Lameness in Cattle: A Survey of 102 Cases Including History, Clinical and Radiographic Findings, Prognosis and Treatment

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Introduction

Recent surveys have drawn attention to the significant incidence of limb problems in cattle. However, the reviews of the many conditions involving bovine lameness that have emphasized diagnosis and treatment based on clinical and radiographical examinations are limited. The objective of this study was to summarize the clinical signs, radiographic findings, treatment and prognosis given in some common cattle lamenesses.

Literature Review

The basic causes of cattle lamenesses of greatest economic importance have been reported to be: 1. defects in conformation, 2. congenital anomalies, 3. improper foot management, 4. vegetative interdigital dermatitis, 5. ulceration of the sole, 6. fractures and dislocations, 7. injuries at parturition, and 8. infectious pododermatitis (1).

Several surveys have shown the incidence of bovine lameness to be variable, ranging from 4% to 14% of certain cattle populations (7,10,11,16). The incidence of specific lameness problems such as foot involvement, osteoarthritis of the hip and septic arthritis of the hock have been reported (11,16). Etiology, clinical symptoms and radiographical lesions of septic arthritis have been well described (3,9,11,12,14) as has the spastic paresis syndrome in calves (6). Degenerative joint disease has received attention by several workers (4,5,8,15).

The use of radiography in the diagnosis of bovine limb problems has been limited by such factors as the difficulty in transporting cattle, anatomical problems requiring special techniques, restraint and availability of adequate radiographic equipment. Literature on radiographic interpretation in the bovine has been limited. However, recent references concerning normal and pathological findings are useful to the practitioner (2,3,7,17). The bovine practitioner will be asked to make more use of radiography as the livestock producers become more aware of the economic loss associated with lameness (7).

Materials and Methods

The sample of cases consisted of 102 bovine lameness cases which were radiographed in the Purdue University Veterinary Clinic between January 1, 1965, and December 31, 1967. These represented 30% of all cattle admitted with limb problems.

All case records were reviewed, noting the breed, sex, age, weight, duration of illness, clinical signs, clinical pathology data, treatment and post-mortem reports. The radiographs from each case were carefully reviewed and the radiographical findings noted. On the basis of these criteria, a primary diagnosis of the principal cause of lameness was made; (if there were associated or non-associated lesions, secondary diagnoses were also determined). The following criteria were used for differentiating the site and type of involvement of bones and joints:

1. If the joint was involved, any changes on the adjacent long bones with the exception of fractures, were considered secondary.
2. A joint lesion was considered septic if there was a history or signs of a suppurative process in the surrounding area.
3. A primary diagnosis of degenerative joint disease (osteoarthritis) was made if there was no history or clinical evidence of an active suppurative condition associated with observed radiographic alterations of the articular surface.
4. A diagnosis of a fracture or dislocation was made only on the basis of radiographic evidence.
5. Measurements made on the radiographs of the

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metacarpal bones were used to establish a diagnosis of achondroplasia (13).

Follow-up histories were obtained on 86 of the cases (84%); 17 animals necropsied at the university and 69 animals that were discharged.

Results

A. *General Considerations:*

Of the 102 animals, there were 60 (58.8%) males and 42 (41.2%) females. The forelimbs were affected in 31 (30.4%) of the cases while in 67 (65.7%) the hindlimbs were found to be involved. Both fore and hindlimb involvement was observed in four animals (3.9%). The lesion was confined to the fetlock joint or digits in 35 animals (34.3%); the metatarsal, metacarpal, carpus or tarsus in 28 animals (27.4%); and the remaining parts of the limbs, including the pelvis in 31 cases (30.4%). In eight animals (7.9%), general leg involvement was observed. Radiographic findings confirmed the diagnosis in 87 cases (85.3%). The age distribution of the animals is presented in Table 1.

Table 1

Age Distribution

Years	Number of Animals
Less than 1	25
1-2	29
3-5	25
Over 5	23

The primary diagnoses were divided into: Septic arthritis, 30 cases (29.5%), fractures, 19 (18.6%), degenerative joint disease, 19 (18.6%), and others 34 (33.3%). Each of these areas will be discussed.

B. *Septic Arthritis:*

In animals with septic arthritis the clinical history and signs were variable depending on the severity and chronicity of the infection. A history of trauma or of previous infection of the foot was frequent. No direct correlation was evident between the duration of illness and the severity of either the clinical signs or the radiographic lesion at presentation. In the majority of cases the animals were reluctant to bear weight on the affected leg, had swollen and painful joints, and had signs of a septic process such as a purulent material draining from the area or the presence of an abscess. In advanced cases, general depression and weight loss were discernible and these were often associated with muscle atrophy and recumbency.

The radiographic findings varied according to the joint involved and the degree of involvement. New bone proliferation on the margins of the joint was the most characteristic abnormality. There was often loss of detail in the joint (Fig. 1), with decreased joint space that associated with erosion of cartilage. Increased joint space was also present. However, this was invariably associated with an acute process (Fig. 2). In two cases an associated dislocation of the distal interphalangeal joint was observed (Fig. 3).

