

penicillin in an attempt to trace it. Immediately after the injection, blue fluid appeared on the wound surface proving that the tarso-metatarsal synovial sac had been opened. The wound was insufflated with sulfanilamide and bandaged. The same treatment was continued for 9 days, or until May 2. On April 24, the swelling around the joint was greatly reduced and on April 28, an unsuccessful attempt was made to close the joint capsule with metal sutures. On April 30, synovial fluid ran out of the needle when it was inserted into the synovial sac to inject penicillin, indicating that it had closed. On May 2, the temperature rose to 103.6° F., and a hard swelling appeared on the posterior surface of the tarsal joint. Synovial fluid again appeared on the surface of the wound. Boric acid and air-slaked lime powder (equal parts) was now substituted for sulfanilamide during the remainder of the treatment. The next day the temperature was 103.2° F. Sulfanilamide was given per orum for 5 days and the temperature dropped on the third day. On May 5, 2 cc of fluid were withdrawn from a fluctuating area in the center of the swelling posterior to the wound. One hundred thousand O.U. of penicillin suspended in cod liver oil were injected into the cavity from which the fluid was withdrawn. The fluid was taken to the bacteriology laboratory, where it was cultured and proved to be negative for microorganisms. On May 7, synovial fluid again oozed from the wound. On May 12, synovial fluid appeared on the wound surface for the third and last time, since the tarso-metatarsal sac had closed first on April 30. On May 24, the horse was discharged with instructions to apply boric acid and air-slaked lime powder daily. According to the local veterinarians the progress was satisfactory and on Sept. 9, one of the authors (Arnold) had an occasion to see the horse. The wound had healed well with the exception of two areas of exuberant granulations. The owner credited the occurrence of granulation tissue to hogs which he had seen bite the wound when the horse was lying down. The local veterinarians were going to remove the exuberant granulation as soon as the fly

season was over. The tarsal joint was somewhat thickened and the horse dragged the leg a little when walking; however, no disturbance of gait could be noticed while running in the pasture. The owner had several other saddle horses, and this horse could out run any of them when the horses ran from one part of the pasture to another. The owner was well satisfied with the results and intended to break the horse to ride after the removal of the exuberant granulation tissue.

In conclusion, it cannot be stressed too strongly that this is only one case, and that more cases would have to be treated in this manner before an evaluation could be made of repeated injections of penicillin in the joint cavity where the synovial sac has been opened. Also the writers were aided in this case by the skillful and prompt care given by the local veterinarians and the quiet disposition of the patient which permitted thorough treatment. Because of the cost of the number of times a veterinarian would have to visit the patient, this therapy would not be economical unless the horse had a high value as a breeding animal or was of great sentimental value to the owner.

—J. P. Arnold, I.S.C., '41 and
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Granuloma and Amputation of a Claw.

A Shorthorn cow, aged 2 years, was admitted to Stange Memorial Clinic Nov. 7, 1947. The animal was depressed, emaciated, weak and in a very debilitated condition. Examination of the animal revealed the presence of a jagged wound over the anterior medial surface of the pastern area of the left hind leg. There was extreme swelling over the pastern, fetlock, and extending proximally up the leg. The cow was unable to bear any weight on the afflicted leg, and the area was very painful as evidenced by flinching upon palpation of the swelling.

It was learned that the wound over the pastern was the result of a wire cut. Since the patient was in poor condition, the owner desired information regarding the possibility of successful treatment. It was decided to X-ray the wound to determine

if there was any joint involvement. X-ray examination on Nov. 7 revealed a granuloma with no evidence of suppurative arthritis.

The following day the cow was cast and placed on the operating table in a right lateral recumbent position, and the area around the wound was shaved, defatted with ether, and painted with a 7 percent tincture of iodine. A 2 percent procaine solution was infiltrated into the tissues around the granuloma. An incision was then made entirely around the exuberant granulation tissue and this tissue was removed from the leg. A triangular section of skin was removed from the ventral edge of the lesion to provide drainage. Ferrous subsulfate was sprinkled into the wound and on to the sterile surgical packs which were placed in the wound. These packs were bandaged tightly in place to control the hemorrhage by pressure.

Sulfathiazole, 330 gr. in 500 cc of sterile water, was given intravenously. Another 330 gr. of sulfathiazole was given in a No. 10 capsule, per orum. The animal was then released and led back to her stall. A sample of material from the granuloma was taken with a sterile cotton swab and sent to the laboratory for bacteriological examination.

November 9, the pressure packs were removed and a bandage of sulfanilamide and urea was placed on the leg. The animal was quite depressed at this time and had to be forced to her feet.

