50 Years Ago in CORR

Osteoarthritis of the Hip in a Gorilla: Report of a Third Case

Robert M. Stecher MD CORR 1958;12:307–314

In the 1950s, CORR published two papers on osteoarthritis in gorillas [4, 5], the second of which we highlight here. Stecher [4] noted the three cases arose from a survey of 155 gorilla skeletons, and all were thought to be young or middle-aged, so the disease was not infrequent given the typical age-dependency of osteoarthritis. Despite the advanced disease, these individuals obviously survived, a point possibly related to the fact that gorillas are vegetarian and do not have to chase prey for food. Further, gorillas have no natural enemies.

The first two cases [5] had relatively normal acetabula despite the arthrosis, but had deformed femurs with reduced neck-shaft angles and flattened and broadened femoral heads (i.e., coxae planae). The authors concluded the diagnosis was most likely similar to Legg-Calvé-Perthes disease in humans. In the third case [4] the acetabulum was deficient, with a CE angle of only 20° compared to 35° on the unaffected side. Thus, the author speculated this was a case of congenital dysplasia. This being the case, it appears primates have developmental diseases analogous to those in humans.

This is not entirely unexpected: osteoarthritis has been well-known in many animal species, including dogs, horses, cattle, goats, pigs, and koala bears, among others. In many of these cases, the arthrosis appears secondary to predisposing causes, such as joint

Fig. 1 Acetabula. Left is normal. Right is enlarged, surrounded by new bone formation which also extends across the fossa and closes the acetabular notch. (Reprinted with permission from Stecher RM. Osteoarthritis of the hip in a gorilla: report of a third case. *Clin Orthop Relat Res.* 1958;12:307–314.)

subluxation (most notably in large dog breeds).

In the first of the two articles published in CORR, Taylor et al. [5] stated arthrosis in one of the three cases had been noted in a purchase from 1899, and that the diagnosis had been “rheumatoid arthritis.” The history of the terminology of arthrosis is fascinating in its own right, not to mention confusing, and that diagnosis was common terminology at the time, although for characteristics of the disease we now call osteoarthritis.

The term “rheumatoid arthritis” had, in fact, been suggested by AB Garrod in 1859 in his book, “The Nature and Treatment of Gout and Rheumatic Gout” [2]. He did not even use the term “arthritis” in his title. “Arthritis,” of course, comes from two Greek roots: arthros, meaning joint, and it is, referring to inflammation. Phaer, in Regime Lyfe, referred to arthritis in 1546 (“Paine in the joints is generally called arthritis”). Rheumatism crept into the lexicon about the same time, although the word

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originally referred to a flow or catarrh: Shylock, in Shakespeare's "Merchant of Venice," remarked to Antonio, "You that did void rheum (spit) on my beard." As late as 1860, the term had a similar meaning since J.P. Kennedy, in "Rob of the Bowl" commented, "A laugh brought the rheum from his eye down his cheek." Even later, Albbutts, in his "System of Medicine," from 1897 noted, "The rheumatic pain... (is)...attributed to rheum flowing down from the brain and settling in the affected parts." Yet, Guillaume de Baillou, in 1642 referred to rheumatism as a systemic illness and Chambers, in 1753, commented, "A light arthritis is very often called a fit of the rheumatism."

"Gout," in the title of Garrod's book, means drops, and was used by Shakespeare in MacBeth: "I see thee still; And on thy Blade, and Dugdeon, Gouts of Blood, which was not so before." Randolfus of Bocking, in the 13th C., however, used the word "drops" to suggest an arthritic process: "...gutta quam podagram vel arteticum vocant" ("...the gout which is called podagra or arthritis"). However, Andrew Boorde, physician to King Henry VIII, recognized, "All jointe illnesses are not the gout." (He also commented, "It is extremely difficult for a physician who puts too much trust in what he reads to form a proper decision from what he sees.")

Fig. 2 (Bottom, left). Anterior view of both femurs. The left one is normal. The right one shows enlargement, flattening and distal displacement of the head upon a very short neck. (Reprinted with permission from Stecher RM. Osteoarthritis of the hip in a gorilla: report of a third case. *Clin Orthop Relat Res.* 1958;12:307–314.)

The clear distinctions of osteoarthritis, rheumatoid arthritis, gout, and infectious arthritis did not occur until the late 1800s: Virchow (1869) well described what we consider osteoarthritis as a chronic process which caused joint deformity, and hence called it "arthritis deformans" [6]. Jean Martin Charcot, in his 1881 book, "On the Diseases of Old Age," did the same, but with a differing term (acute

or chronic "articular rheumatism") [1], while John Spender made the distinction in a colorfully written paper from 1889, "The Early Symptoms and the Early Treatment of Osteo-arthritis (Commonly Called Rheumatoid Arthritis)" [3]. Other authors (among them Goldthwaite and Nichols and Richardson), made similar distinctions between rheumatoid arthritis and osteoarthritis in the early 20th century.

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Thus, it is not perhaps surprising that a case of osteoarthrosis in a gorilla in 1899 might have been termed, “rheumatoid arthritis.” These cases illustrate a process that is common among humans and likely common among primates. Since osteoarthrosis is undoubtedly a final common pathway and not a disease with a single cause, it is perhaps not surprising animals would have similar processes to humans.

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