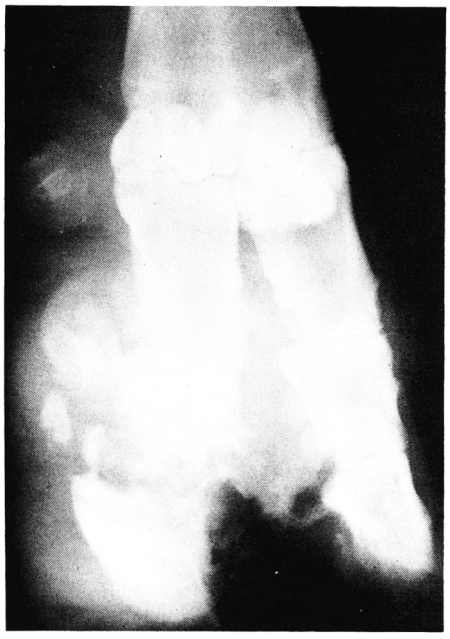

Figure 1. A. P. radiograph of right rear foot. Ten-year-old, female, Hereford with extreme lameness of right rear leg present for ten weeks. Radiographically, there is severe lysis of bone involving the articular surfaces of the distal interphalangeal joint of the 4th digit. There is marked periosteal reaction of all three phalanges of the 4th digit, with some adjacent soft tissue mineralization. Diagnosis: Chronic septic arthritis, distal interphalangeal joint.

The results of 14 hemograms revealed nine with leucocytosis with neutrophillymphocyte reversal; anemia was observed in two cases. Thirteen of 30 cases were cultured resulting in positive microbiological isolations in 10 cases. The bacteria recovered included *Corynebacterium spp.* 6, *Streptococcus spp.* 2, *E. coli* 3, *Proteus spp.* 2. In three cases two different bacterial species were isolated from the same lesion.

The 19 cases involving the interphalangeal joints are summarized in Table 2. Twelve of these cases were treated conservatively, usually with a parenteral antibiotic, and curettement of the involved area with the establishment of drainage. In addition a $MgSO_4$ foot bath was commonly used. Five of the 12 made complete recoveries. The seven animals which did not respond to the conservative treatment were re-evaluated and the claws were amputated from five animals, while in two cases because of the severity of the lesion amputation was not advised. In the seven other cases amputation was the treatment of choice. All of the animals with follow-up histories (11) are in normal service. Four medial and two lateral front claws and two medial and seven lateral rear claws were amputated. Both lateral rear claws were removed from one animal. Two bulls with rear claw amputations, weighing 1300 and 2200 pounds respectively, compensated for the decreased weight bearing surface by developing a wider plantar surface on the remaining claw. Of the two bulls with front claw amputation, one currently evidences some lameness on frozen ground while the other has no signs of

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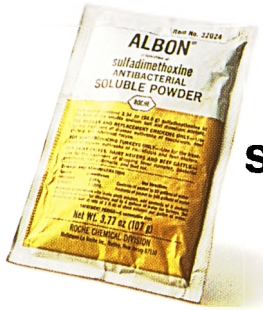

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Stock Solution:		
1 quart	10 gal.	7 gal.
2 quarts	20 gal.	14 gal.
1 gallon	40 gal.	28 gal.
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Stock Solution:		
1 quart	20 gal.	14 gal.
2 quarts	40 gal.	28 gal.
1 gallon	80 gal.	56 gal.

**This dosage recommendation is based on a water consumption of 1 gal. per 100 lb of body weight per day, the expected water consumption rate for summer. Water consumption during cold months (winter) may drop markedly (30-40%). Accordingly, adjustments must be made in the dilution rates to compensate for this and insure proper drug intake.

For treatment of individual cattle, ALBON (sulfadimethoxine) Soluble Powder stock solution for cattle may be given as a drench. Administer using same mg./lb dosage as outlined above.

Twenty fluid ounces of cattle stock solution will medicate one 600-lb animal initially or two 600-lb animals on maintenance dosage. Contents of packet will medicate six 600-lb animals initially or twelve 600-lb animals on maintenance dosage.
TREATMENT PERIOD – 5 consecutive days.

CHICKENS

Dosage: Concentration – 0.05%. Add contents of packet to 50 gal. of water.

TURKEYS

Dosage: Concentration – 0.025%. Add contents of packet to 100 gal. of water.
TREATMENT PERIOD – 6 consecutive days.

CAUTION: Chickens and Turkeys – If birds show no improvement within 5 days, discontinue treatment and re-evaluate diagnosis. Prepare a fresh stock solution daily. Handle the recommended dilutions (chickens 0.05% and turkeys 0.025%) as regular drinking water. Administer as sole source of drinking water and sulfonamide medication. Chickens and turkeys that have survived fowl cholera outbreaks should not be kept for replacements or breeders.