The bandage was again removed from the left hind foot on Nov. 10, and the foot was soaked in a phenol formalin solution for 20 min. This solution was prepared by adding 1 oz. of phenol formalin to every gal. of warm water used. The foot was then dried and a sulfanilamide-urea bandage placed over the wound. 480 gr. of sulfathiazole was administered per orum in 2 doses. The bacteriological report was received and *Corynebacterium pyogenes*, and *Pasteurella multocida* were isolated from the tissues.

Only the 480 gr. of sulfathiazole were administered in 2 doses the following day. On Nov. 12 the bandage was removed and the foot soaked for 20 min. in phenol formalin solution. The sulfanilamide-urea

pack was replaced and the 480 gr. of sulfathiazole was administered per orum. The animal was making no improvement and the temperature never was less than 104° F.

November 15, the cow was restrained on the operating table and the bandage was removed from the left hind foot. Most of the necrotic tissue in the wound was removed with a scalpel. An incision was made between the claws, turning medially at the articulation of the first phalanx. A small flap of healthy skin which remained on the medial claw was loosened from the subcutaneous tissue by blunt dissection, and the medial claw was removed by sawing ventral-medially through the first phalanx.



Granuloma of left rear pastern area.

Upon removal of the medial claw an abscess containing much pus and necrotic material was found extending proximally along the flexor tendon sheath. The skin and subcutis were incised at the proximal extent of the abscessed area, and a Bipp saturated seton was placed in the excavation. The surface of the wounds were covered with Bipp and sterile gauze packs. The wounds were then bandaged securely to control the hemorrhage. 1,000 cc of a 50 percent dextrose solution were administered via the jugular vein. The animal

was then released and permitted to return to her stall.

The next day the cow was again restrained on the table and the bandage was removed from the foot. A new seton saturated with Bipp was reinserted into the abscess. A sulfanilamide and urea pack was placed over the wound and the foot tightly bandaged with gauze and tape. 500 cc of 50 percent glucose solution was given intravenously via the jugular vein. The animal showed marked improvement.

No treatment was undertaken on Nov. 17, and the animal was discharged. The owner was given bandages and dressing powder and instructed as to aftercare, as he did not consider the animal of enough value to incur further expense of treatment at the clinic.

—A. Neumann, '49

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Lacerated Teat and Mastitis in a Bovine. On Oct. 25, 1947, a 4-year old Holstein cow in fair condition was admitted to Stange Memorial Clinic.

No definite history could be obtained at the time. The patient was brought to the clinic by a trucker who could give no history. A lacerated wound was present on the left front quarter of the udder, extending into the teat sinus on the anterior medial side of the teat. The left rear and left front quarters of the udder were considerably enlarged and swollen. It was immediately decided to use surgical methods in the treatment of the lacerated teat.

On Oct. 3, the patient was cast and placed on the operating table in a left lateral recumbent position. The udder was washed with soap and water, then bathed in a solution of 200 p.p.m. of chlorine in water. The teat orifices were painted with 7 percent tincture of iodine, and milk samples were taken from each quarter for bacteriological examination.

The area around the wound was defatted with ether and painted with 7 percent tincture of iodine. Procaine hydrochloride, 2 percent, was infiltrated at the base of the teat. A teat tube was then inserted into the left front quarter. The laceration

was freshened by scraping with a small scalpel. Adhesive tape was wrapped around the teat in such a manner as to bring both edges of the laceration in close contact. Fifty thousand O. U. of penicillin were injected into the left rear quarter. At that time 60 gms. of sulfanilamide were given orally to the patient. An ointment containing 5 percent sulfathiazole was applied to several wounds of the skin about the udder. Later that day an additional 20 gms. of sulfanilamide was given per orum to establish a high concentration of the sulfa drug in the animal.

The following day, another teat tube was inserted in the left front teat. The cow was then milked. After milking, the dressing on that teat was reinforced with tape, and 50,000 O.U. of penicillin in saline was administered via the teat tube. One No. 10 capsule of sulfanilamide was administered orally.

On October 5, and 6, the same treatment was continued. There was no rise in temperature noted and the condition of the left rear quarter remained the same.

The bandage was removed from the left front teat on Oct. 7, and the teat was bathed for 10 min. in 200 p.p.m. chlorine solution. The pressure necessary to remove the milk had separated the wound edges and a milk fistula was present. The sulfanilamide therapy was continued.

For the next 5 days, the quarters were milked and the udder seemed to be improving. More milk was received from the affected quarters, and they had become soft and pliable. On Oct. 15, a milk sample taken from the left front quarter showed some unidentified streptococcus organisms present. The milking was stopped at the time, and no further treatment was given as the owner wanted the cow dried up so that he could take her to slaughter.

Three days later the cow's temperature rose from 101.5° F. to 103.5° F. A copious pustular discharge was noted dripping from the left front teat orifice. The left front quarter was milked out and a milk sample collected for bacteriological examination. *Streptococcus dysgalactiae* in the left front and *Escherichia coli* in the