

グローバルCOE特別講演会(第44回)

歯と骨の分子疾患科学の国際教育研究拠点 ーデント・メドミクスのインテリジェンスハブー

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日時: 2011年6月27日(月) 12:30~

場所: 歯学部4階 特別講堂

演題: “Clinically Unsolved Problems Related to
Osteoporosis and Bone Atrophy in Orthopaedic Surgery”

Mechanisms of bone metabolism have been illuminated gradually, but some clinical problems still left unsettled. In this lecture these problems and questions in the orthopaedic field will be illustrated. Topics dealt in the lecture are as follows:

1. Non-union of vertebral fracture
2. Lumbar Kyphosis due to spinal alignment change by multiple fractures
3. Insufficient fracture around pelvis
4. Bone atrophy caused by stress shielding or implant debris
5. Bone atrophy in relation with complex regional pain syndrome (reflex sympathetic dystrophy)

Non-union of vertebral fracture

For osteoporotic patients newly developed drugs such as bisphosphates and a recombinant form of parathyroid hormone became available in Japan, but treatment of vertebral fractures has not standardized yet. Some patients suffer non-union of the vertebral fracture, in which the shape of the vertebra changes in response to posture. Bone cement (poly methyl methacrylate) is injected percutaneously into the cavity of the vertebral body and pain-relief achieved shortly. However, fracture of the adjacent segment occurs one or two months later and again severe pain comes back.

Lumbar Kyphosis due to spinal alignment change

Patient with thoracolumbar multiple fractures cannot walk long without aid such as a cane or so-called “silver cart”. A fracture spontaneously heals in a few months, but profile change (round back) shifts the center of gravity to more anterior of the body. In some cases one compression fracture of the thoracolumbar spine induces another new fractures in succession.

Insufficient fracture around pelvis

In oldest-old patient insufficient fracture around pelvis occur, which cannot be detected by routine x-rays other than MRI. Pain of the unknown origin continues in several weeks, resulting in decrease of their activity of daily living.

Bone atrophy caused by stress shielding or implant's debris

In a spinal surgery mobile spinal segments are intentionally fused to correct spinal deformity. An artificial joint replacement also induces bone atrophy around the inserted solid implant. These bone atrophy sometimes provide a new fracture.

Bone atrophy in relation with complex regional pain syndrome

Complex regional pain syndrome (CRPS) is a disorder of the extremities that is characterized by pain, swelling, limited range of motion, vasomotor instability, skin changes, and patchy bone demineralization. Plain radiographs often demonstrate osteopenia and scintigraphy using technetium may reveal increased uptake in the involved extremity. The severe local osteopenia sometimes is hard to be treated.

In the lecture clinical features will be presented in detail.

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