Cattle: During treatment period, make certain that animals maintain adequate water intake. If animals show no improvement within 2 or 3 days, re-evaluate diagnosis. Treatment should not be continued beyond 5 days.

WARNING:

Chickens and Turkeys: Withdraw 5 days before slaughter. Do not administer to chickens over 16 weeks (112 days) of age or to turkeys over 24 weeks (168 days) of age.

Cattle: Withdraw 7 days before slaughter. For dairy calves, dairy heifers and beef cattle only.

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1 pt. (16 fl. oz.) to	25 gal.	16 gal.
1 qt. (32 fl. oz.) to	50 gal.	33 gal.
1 gal. (128 fl. oz.) to	200 gal.	127 gal.
Next 4 Days Add:		
1 pt. (16 fl. oz.) to	50 gal.	33 gal.
1 qt. (32 fl. oz.) to	100 gal.	66 gal.
1 gal. (128 fl. oz.) to	400 gal.	266 gal.

*This dosage recommendation is based on a water consumption of 1 gal. per 100 lb of body weight per day, the expected water consumption rate for summer. Water consumption during cold months (winter) may drop markedly (30-40%). Accordingly, adjustments in drug concentration in drinking water must be made to insure proper drug intake.

For individual treatment of cattle, ALBON (sulfadimethoxine) 12.5% Drinking Water Solution may be given as a drench. Administer using same mg./lb dosage as outlined above. Four fluid ounces will medicate one 600-lb animal initially or two 600-lb animals on maintenance dose.
TREATMENT PERIOD – 5 consecutive days.

CHICKENS

Dosage: Concentration – 0.05%. Add 1 fl. oz. to 2 gal. of water or 25 fl. oz. to 50 gal. of water.

TURKEYS

Dosage: Concentration – 0.025%. Add 1 fl. oz. to 4 gal. of water or 25 fl. oz. to 100 gal. of water.
TREATMENT PERIOD – 6 consecutive days.

CAUTION: Store at room temperature; if freezing occurs, thaw before using. Protect from light; direct sunlight may cause discoloration. Freezing or discoloration does not affect potency. Prepare a fresh stock solution daily.

Chickens and Turkeys: If birds show no improvement within 5 days, discontinue treatment and re-evaluate diagnosis. Handle the recommended dilutions (chickens 0.05% and turkeys 0.025%) as regular drinking water. Administer as sole source of drinking water and sulfonamide medication. Chickens and turkeys that have survived fowl cholera outbreaks should not be kept for replacements or breeders.

Cattle: During treatment period, make certain that animals maintain adequate water intake. If animals show no improvement within 2 or 3 days, re-evaluate diagnosis. Treatment should not be continued beyond 5 days.

WARNING:

Chickens and Turkeys: Withdraw 5 days before slaughter. Do not administer to chickens over 16 weeks (112 days) of age or to turkeys over 24 weeks (168 days) of age.

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Figure 2. A. P. radiograph of left rear foot. Ten-month-old, male Guernsey with lameness of left rear leg. There is swelling and heat just above the hoof of the lateral digit. Occurred four days previous while in a box stall. Radiographically, there is increased space of the distal interphalangeal joint of the 4th digit. No periosteal reaction or lysis is noted. Diagnosis: Acute septic arthritis, distal interphalangeal joint.

Figure 3. A. P. radiograph of right rear foot. Six-year-old, male Angus with lameness of right rear leg for six weeks. There was a firm soft tissue swelling extending proximally to the tarsus. Radiographically, there is periosteal reaction of the 1st and 2nd phalanges of both digits. There does not appear to be any cortical lysis or joint involvement. Diagnosis: Infective periostitis, phalanges.

Table 2

Summary of Septic Arthritis Cases Involving Interphalangeal Joints

Limb	Number	Claw Lateral	Involved Medial
Fore	8	3	5
Hind	11	9	2

lameness; all four are being used for natural pasture service. Of the 11 cases of septic arthritis involving other joints four are in normal service, five were necropsied or slaughtered and no follow-up histories were obtained on the other two cases. The joints involved were carpus; 4, tarsus; 3, fetlock; 2, elbow; 1, and polyarthritis; 1. In all cases varying courses of parenteral antibiotic therapy, usually in conjunction with local treatment, was administered. In two of the recovered cases local treatment consisted of ankylosing of the joint using an intramedullary pin and plaster cast (Fig. 4). Stunting of growth of two animals was observed.

C. *Fractures*

Nineteen animals were presented with fractures. The locations of the fractures, the sex and age of the animals, and the results of the follow-up history are noted in Table 3. The forelimbs were involved in 16 (84.2%).

The clinical findings, associated with the cases of fractures, were usually pain and swelling in the area of the fracture, and reluctance to use the affected leg. Pelvic fractures (ilium, ischium, and ascrum) were characterized by weight loss, loss of breeding efficiency, crepitations in the acetabular area and in severe cases, recumbency. Of the 13 fractures involving long bones, six involved the physis (epiphyseal plate) area and seven the diaphysis. Two of the latter fractures were compound.

