1950

Intramedullary Pinning of a Fractured Humerus in a Dog

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Intramedullary Pinning of a Fractured Humerus in a Dog. A 4½-year-old male Cocker Spaniel was admitted to the Stange Memorial Clinic on Oct. 17, 1949, with a history of having its left front leg broken one day previously, in some undetermined manner. The dog was lame on that limb and evidenced pain when palpated. Swelling and crepitations were felt at the distal end of the left humerus and proximal ends of the radius and ulna. The entire joint region was distorted. Fluoroscopic examination revealed clean fractures of both humeral condyles from the shaft of the humerus, with their displacement to each side. The shaft, under tension of the extensor muscles, was pulled ventrally to a position where it rested upon the dorsal aspect of the olecranon process, immobilizing the joint.

Later in the day, the patient was given pentobarbital sodium intravenously, to effect, and surgical anesthesia produced. The left forelimb was shaved from midway up the humerus to a point midway down the radius. This area was cleaned with soap, defatted with ether, and sprayed with 70 percent ethyl alcohol. The dog was then placed upon the fluoroscope table in order that subsequent surgical manipulations could be checked as the operation progressed.

Steady traction was then instituted to overcome the tension of the extensor muscles. When the limb was stretched enough so that the shaft of the humerus was drawn away from the olecranon process, and the separated condyles could be manipulated freely, the fixation process was started. A round stainless steel pin, 3/32 in. in diameter, with a three-sided point, was started through the skin on the lateral aspect of the joint by means of a Jacob’s hand-drill. The pin was then driven through the lateral condyle, from laterad to mediad, when the condyle was properly positioned. The medial condyle was then brought into proper relationship to the lateral condyle, and the pin drilled into the medial condyle to maintain the fixed relationship of the two.

The fixed condyles were then properly aligned with the shaft of the humerus. A second stainless steel pin was then started at the ventro-lateral aspect of the joint, drilled into and through the lateral condyle, and continued on into the medullary cavity of the shaft of the humerus, to fix the lateral condyle in normal position. Similarly, a third pin was inserted ventro-medially and continued through the medial condyle on into the shaft of the humerus, placing that condyle in correct apposition.

The protruding shafts of all the pins were then cut so as to leave approximately ½ in. of each pin projecting from the bones at the points of insertion, to facilitate their later removal. A sterile gauze pad was then taped in place around the joint.

The patient was then returned to his kennel, laid upon a wooden platform there-in, and covered with a blanket to minimize the loss of body heat which usually accompanies barbiturate anesthesia.

On the following morning, the patient was conscious and exhibiting signs of pain. A sedative dose of ½ gr. of morphine sulfate was administered. The dog was more alert and free of pain within a few days, and became increasingly active, though he continued to favor the injured limb. On the fifth day following surgery, the dressing was removed and a dry dressing applied. Succeeding days brought continued improvement in his movements, with the gradual placing of his weight upon the fractured leg. The bandage was permanently removed on Oct. 31, and the area cleaned of caked matter adhering to the skin. The pins were visible in place, with the open wounds about them looking clean and healthy.

On Nov. 1, the fifteenth day following surgery, a radiographic examination of the region was made. The report returned was as follows: “Multiple fractures of the distal end of the left humerus, involving the humero-radial articulation, with practically no healing to date.” Palpation of the region of the fracture at this time revealed hard swellings which were considered to be calluses. The findings of both examinations could be reconciled by considering the fact that if a
callus was present, but no bone salts were yet deposited therein, that callus would not be visible to normal radiological examination.

On the following day, the dog favored the injured leg considerably and evidenced pain in the affected region, probably as a result of the manipulation of the limb during the filming of the x-rays. He remained in good spirits however, and was easily handled.

On Nov. 9, some atrophy of the muscles of the left scapular region was noted. The joint was still immobilized by the pins and attendant swelling. The dog was given a sedative dose of 1 gr. of seconal, and manually restrained upon the operating table. The areas around the protruding portions of the pins were cleaned, defatted with ether, and thoroughly sprayed with 50 percent isopropyl alcohol. The three pins were then removed, using routine surgical procedures. The patient was discharged the following day. Upon departure, he was observed to be making some use of the affected limb.

On Jan. 19, 1950, three months from the patient’s original entry on the clinical records, the owner was contacted by telephone and asked about the present condition of the injured limb. He reported that he was completely satisfied with the healing process which had occurred. There was slight lameness present for a short period after the dog returned home. The pet would stand upon its hindlegs and place the unaffected limb and place the unaffected limb free from contact. Now the dog is very active and has complete use of the limb. When called, he runs to the owner and jumps up to him, planting both forelegs solidly against him. A slight swelling still is noticeable around the joint, but its movement is completely uninhibited.

Thomas Flynn, ’50

Home Made Incubator

Eugene Whitford, V.M. 2

Robert R. Dappen, senior veterinary student at I.S.C. has used his ingenuity to advantage in foreseeing future use of an incubator he has designed and built. Dappen has been a student assistant for the Department of Veterinary Hygiene during the past four years and plans to use the incubator to aid him in culturing bacteriological media when he begins his veterinary practice.

The editorial staff of the I.S.C. Veterinarian believed other students and veterinarians would be interested in reviewing construction details of such a project. Overall measurements of the incubator cabinet are as follows: height 36 in.; width 27 in.; and depth 23 in. The interior measurements are: height 30 in.; width 21 in.; and depth 15 in. Two shelves allow space for eight 5 in. x 10 in. test tube trays. The builder allowed 3 in. between the inner and outer walls so as to accommodate 30 cu. ft. of rock wool insulation. There are two doors for the incubator, an outer panel door and an inside door fitted with single strength plate glass. The cabinet is lined with fireproof masonite board. Dappen resorted to a wire coil heating element which is controlled by a water thermostat.

Forty-five hours were required to complete the project and a total expenditure of about $21.00 covered the following bill of materials.

Spring, 1950