. **Methodology:** With the new support frame, the actual position of the body and legs will vary only slightly during application of the hip spica cast. No assistant is needed to hold the patient's legs. It also allows the surgeon to check for correct positioning with the image intensifier such that loss of alignment during cast application can be reduced. In addition, this modular device can be dismantled into its component parts which can be stored in a smaller box. This is important because there is limited storage space in most operation theatres. Furthermore, the storage box can be used as a head rest during the application procedure. **Conclusion:** This new modular device is a reliable device for hip spica application which requires very little space for storage

Early Outcome of Serial Casting In Patients with Congenital Talipes Equinovarus

Roshan Gunalan

Department of Orthopaedic Surgery, University Malaya, Kuala Lumpur, Malaysia

ABSTRACT

Background: Over the past decade Ponseti management has become accepted throughout the world as the most effective and least expensive treatment for congenital talipes equinovarus (clubfoot). We have been using this method of manipulation and serial casting and would like to report early results obtained from this treatment. **Method:** The diagnosis of clubfoot is made by a trained orthopaedic registrar or surgeon. The essential features of a clubfoot include cavus, varus, adductus and equinus deformities. During this evaluation, other conditions such as positional clubfoot, syndromic and neurogenic clubfoot are excluded. Usually on initial presentation, patients are started on serial casting using the Ponseti method of manipulation. The cavus is corrected with the first cast. On day 7, the cast is removed and further manipulation to correct the adduction deformity is carried out. On average, 5 – 6 serial casts are applied. The last cast, to correct the equinus usually involves an Achilles tendon tenotomy, performed in the clinic. All casts are built up to groin level with the knee flexed at 90 degrees. The Pirani scoring system is used to evaluate the progression of deformity improvement at regular stages throughout treatment. A simpler scoring system is also used to evaluate the deformities of the patients. Once the deformity is corrected, patients are required to use an abduction brace according our suggested protocol. **Results:** Early outcome results with this method of treatment for clubfoot have been encouraging. We have a total of 13 patients evaluated over a period of one year. Patients who presented at a younger age had a better response rate to the manipulation and casting, based on the scoring systems used. **Conclusion:** Most cases of clubfoot are corrected after five to six cast changes and, in many cases, a tendo Achilles tenotomy. This technique results in feet that are strong, flexible and plantigrade. Maintenance of function without pain and compliance to bracing protocol is on-going and will require further evaluation over a longer period of time.

SP 056

A Literature Review Of The Clinical Evidence Of Orthotic Effectiveness For Paediatric Flatfeet

Edmund K H Lee

MyORTHO Foot & Spine Healthcare Orthotic Centre, Kuala Lumpur, Malaysia

ABSTRACT

The pediatric flat foot is a frequent presentation in clinical practice, a common concern to parents and continues to be debated within professional ranks. Disagreement on the indications for treatment remains, along with lack of evidence to prove the flexible flat foot in children leads to long term morbidity in adults. The normal findings of flat foot versus children's age estimates that approximately 45% of preschool in children and 15% of older children have flat feet. Joint hypermobility and increased weight or obesity may increase flat foot prevalence, independently of age. Most attempts at classification of flat foot morphology include the arch, heel position and foot flexibility. The quandary experienced by most healthcare providers, in relationship to pediatric flatfoot, is whether to treat or not. Most of the literature agrees that a vertical calcaneus by age 7 is considered normal development. This era of aggressive and pervasive orthotic treatment was followed by an overreaction of professionals, some of it valid, asserting that too many children were being treated unnecessarily for flatfeet. It was suggested by Weneger in 1989 that flatfoot achieves correction spontaneously. The treatment pendulum swung away from treatment and may have resulted in the common mantra, 'Don't worry, they will outgrow it.' The issue of overtreatment may have produced an era of undertreatment. Garcia-Rodriquez examined 1200 school children and identified, by very strict anatomical criteria, that only 2.7% of the group has pediatric flatfoot. They found, however, that 14.2% were being treated for flatfoot pathology with shoes, braces or orthoses clearly demonstrating overtreatment. 25% of these children were being treated, a clear case of undertreatment. A paper investigated the hypothesis that growing pains in children may also be related to excessive pronation from flatfeet. The results supported the use of antipronatory devices; it does demonstrate a relationship as well as a successful intervention using orthoses, when attempting to treat the growing pains. Regardless of the controversy and debate of treating pediatric flexible flatfoot, evidence is ample that treatment with functional orthoses reduces symptoms and improves overall mobility. Returning the foot to a more consistent morphology with custom orthoses does improve function and gait. Whether the effort of orthotic intervention ultimately reduces midlife deformity and symptoms may be demonstrated in future long term longitudinal clinical trials that produce pediatric developments registries.