Hokkaido University
Leading Graduate School
Veterinary Science for One Health

Leading Seminar
The 1st: Date: Thu. May 31th, 2012 14:30-16:00
Venue: Gra. Sch. Vet. Med. HU, Japan

Bone-Specific Reactions to Injury

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The bone tissue is one of hardest tissue in the vertebrae body and is responsible for supporting and protecting the body. While bone is growing, the process, which is called “modeling”, is occurred. In modeling, bone surfaces can go directly from resting to either formation or resorption, depending on the stimulus. This process allows the shape or size of bone to change and also allows the overall shape of the bone to be maintained. Furthermore, bones undergoes a low but constant replacement called “remodeling”, in which old bone is resorbed and replaced by new bone, in most animals. Because of this constant replacement of bone tissue, many agents including vitamins, heavy metals and microbe can cause bone diseases. This lecture consists of 5 parts. In this lecture, lecturer will explain the mechanisms of some bone diseases after he will provide comprehensive commentaries on the normal process of bone development (endochondral ossification, modeling and remodeling).

1. Disruption of endochondral ossification interferes with metaphyseal bone formation. (Osteomyelitis, Osteochondrosis, Chondrodystrophies, BVD virus infection, lead poisoning)
2. Modeling. (Angular limb deformity)
3. Remodeling. (Osteoporosis, Osteosclerosis)
4. Repair bone /rapidly deposited bone is woven. (Trauma, Neoplasia, Inflammation)
5. Periosteum responds to “injury”. (Trauma, Hypertrophic pulmonary osteopathy, Avian osteopetrosis, Hyperostotic fibrous osteodystrophy)