The therapy for all long bone fractures, except those of the ulna, was the application of coaptation (usually plaster casts). Six months of stall rest with limited exercise was the only therapy used for the ulnar fracture. Of the other long bone fractures, three healed satisfactorily, including a distal physeal fracture of the radius (Fig. 7), a fracture of the ulna through the semilunar notch, and a midshaft tibial fracture. Two calves with femoral fractures died during surgical repair and one bull with a fracture of the articular surface of the head of the tibia was sent to slaughter.

Complications after healing were a lateral deviation of the radius and a shortening of the leg involving an epiphyseal fracture of the metatarsal bone. Both were associated with premature closing of the physis. One animal also developed an abnormal gait following healing of a tibial fracture. However, the normal productivity of these animals was not affected.

The fracture of the third phalanx appeared to be healing at the time of admission, so the only treatment was confinement.

D. *Degenerative Joint Disease*

Among the 19 animals with degenerative joint disease (D.J.D.) there were 18 males (94.7%) and only

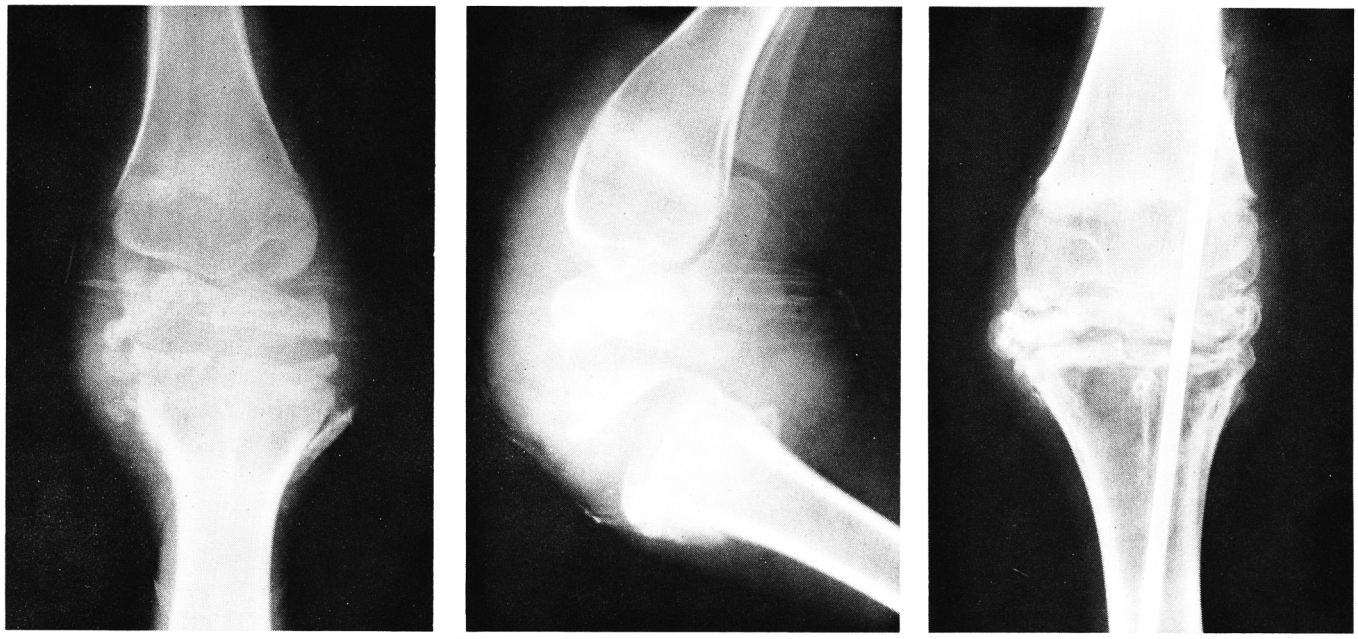


Figure 4, A, B, C. Radiographs of the left carpus (A, B). Two-month-old, male Charolais with difficulty in walking since birth and has been on its carpus most of the time. Carpus has been swollen and warm for four weeks. Radiographically, there is severe lysis of the carpal bones particularly the distal row. There is periarticular new bone formation on the proximal end of the 3rd and 4th metacarpal. A. P. radiograph made ten weeks after pinning (C) shows complete collapse of the carpal bones along with obliteration of the joint spaces. Diagnosis: Septic arthritis of carpal joint followed by ankylosis.

