Enlarged Superficial Digital Flexor Tendons in Immature Thoroughbred Horses: Prognosis for Racing

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Enlarged superficial digital flexor tendons are not uncommonly observed in immature Thoroughbreds, and are a cause for concern amongst consignors and buyers at sale. Our data indicate that affected individuals are nearly as likely to race as their siblings, either at 2 or 3 yr of age. Although average earnings per start were less than siblings at 2 and 4 yr of age, average earnings per start were equal amongst subjects and siblings at 3 yr of age. Author’s address: Rood and Riddle Equine Hospital, 2150 Georgetown Road, Lexington, KY 40580. © 2002 AAEP.

1. Introduction

Enlargement of one or both superficial digital flexor tendons (SDF) has been a concern amongst consignors, buyers, and owners of yearling horses. Ultrasonound evaluation of affected individuals typically reveals enlargement of the SDF at various points (proximal or middle one-third, or the entire SDF) with a fairly homogeneous appearance and parallel fibers. Normal values for the cross-sectional area of the SDF in the adult horse have been reported. The purpose of this paper is to review the race records of Thoroughbreds that had been diagnosed with unilateral or bilateral unequivocally enlarged SDF as a yearling, and to compare the performance of affected individuals to their siblings.

2. Materials and Methods

From 1992 to 1998, 126 Thoroughbred yearlings underwent ultrasonographic evaluation for suspected enlargement of one or both SDF discovered during visualization or palpation of the tendons as part of a prepurchase evaluation or routine inspection. The ultrasound examination was performed in a routine manner by using a 7.5-MHz transducer with a stand-off pad. Cross-sectional and longitudinal views were obtained and recorded on thermal printer paper. The cross-sectional area of the SDF at its most affected point was measured in centimeters squared by using built-in calibration package contained in the ultrasound unit.

The produce records of the dams of the affected individuals were obtained from the Jockey Club Information System. The race records of subjects and their siblings were evaluated for age at first start and average earnings per start. Statistical comparisons between subjects and siblings were made with Wilcoxin’s signed rank test for continuous variables and McNemar’s test for categorical variables.

3. Results

Fifty-eight yearling horses had unequivocally (≥1.7 cm²) enlarged SDF. The left SDF was affected in...
33%, the right in 29%, and both were involved in 38% of cases. Twenty-nine of these yearlings with SDF ≥ 2.0 cm²; the largest cross-sectional area of an affected SDF was 2.86 cm². Of those horses with SDF ≥ 2.0 cm², the left SDF was involved in 14 (48%) of cases; the right SDF was involved in 11 (38%) cases, and both SDF were involved in 4 (14%) cases.

Of the 58 yearlings with enlarged SDF, 49 (84%) ultimately raced, whereas 95% of siblings had raced by the end of their third year. Of the 49 subjects that raced, 59% raced as 2-yr-olds, whereas 49% of raced siblings competed as 2-yr-olds. Fifty-nine percent (p = .188, not significant compared to 50%) of subjects earned less per start at 2 yr of age than siblings; however, average earnings per start were a little different (47% p = .599, not significant compared to 50%) between subjects and siblings at 3 yr of age. Sixty-nine percent (p = .041, significant compared to 50%), earned less per start at 4 when compared to siblings.

Of the 29 yearlings with one or both SDF greater than or equal to 2 cm², 4 (14%) were unraced, 13 (45%) raced at 2 yr of age, and 12 (41%) started at 3 yr of age or older. Average earnings per start were less for 62% of subjects with SDF greater than or equal to 2 cm² when compared to siblings at 2. The median difference of −$3,106 (p = .008, one sided rank sum test). The average earnings per start were less for 52% amongst subjects at 3 years of age. The median difference was −$38 (p = .427, one sided rank sum test). At 4 years, earnings per start were less for 64% for subjects with SDF compared to siblings. The median difference was −$1,787 (p = .002, one sided rank sum test).

4. Discussion
The prognosis for immature horses with thickened SDF as described in this paper appears to be favorable. The cause for enlargement of SDF in these horses is not yet known. It is possible it is a normal developmental phenomenon, or a result of pathology and faulty conformation. Histopathologic evaluation of affected SDF may shed light upon the underlying mechanism. Based on the history obtained from the owners or agents of the affected individuals, the onset of SDF enlargement appears to be insidious. However, a recent increase in the use of “walkers” to enable regimented vigorous exercise of yearlings destined for sale in the past year has lead to an increased number of “acute” SDF enlargement in our practice.

In the author’s limited experience in monitoring a few affected individuals by follow-up ultrasound, significant reduction in size, even to normal, has taken place in some, whereas others have deteriorated and SDF pathology has been a cause for temporary or permanent cessation of training. Therefore, broad recommendations regarding the prognosis of affected individuals should not be made, although as an isolated finding the prognosis appears to be favorable. Because the yearlings evaluated in this study were relatively valuable and warranted careful scrutiny, the role of pedigree and conformation in the prognosis of affected individuals should be a strong consideration.

References and Footnotes