

Quadriplegia

Notes on six cases of quadriplegia in birds

3668 Northern Goshawk. Hatch-year. Male. Standing on arrival; had classic flaccid paralyzed wing. Empty crop. Too quiet—brain damage certain but no special signs. Next day (**Day 2**) had fallen on side, unable to stand. Some dyspnea. Hand-fed, gave .80 Dexamethazone. (today I would not use Dex but years ago it was considered *de rigueur*.)

Day 3. Hardly moving at all. Day 4 legs “frozen” absolutely stiff, and bird immovable except for his eyes! I Could easily pick up this 520g accipiter with one hand; the poor creature was now like a stiff corpse. Euthanasia.

Post-mortem = lung congestion. Impacted cloaca—lg gritty whitish calculus, very hard, and bowel overfilled too. This is clear evidence of a fracture of the spine. For some reason we did not search for the spinal fracture, though there must have been severe trauma close to the head.

5688 Great Blue Heron, after second year, male. Found in water, unmoving. No argument when handled. Now in back of truck, holds head up, no other movement noted as I lifted the bird out. The legs fell straight down, dangling flaccidly with the cloaca dribbling,



indicating at *least* paraplegia from a fracture of the spine somewhere. Euthanasia. Noted that I had felt no movement in the wings in the time I carried the heron from the road to the clinic. Certainly paraplegic— but was he also quadriplegic? Six X-rays of body and neck did not show that fracture or dislocation, yet he clearly had trauma very close to his skull, severe enough to make him a quadriplegic.

PM= internals lovely, perfect health, no trauma signs anywhere; male, greyish testes. No sharp edges felt or seen on spine in body cavity. Dissection of neck —no bruises, one joint rather more mobile than expected (5-6) but no other signs. At the base of the skull close to the ear, slightly to right of spine there was a collection of blood that seems to be visible on X-Ray. This blood ran out from behind when muscle was cut there, but not on the opposite side. Was that enough pressure to cause paralysis? Was there a fracture after all? What frustration! We continued this examination of the corpse for six hours before we gave up.

In all, we took five X-rays of the heron's neck and a clear X-ray of the body. In retrospect I think the spinal problem was right at the head where the large collection of blood was between C1 and C2. There might have not been an actual fracture; perhaps the pressure of the bleeding was sufficient to wreck the cord. There was no retained shot. Most likely cause: hitting a power wire. We have 20 Great Blues admitted after hitting a power-wire.

POST HOC. of 359 Great Blue Herons, 179 had X-rays here. Of those where the head was clearly illustrated, there was confusion. Some really looked as if the highest cervical bone was not only broken, but even appeared to have the atlas completely detached from the skull, yet those herons were not damaged spinally at all. # 5688 shows a collection of blood at the base of the skull, but it is only recognizable as such in retrospect because we opened the neck and found the haematoma there. I am fairly certain that it is nearly impossible to identify the actual site of a high cervical fracture. Their neck anatomy is puzzling.

4242 House Sparrow, hatch-year, female. Found lying on chest, as stiff as a corpse; unusual. Practically catatonic. Gave Dexamethazone but died very soon after. Plumage soiled as if on breast/back/sides for a while, but well-fleshed, so injured within the day.

PM= blood covered lungs. Pale liver. Again we did not search specifically for the spinal fracture. I could kick myself.

5479 Long-eared Owl, hatch-year, male. Brought late afternoon, very odd. Almost as if stuffed. Legs tight to body, could be pulled out but very tense, no response; wings tight, only slight wing response on being lowered suddenly (very long wings, air picks up tips anyway). This test of motor ability I call the “parachute flap” because it nearly always creates an automatic response: as the body in hand is raised and lowered suddenly, the wings “fly” and you know that the motor part of the brachial nerve system is working.) Small am't blood on beaktip, probably from starting to feed on prey rather than coming from inside the mouth.