Table 3

Summary of 19 Fracture Cases in Hospitalized Cattle

		sex		age in years			known outcome			
Bone	Cases	male	female	<1	1-2	3-9	Normal Activity	Necrop-sied	Slaught-ered	Unknown
Metacarpal	1	1	-	-	1	-	1	-	-	-
Radius	1	1	-	-	1	-	1	-	-	-
Ulna	1	1	-	-	1	-	1	-	-	-
Metatarsal	6	1	5	4	2	-	4	1	1	-
Tibia	2	1	1	-	1	1	1	-	1	-
Femur	2	2	-	2	-	-	-	2	-	-
Ischium	1	1	-	-	-	1	-	-	1	-
Ilium	3	-	3	1	2	-	1	1	-	1
Sacrum	1	-	1	-	1	-	-	1	-	-
3rd Phalanx	1	-	1	-	-	1	1	-	-	-
Totals	19	8	11	7	9	3	10	5	3	1

Table 4

Summary of Degenerative Joint Disease Cases in Hospitalized Cattle

		age in years			known outcome			
Joint	Cases	<1	2-3	>4	Normal Activity	Partial Activity	Slaughtered	Unknown
Coxofemoral	6	2	–	4	–	1	5	–
Stifle	7	–	3	4	–	2	3	2
Tarsal	3	–	2	1	–	–	3	–
Fetlock	1	–	1	–	–	–	1	–
Fetlock and Coffin	1	–	1	–	1	–	–	–
Stifle, Tarsal, and Interphalangeal	1	–	–	1	–	1	–	–

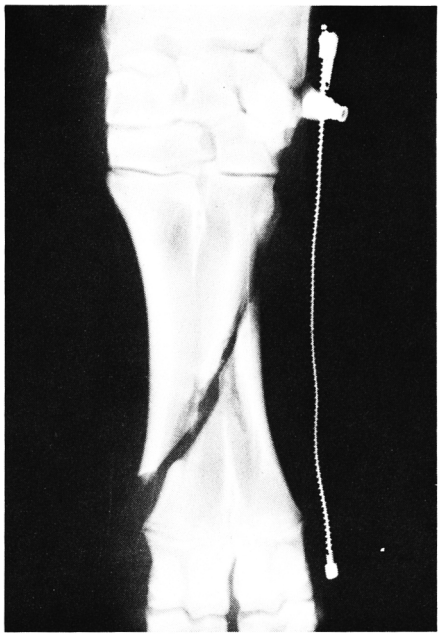


Figure 5. A. P. radiograph of left front leg. One-year-old, male Polled Hereford. Found in lot carrying the left front leg. Radiographically, there is an oblique fracture of the 3rd and 4th metacarpal. There is slight overriding and displacement. Note the normal 5th metacarpal bone. Diagnosis: Oblique fracture of 3rd and 4th metacarpal.

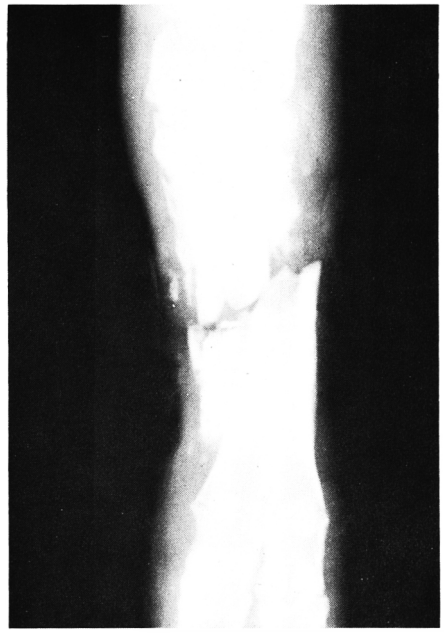


Figure 6. A. P. radiograph of right rear leg. Nine-month-old, female Angus that sustained a compound fracture of the third and fourth metatarsal six weeks previous. Treatment has consisted of a plaster cast. Radiographically, there is a transverse fracture of the third and fourth metatarsal and lateral displacement of the distal fragment. Marked periosteal reaction is noted on both the proximal and distal fragments, but callus is lacking at the fracture site. There is lysis of the ends of the fragments with rounding off of the ends. Diagnosis: Nonunion fracture with osteomyelitis.

one female (5.3%). A summary of the distribution of joints affected, age of the animals, and the results of the follow-up histories of these animals is shown (Table 4). The breed distribution included five Charolais, all with coxofemoral joint involvements (Fig. 8), five Herefords, five Shorthorns, three Angus, and one Holstein.

The history was usually one of a progressive lameness. Three had an intermittent lameness. Ten were of unknown duration, one was of three weeks, and the remaining eight were observed lame at least three months prior to admittance. Among the most commonly reported clinical findings were muscle atrophy, joint crepitations, ataxia and soft tissue swelling.

The most consistent radiographic finding was new bone proliferation in and around the affected joints (Fig. 9). New bone formation at areas where ligaments attach suggestive of ligament ruptures were observed in six cases, including three in the stifle and three involving the plantar ligament of the tarsus. Ankylosis of the joint was observed in three animals (Fig. 10), joint mice in five (Fig. 11), and decreased joint space in four animals. One animal was returned to normal activity, four to partial activity, primarily for semen collection, eleven were sent to slaughter, and three follow-up histories were not obtained. In situations where cortisone therapy was given little if any clinical improvement was noted.

