BIO ENGINEERING SEMINAR

at 4:00 PM on January 19th, 2015 (Monday)
Seminar Hall, Materials Engineering

Cartilage Regeneration Techniques - Clinician's perspective

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Articular injuries due to trauma or overuse are still a challenge to treat. The ability of damaged articular cartilage to form normal hyaline cartilage is limited. This is due to the avascular nature of cartilage and due to the absence of chondrocyte regeneration. From a clinicians perspective "healing" of cartilage injury refers to a patient with pain free, mobile and functional joint, although the repair tissue may be fibrocartilage. Therefore, in planning treatment of articular cartilage defects the factors considered are the size of the defect, the depth of the defect, patient's level of activity and underlying metabolic bone diseases and the outcome expected. Tissue engineering has promised healing by formation of hyaline cartilage. I have experimented in animal models using the basis of tissue engineering to regenerate articular cartilage defects. In this talk, I will describe the various tissue engineering options and clinical relevance, surgical procedures available and the difficulty in translating tissue engineering for articular cartilage regeneration from the bench to bedside.

About the speaker:

Dr. Boopalan is currently working as Associate Professor in the Department of Orthopaedics and Trauma unit 3 at the Christian Medical College, Vellore. His areas of specialization in orthopaedics include complex trauma reconstruction, treatment of musculoskeletal tumour (bone and soft tissue sarcoma), pelvic and acetabular trauma. He underwent advanced training in complex trauma and pelvi-acetabular trauma at the Royal Adelaide Hospital, Australia for 3 years between 2010-2013. His research interests include articular cartilage regeneration, treatment of bone defects, RSA (radiostereometric) analysis of fracture healing and the role of gut microbiome in bone diseases. He was trained at the Cardiff Institute of Biosciences, Wales, UK to do chrondroprogenitor isolation, culture and differentiation. He has done articular cartilage regeneration using autologous and allogenic chondrocytes; mesenchymal stem cells, articular surface chondroprogenitors and adipose tissue derived stem cells. He has also done research in the use of Pulsed magnetic field therapy in the management of bone and cartilage healing. He has authored publications in international peer reviewed journals on trauma and research.