Eyes partly dilated, almost no response to halogen light into them— almost fully mydriatic. When set down, again like stuffed toy, nearly fell over. Set gently into a pine-needle “nest” to keep him upright. A faint hiss was heard once. Died soon after.

PM= healthy owl, small amount of body fat. Greyish small testes. Skull nearly translucent, no damage seen on or through it. Some bloodied tissues at base of skull?

Finally skinned the Long-ear’s breast. Aha! Left pectoral from shoulder to abdomen was severely bruised, bloodied by clear punctures from a predator’s talons with a crunch being taken out of the top of shoulder, mincing top of coracoid and possibly top of scapula as well. Probably spine damaged too. Depth and pattern of punctures, not quite touching sternum, suggested single grab of an owl, possibly a Barred Owl, a common resident in this area.

5672 American Robin, after-hatch year, female. Only movement possible was head and a bit of neck. Dark head plumage, bright breast but large hot brood-patch. Only movement below neck was tail reflex. (This uncontrolled nerve response has been demonstrated before in other spinal fractures, see article.) Dexamethazone but of course no change. Four hours later, euthanasia.

PM= collection of dark blood spilled suddenly from right side of base of brain just where it seemed that the cord is exposed at the atlas. In people a collection of blood in the base of the brain can cause quadriplegia too.

This X-ray of Saw-whet Owl # 6728 after death, partly skinned, is interesting but fails to pinpoint the site of complete atlas detachment



6728 Northern Saw-whet Owl, second year, female. Found at Air Base under tree this am. Thin, weak, not v responsive, poor balance. No parachute flap but think no wing or leg damage. In hand, eyes nearly shut, head sagged alarmingly. Placed in pine-needle nest for support, fed part of mouse by me, accepted, swallowed; then given a shelter; slept. Fed her again later. Can stand but when alarmed falls over; cannot keep balance when trying to foot a piece of mouse at the beak.

Day 2: worse. Head droops loosely to feet, almost no balance. Coax-fed often. Keeps falling out of nestbox, sometimes even on her back, weak, helpless. This curious weakness is not constant; rarely, she specks, stiffens to swallow or when slightly alarmed, and head is held up then before slowly drooping to the ground. Has diarrhea. At night kept her near my bed for frequent repositioning.

Day 3: no improvement but stayed propped up all night.

Day 4: better; in hand, flapped wings feebly for first time. Left wing does not extend much from carpal, which is injured; under small blood mats I found ripped skin but left it, added DMSO for possible pain. Pushfed a whole mouse except skin--busy day! Legs not contracting much but can, though weakly.

Day 5: this bird's symptoms are so unusual. Limp and semi-paralyzed part of the time, but can move everything sometimes. Cloaca functioning normally, not as if overflow. Recognizes, accepts, swallows food normally except for that head drooping. Gained 10 g to 65g, but still very thin. Euthanasia.

PM= amazing. Internally normal— ovary white with large even follicles. Liver fine, stomach very full. But lungs rimmed with blood (probably from being on her back for long periods at night.) Skinned body; undamaged, except for one carpal tip. Skull undamaged too. Neck felt grating--oh, oh--thought I had answer about C3, but discovered that base of skull had a dark collection of blood where there shouldn't be a space at all: it was on the cord, which was exposed because *the atlas was completely detached from the skull*. Ligaments, muscles held head on and spinal cord was thick, white and apparently intact. After neck bones were cleaned, we saw that blood had stained the bones down to about C4 where there was an abnormality in connection too. The only way even a single bone of the spinal column can be blood-stained is if it has been exposed to injury. Sometimes when dissection is done on the dorsum of the body, a purplish or reddish stain can be soon seen in the spinal column as the skin and a few layers of muscle are reflected away.

XR lateral view after death to view skinned neck. Like the Great Blue Heron above, I cannot read the dislocation, though I proved its presence.

For more about spinal fractures please see my article entitled *A Study of 132 Spinal Fractures*.

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