E. *Other Diagnosis*

This group included 34 animals (14 females and 20 males). This group was further subdivided into those conditions having radiographic evidence of disease and those conditions not having any radiographic signs of disease. The number of cases and follow-up history of the conditions with radiographic signs are presented (Table 5). Of the developmental conditions, one medially luxating patella was successfully operated on by performing a medial desmotomy. Resection of the branches of the tibial nerve innervating the gastrocnemius muscle allowed the functional return of one animal with spastic syndrome. Although this animal (female) returned to a breeding herd, reduced rate of growth, muscle atrophy, and shortening of the leg were present.

The 7-month-old female animal with osteochondritis of the femoral head was presented with a history of lameness of three months' duration. This heifer had left gluteal muscle atrophy and was presented with a weight bearing lameness. A femoral head ostectomy was performed and the animal began to use the limb. However, she fell three weeks later and fractured the contralateral femur.

Traumatic dislocations of the tarsus (Fig. 12) were treated by casting of the involved leg with plaster. In two of three cases this therapy was successful and the animals returned to normal activity.

All four of the animals with infectious periostitis (not involving a joint) recovered following antibiotic therapy. Only three of these cases, probably as a sequela to foot rot, had involvement of the periosteum of the phalanges. However, joint surfaces were not involved (Fig. 3). The fourth animal had sustained a puncture wound of the distal tibial area.

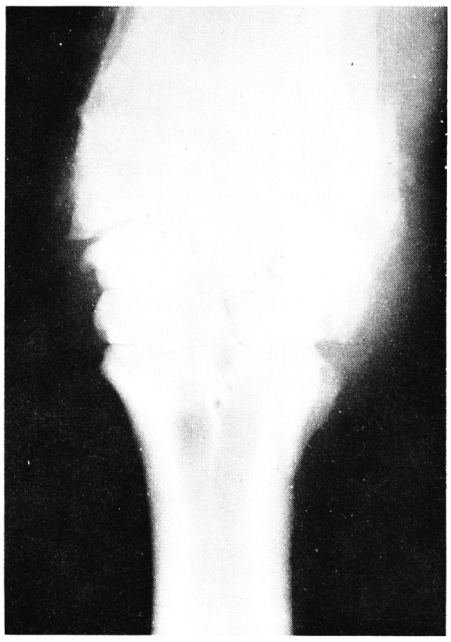


Figure 7. A. P. radiograph of left carpus. Two-year-old, male Angus hit by a car. Radiographically there was a distal radial physeal fracture with medial displacement of the distal radial epiphysis. Five months after treatment with plaster cast there is good callus formation at the fracture site with good alignment. Some degenerative joint disease has developed subsequent to the healing fracture, but the animal was able to get around adequately and serve cows. Diagnosis: Healed fracture of distal radius (physeal).

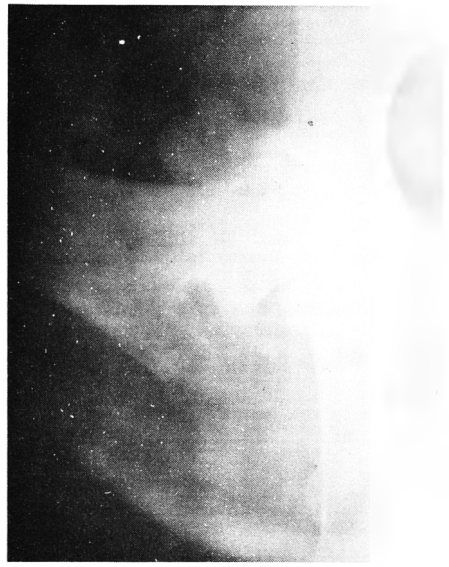


Figure 8. V. D. oblique radiograph of the right coxofemoral joint. Five-year-old, male Charolais with lameness of several months duration of the right rear leg. Radiographically, there is periarticular new bone formation particularly on the cranial rim of the acetabulum. The joint space is somewhat irregular. Diagnosis: Degenerative joint disease, coxofemoral joint.

One of the two cases with osteomyelitis also had a chip fracture of the proximal metacarpal bone resulting in sequestration (Fig. 13). The sequestra was removed surgically and both animals returned to normal activity.

Most of the animals that were lame but did not show radiographic evidence of disease were those animals with involvement of muscles, nerves or connective tissue of the limbs. A few animals with primarily systemic disease had been radiographed because of either edematous swelling of the extremities or apparent lameness associated with weakness.

