A Systematic Approach to Estimating the Age of a Horse

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The examination of the upper corner incisors (UCI) is of great benefit when estimating the age of a horse. Until approximately 5 years of age the UCI will be deciduous. The shape of the UCI as a permanent tooth will progress from wider than tall (similar to a rectangle laying on its side) at 5 to 6 years to square shaped at 9–10 years. The exposed tooth changes to taller than wide (similar to a rectangle standing on end) at 14 to 15 years of age. The authors suggest that by using the UCI to first categorize the age of the horse, other historically used indicators then can be applied to further refine age estimation. Authors' address: Texas A&M University, Large Animal Medicine and Surgery, College Station, TX 77843-4475.

1. Introduction

The accuracy of aging horses by their dentition is as much of an art as a science. Recent publications[1,3] on this subject have shown that wide ranges exist in the traditionally used indicators. These indicators involve either eruption or attritional changes that occur in the incisors. When individually put to scientific scrutiny none of the eight indicators (eruption, upper corner incisor hooks, Galvayne's groove, incisor profile angle, occlusal shape of table surface, infundibular "cups," enamel ring, dental star) was deemed highly accurate.[1] However, another study[2] compared the estimated age vs. the actual age of 434 thoroughbreds examined independently by four experienced veterinarians with some interesting findings. The evaluations were made from slides and the combined accuracy ranged from 85% (horses under 5) to 55% (horses over 10).[2] In the 5 to 10 age range some degree of overestimation of age occurred, but in the 10 to 20 age range a higher percentage of underestimation occurred.[2]

The purpose of this article is to incorporate a system of categorizing horses under 20 years into age groups so the inexperienced examiner can follow a progression of assessments to estimate the age of a horse as accurately as possible. The authors have used this system to teach 2nd year through 4th year veterinary students for more than 8 years. The accuracy of this approach is constantly being evaluated by comparing the estimated age to the known age of the horse being examined. Students are taught that the goal is to be highly accurate (same year) examining the horse that is under five, accurate (within 1 year) for the horse that is five to 10, and acceptable (within 2 years) when the horse is between 10 and 15. It is reasonable to expect that predictability will diminish as age rises past 15 and any estimation of the horse over 20 years of age is, in the authors' opinion, highly inaccurate.

NOTES

COLOR

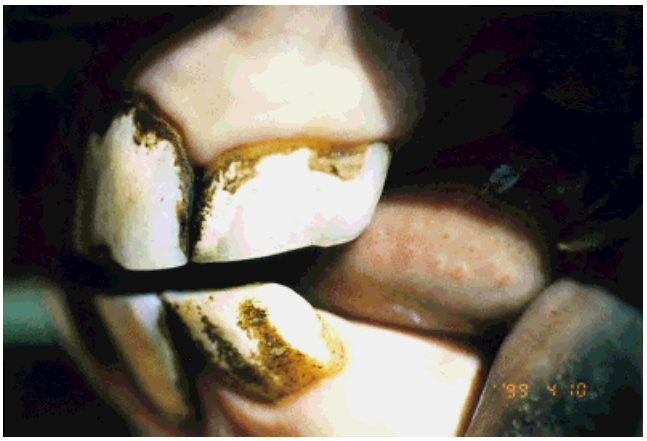

Fig. 1. Permanent upper corner incisor wider than tall (age 5–9 years).

Fig. 2. Upper corner incisor square-shaped (age 10–14 years).

Fig. 3. Upper corner incisor taller than wide (age 15 years or above).

Fig. 4. Upper central incisors taller and wider than middle (intermediate) viewed from labial surface (under 10 years old).

Fig. 5. Upper central incisors same size or slightly smaller than middle incisors (middle age; 10–15 years).

Fig. 6. Upper central incisors significantly narrower and shorter than middle incisors (older horse; usually older than 15 years).

