

## OSTEOMALACIA

Osteomalacia is a disease of mature animals affecting bones in which endochondral ossification has been completed. The characteristic lesion is osteoporosis and the formation of excessive uncalcified matrix (osteoid). Lameness and pathologic fractures are the common clinical findings.

### ETIOLOGY

Absolute or relative deficiency of any one or combination of calcium, phosphorus, and vitamin D in adult animals the predisposing cause is not the increased requirement of growth but the drain of lactation, pregnancy, or both.

### EPIDEMIOLOGY

Osteomalacia occurs in mature animals **Primarily in cattle and sheep on phosphorus-deficient diets** In feedlot animals, excessive phosphorus intake without complementary calcium and vitamin D is likely as a cause, especially if the animals are kept indoors.

### Pathogenesis

Increased re sorption of bone mineral to supply the needs of pregnancy, lactation and endogenous metabolism leads to osteoporosis, and weakness and deformity of the bones. Large amounts of uncalcified osteoid are deposited about the diaphyses. Pathological fractures are commonly precipitated by sudden exercise or handling of the animal during transportation.

### CLINICAL FINDINGS

- In the early stages, the signs are those of phosphorus deficiency, including lowered productivity and fertility and loss of condition.
- Licking and chewing of inanimate objects begins at this stage and may cause oral ill, pharyngeal, and esophageal obstruction; traumatic reticuloperitonitis; lead poisoning; and botulism.
- The signs specific to **osteomalacia** are those of a painful condition of the bones and joints and include a stiff gait; moderate lameness. often shifting from leg to leg; crackling sounds while walking; and an arched back. The hindlegs are most severely affected, and the hocks may be rotated inward. The animals are disinclined to move , lie down for long periods and are unwilling to get up. The names '**milk leg**' and '**milk-lameness**' are commonly applied to the condition when it occurs in heavily milking cows.
- Fractures of bones and separation of tendon attachments occurs frequently, often without apparent precipitating stress.

- In extreme cases, deformities of bones occur and when the pelvis is affected dystocia may result.

Finally, weakness leads to permanent recumbency and death from starvation.

### **Clinical pathology**

In general, the findings are the same as those for rickets, including increased serum alkaline phosphatase and decreased serum phosphorus levels.

Radiographic examination of long bones shows decreased density of bone shadow.

### **Differential Diagnosis:**

The occurrence of non-specific lameness with pathological fractures in mature animals should arouse suspicion of osteomalacia.

In cattle it must be differentiated from chronic fluorosis in mature animals, but the typical mottling and pitting of the teeth and the enlargements on the shafts of the long bones are characteristic.

### **Treatment and control**

Recommendations for the treatment and control of the specific nutritional deficiencies according to deficient. Some weeks will elapse before improvement occurs and deformities of the bones are likely to be permanent. Osteoprosis