Discussion

Septic arthritis was characterized by a clinical history of pain, swelling and often the presence of purulent material. The most consistent radiographic finding was new bone proliferation on the margins of the joints. Present observations suggest that severe changes in the joint can be caused by species of *Corynebacterium, Streptococcus, Proteus* or *E. coli.*

Table 5

Summary of Other Diagnoses in Lame Cattle With Radiographic Lesions

Diagnostic Categories	Number of Cases	Known Outcome			
		Normal	Necropsy	Slaughtered	Unknown
Developmental					
Achrondroplasia	2				
Luxated Patella	3	-	-	-	2
Spastic Paresis	2	1	2	-	-
Osteochondritis		1	-	1	-
femoral head	1				
Traumatic		-	1	-	-
Dislocation,					
shoulder	1				
Dislocation,		-	1	-	-
coxofemoral	2	-	1	1	-
Dislocation,					
tarsus	3	2	1	-	-
Periostitis,					
infectious	4	4	-	-	-
Osteoymelitis	2	2	-	-	-

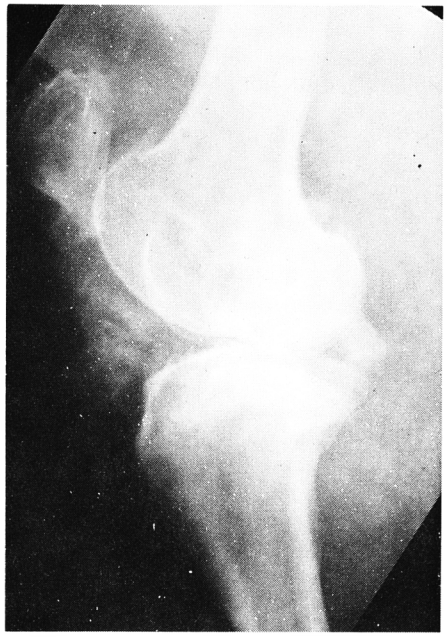


Figure 9. Lateral radiograph of right stifle. Nine-year-old, male Hereford with lameness of several months duration and unable to serve cows. Radiographically, there is severe mineralization within the joint as well as marked periarticular changes of the femur, patella, and tibia. Diagnosis: Degenerative joint disease, stifle joint.

Figure 10. Lateral radiograph of right hock. Seven-year-old, male Shorthorn with slight lameness and straight rear legs. Radiographically, there is almost total obliteration of the intertarsal joints as well as the tarsal metatarsal joint. There is fusion of the second metatarsal to tarsal bones. These joints appear to be ankylosed. Diagnosis: Degenerative joint disease with ankylosis, tarsal joint.

The importance of selecting proper therapy may be seen by examining the data on percent recovery of animals. However, where phalangeal septic arthritis was present, a 36% recovery rate was effected in animals receiving only conservative treatment, while 100% of the animals with follow-up histories recovered following amputation of the claw. The 36.4% recovery of animals with septic arthritis of other joints suggests that a guarded prognosis should be given when animals are encountered with septic involvement of joints other than the interphalangeal joints.

The 78% recovery rate in animals with fractures of the metatarsus, metacarpus, radius or ulna suggests that a favorable prognosis may be given in the majority of cases. Attention must be given to adequate immobilization usually utilizing plaster casts. The high incidence of recovery from fracture in the younger animal in this study could indicate that age was a favorable factor. When fractures involving proximal limb bones are encountered, the prognosis should be guarded due to anatomical complications of surgical exposure, immobilization and secondary problems.

Degenerative joint disease is not only a disease of the aged animals since almost 50% of the animals in this study were under 3½ years of age. The occurrence of coxofemoral degenerative joint disease in all five of the Charolais bulls might suggest the presence of a breed predisposition to this condition. Regardless of the age of the animal or joint involved, the prognosis should be grave for recovery of normal activity in chronic osteoarthritic conditions, since there is no effective treatment. Limited activity and good

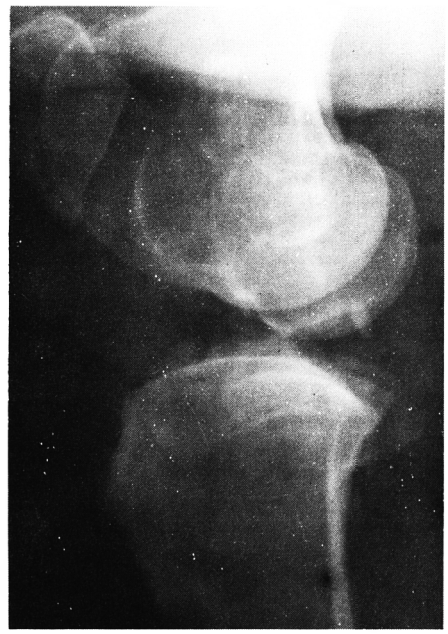


Figure 11. Lateral radiograph of right stifle. Seven-year-old, male Shorthorn with lameness of the right rear leg for three months. Animal would walk normal for a few steps, then would appear to suddenly lock the joint. Radiographically, there is roughening of articular surfaces particularly the tibia. A joint mouse can be visualized in the caudal aspect of the joint as well as a defect in the outline of the lateral condyle of the femur. Diagnosis: Chip fracture (joint mouse) of lateral condyle of femur with developing degenerative joint disease, stifle joint.