As an essential part of a thorough dental examination, students have traditionally been taught to estimate a horse's age by using the American Association of Equine Practitioner's "Guide to Determining the Age of a Horse."[4] However, in trying to develop a priority-based approach, the authors began to notice a trend in the UCI that seemed to "ball park" the majority of horse's age. In 1995, Matthew Martin measured the UCI of 53 horses of known age. All 53 were quarter horses between the age of 5 and 20 and all measurements were made from slides. Age group 5 to 9 had an average width of 1.5 cm

(measured at gum line) and an average height of 1.15 cm (caudal border). Age group 10 to 14 had an average width of 1.35 cm and an average height of 1.45 cm. Age group 15 to 20 had an average width of 1.25 cm and an average height of 1.9 cm.

The significant change in shape of the exposed crown of this paired tooth placed the horses into one of the following age categories. (1) 5 to 9 years: UCI was wider than tall (Fig. 1); (2) 10 to 14 years: UCI was about as wide as tall (Fig. 2); (3) 15 to 20 years: UCI was taller than wide (Fig. 3). Forty-six of the 53 horses did conform to the UCI shape change so the accuracy was estimated to be 89% in this small number of horses.

With this unpublished information and the "Guide" the authors currently use the following concepts and categories to estimate age.

2. Concepts

1. The single most important tooth used to categorize the age of a horse is the UCI (labial surface).
2. The second most important tooth is the lower central incisor (LCI) (table surface).
3. All horses have a birthday on January 1.
4. The younger the horse being examined, the more critical it is to be aware of the time of year the examination is taking place. For example, a 3-year-old's incisors may look much different in February than they do in November.
5. All indicators are considered in age estimation, but the authors tend to use eruption, shape of UCI, infindibular "cups," and Galvayne's groove as the most reliable changes.
6. A percentage of horses will be "atypical" and not follow the standard rules. These horses can often be identified because the indicators fit them into more than one of the four categories. In those cases it may be helpful to average the range of the most reliable indicators to arrive at a reasonable estimate.

3. Age Categories

1. Under 5 years. The first age group to be discussed is the group age 5 and under. This age group has a deciduous UCI from 8 months to 4½ years. Eruption times of the central, middle, and corner incisors (2.5, 3.5, 4.5 years) are the primary source of information in this age group and are considered highly accurate in the general population.

2. 5 to 9 years. Age group 5 to 9 has a UCI that progressively changes from wider than tall to square. The gum line (juncture of the gum and tooth) of the UCI should be straight (flat) with no evidence of Galvayne's groove. The younger ages in this group should still have "cups" in one or more pairs of the lower incisor table surfaces, and the occlusal shape of the central incisor should be elliptical to round but not yet triangular. The upper central incisors should be taller and wider than the middle incisors when viewed from the labial surface (Fig. 4). The incisor profile angle should be near 180°.

3. 10 to 14 years. Age group 10 to 14 has a UCI that is square to slightly taller than wide in shape. Galvayne's groove should be evident but should be no further than halfway down this tooth. As the individual approaches the upper limit of this category the central incisors usually begin to appear the same size or smaller than the middle incisors from the labial surface (Fig. 5). The occlusal surface of the lower central incisor should begin to resemble a triangle in shape, and the incisor profile angle should begin to change toward a more acute angle.

4. 15 to 20 years. Age category 15 to 20 has a UCI that is taller than wide. The groove should be midway to all the way down the tooth. The occlusal surface of the lower central incisor should be from triangular to oval. The incisor profile angle in the upper limit of this group should be significantly acute. The upper central incisors commonly are significantly smaller than the middle incisors when viewed from the labial surface (Fig. 6).

4. Discussion

"The inescapable conclusion is that any claims to accuracy in age determination from dentition are fallacious."[1] While this statement may undermine the motivation of a student, it represents findings that dentition cannot exactly correlate with a horse's age. However, it is the authors' experience that by using the systematic approach presented in this article, age estimation by dentition can be learned and accuracy improved. It is always beneficial as an examining clinician to state that you are providing an estimate of age when actual evidence does not exist.

References

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