

A retrospective study of 165 cases of rupture of the canine cranial cruciate ligament

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Rupture of the cranial cruciate ligament is the most common orthopedic injury in the dog and comprises 44% of the orthopedic surgery caseload in our hospital (1). A survey of patient records was conducted, consisting of dogs that had been surgically treated by the author for rupture of the cranial cruciate ligament between December 14, 1983, and December 31, 1994.

The majority of cases were treated using the lateral retinacular imbrication technique (2), or some variation thereof (3).

In the 11-year-period under consideration, 165 cruciate repair procedures were performed on 124 dogs. The average age of these animals was 7.7 y. Eighty (65%) of these dogs were female and 44 (35%) were male. The dogs were classified as either small or large breed, based on a general dividing line of 15 kg body weight. Some records did not list the animal's weight, so a subjective classification was made based on breed description. Some small breed animals exceeded the 15 kg limit due to obesity, but they were classified in the small breed category nonetheless. Eighty dogs (65%) were classified as small and 44 (35%) as large breeds. Fifty-four (68%) of the small breed patients were female, while 26 (32%) were male. The average age of the small breed dogs was 8.7 y. Twenty-six (59%) of large breeds were female and 18 (41%) were male. Their average age was 5.8 y.

A random sampling of files from the general canine population of our practice showed a small to large breed ratio of 55% to 45% and a female to male ratio of 53% to 47%.

Between 1983 and 1990, large breed dogs made up only 22% (12/55) of cruciate surgery cases. However, from 1991 through the end of the study period, this figure more than doubled to 48% (33/69). Unfortunately, data to compare the proportion of large breed dogs in the practice's general canine population for these 2 periods are not available.

The survey found that 30% (37/124) of all patients subsequently ruptured the opposite cruciate, representing 33% of small breed and 25% of large breed patients.

Twenty-five stifles (15%) had meniscal damage that was diagnosed at the time of surgery. Seventeen were small and 8 were large breed dogs. This distribution is

virtually the same as the split between small and large breeds in the total data, indicating no increased incidence of meniscal damage in one group compared with the other.

Thirty percent of large and 11% of small breed dogs experienced some postoperative lameness. Dogs were considered to be in this category if any degree of lameness was noted by the owner more than 2 mo after surgery. The lameness was mild and intermittent in most cases, but it was severe enough to require further surgery in 6 dogs.

The next most common postoperative complication was fistulous tracts at the surgery site, which developed in 6 dogs. Four of the 6 were large breed. These tracts developed from 4 to 78 wk after surgery. All of the draining tracts resolved when the nonabsorbable suture material used in the surgery was removed.

While some authors have noted a predilection for females to suffer cruciate injury (4-6), a nearly 70:30, female:male split among small breeds in this study was surprising.

These data reinforce the presence of 2 distinct patient groups in canine cruciate injury: the small breed dog with an average age of 8.7 y and the large breed dog with an average age of 5.8 y. Literature reports of an increased frequency of cruciate injury in recent years in large breed dogs (4,5) are reflected in these data. However, cruciate injury in large dogs is not a new phenomenon; in 1965, Newfoundlands, boxers, and rottweilers were listed among the breeds having the highest incidence (1).

Our observation that one-third of all patients will subsequently tear the opposite cruciate is in line with other published data (4,6), but the number may be underestimated, because, undoubtedly, several will tear their opposite cruciate ligament after the conclusion of the study period. There may also have been animals in this group that had suffered cruciate ruptures that went undiagnosed before they were presented at a later date with acute cruciate injury in the opposite leg.

Interpretation of the data on postsurgical lameness was difficult, because the degree of lameness was not quantified in most cases. The reporting process in compiling this figure was inexact, so the numbers may be underestimated. Many of the patients were followed up with a telephone call and some were assessed during a subsequent visit to the clinic, while others were not specifically followed up. The conclusions that can safely be drawn from these data are that some animals will

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experience varying degrees of lameness after surgery and that this problem is more frequent in large breed dogs. This seems to be a consistent finding in the literature, regardless of the surgical technique used (3,7).

Concurrent meniscal injury has long been associated with cruciate rupture. Published estimates of the frequency of meniscal damage range from less than 10% to over 70%, with a higher incidence in large breed dogs (6-9). Our study identified 15% of cases with meniscal damage, but no demonstrable difference in frequency between large and small breeds.

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BOOK REVIEW

REVUE DE LIVRE

Morley RS. *Scientific and Technical Review: Risk Analysis, Animal Health and Trade*, vol. 12, no. 4. Office International des Épizooties, Paris, 1993. ISBN 92-9044-341-3. \$40.00 US.

The stated objective of this publication is to document some of the methods currently used in risk analysis and to stimulate their further development. The emphasis of the book is on risk assessment, within the broader field of risk analysis. The book's objective is admirably achieved as a collection of papers, written by several internationally recognized authors from North and South America, Australia, New Zealand, and Europe. The review is well coordinated by R.S. Morley and includes a range of papers describing general principles, recommended nomenclature, detailed quantitative models, and specific examples of risk assessments, with a framework of risk analysis. The publication is particularly important and timely, because the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA) officially recognize risk analysis and risk assessment as important tools to facilitate fair, safe trade of agricultural products.

The review accurately reflects the current state of variability in the development and application of qualitative and quantitative risk assessments in animal health, meat hygiene, and international trade of animals and animal products. Some examples of applications described in the review include assessment of a foot and mouth disease strategy for the European Community, import of salmon meat to Australia, risk associated with international garbage from cruise ships in Alaska, and the importation of slaughter hogs into Canada. The

review also describes general models for risk assessment, contributions of macroepidemiology to risk assessment, and guidelines for the evaluation of the veterinary infrastructure of a country.

At times, the flow of the review is interrupted by differences in writing styles between papers. Unfortunately, this is unavoidable in any review consisting of independent papers from several authors. This particular publication is no worse and perhaps better in this regard than some other reviews of similar format.

One weakness and a simultaneous strength of the review is the occasional conflicting use of nomenclature between papers. The weakness is that it can make for confusing reading. However, it is also a strength because it accurately reflects the differences in opinion and the evolving nature of nomenclature currently used within this young discipline. A significant credit to the review is that it includes a paper that attempts to standardize risk analysis nomenclature and formally encourages comment back to the respective authors.

In summary, the review presents a very solid and useful description of the current tools available and the application of risk assessment and risk analysis in the field of animal health, meat hygiene, and trade. It provides interesting reading for all veterinarians and should be considered required reading for anyone working directly in the field of risk analysis.

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