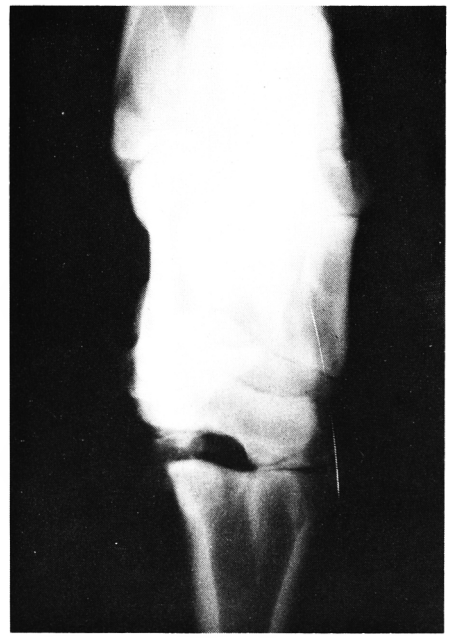
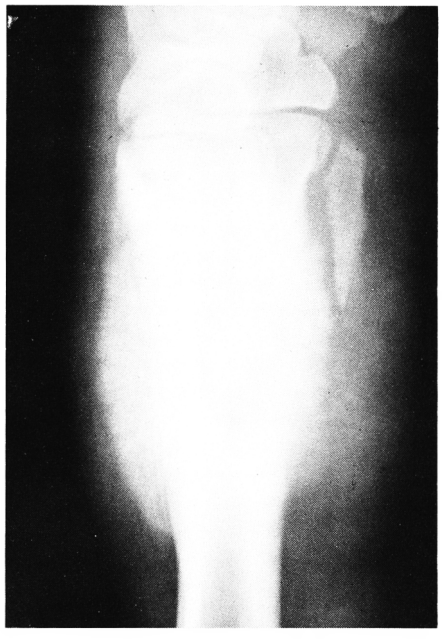


Figure 12. Lateral (A) and A. P. (B) radiographs of left tarsus. Four-year-old, female Holstein hit by an automobile and carrying the left rear leg. Radiographically, there is a dislocation of the tarsometatarsal joint with displacement of the fused second and third tarsal bone to the cranial surface of the trochlea of the tibiotarsal bone. Diagnosis: Tarsometatarsal dislocation.



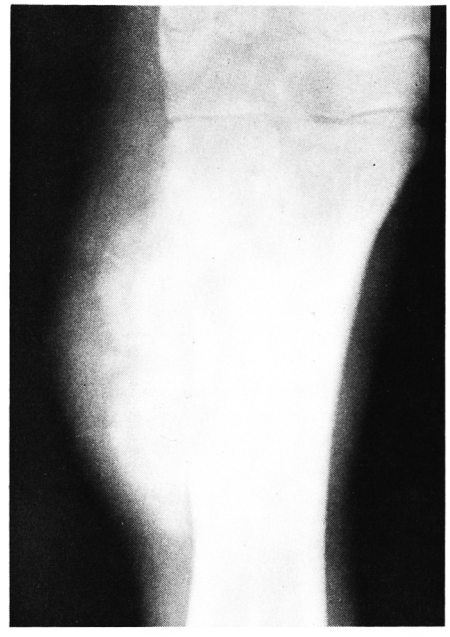


Figure 13. Lateral (A) and A. P. (B) radiographs of the proximal right metacarpal region. Nine-month-old, female Holstein that was injured three months previously just below the right carpus. Six weeks later a large swelling of the area and a fistulous tract developed. Radiographically, there is severe periosteal reaction on the lateral aspect of the proximal cannon (third and fourth metacarpals). There is lysis of the cortex of the cannon under the central area of the periosteal reaction. A dense piece of bone can be visualized within the lytic area. Diagnosis: Sequestration with osteomyelitis.

management may prolong the usefulness of a valuable animal, especially for a bull that may be used for semen collection.

Summary

A total of 102 cases of lameness in cattle that were radiographed in the Purdue University Veterinary Clinic (1965-67) were reviewed. The history, clinical and radiological findings, treatment and prognosis are discussed. Fifty-nine percent of all cases occurred in male animals and forty-one percent were in females.

The foreleg was involved in 30% of the cases, while the rear leg was involved in 66% of the cases. In 34% of all cases the lesion was confined to the digits or fetlock joint, while the distal limb (metatarsal,

metacarpal, carpus or tarsus) was involved in 4%. In 30% of the animals the lesions were confined to the proximal aspect of the limb including the pelvis. General leg involvement was observed in 8% of the animals. Radiographic abnormalities were noted in 85% of the animals.

The primary diagnoses were divided into: septic arthritis 29.5%, fractures 18.6%, osteoarthritis 18.6% and other 33.3%. The prognosis of interphalangeal septic arthritis treated by amputation of the phalanx was favorable in all cases. For septic arthritic conditions involving other joints the prognosis was guarded. Favorable prognosis was generally given for long fractures of the distal limb treated by casting, but guarded for proximal limb fractures. An unfavorable prognosis was given for all cases of osteoarthritis.

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